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How Hospital Leaders Contribute to Patient Safety Through the Development of Trust

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OBJECTIVE: The aim of this study was to explore the associations between hospital management support for patient safety, registered nurses' trust in hospital management, and their overall perception of patient safety, considering aspects of safety communication as possible mediating variables.
BACKGROUND: Limited research exists regarding how key elements of a patient safety culture, that is, leadership, safety communication, and trust, are interrelated.
METHODS: This study used cross-sectional nurse survey data from 1,633 registered nurses working in 35 acute care hospitals participating in the Swiss arm of the RN4CAST (Nurse Forecasting in Europe) study.
RESULTS: A path analysis revealed that the indirect associations between "management support for patient safety" and "overall perception of patient safety" were more prominent than the direct association.
CONCLUSION: Our findings confirm that safety communication plays a partially mediating role between "management support for patient safety" and nursing professionals' assessments of patient safety. This suggests that hospital leader-unit exchanges might improve patient safety.

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Most adverse events (AEs) result not from reckless behavior by healthcare professionals but from system failures in healthcare organizations.[1,2] For instance, Reason's adapted accident causation model[2] provides a theoretical framework illustrating the dynamic multifactor flow of the occurrence of errors and AEs. In this framework, the accident sequence begins with "latent failures" due to management decisions and organizational processes. The negative consequences are transmitted along various organizational and departmental pathways to local workplaces, where they create the local condition that increase the likelihood of unsafe acts such as errors and violations of policies and procedures. Unless there are barriers in place to prevent the consequences of these unsafe acts, they lead to AEs.[2]

Current literature emphasizes safety culture as a performance-shaping factor, influencing both clinicians' safety behaviors and patient outcomes.[3] One strategy to overcome systemic defects is to develop an organizational culture in which healthcare professionals afford patient safety a high priority, that is, a safety culture.[3-6] In 2005, Kirk et al[4] described several characteristics of such a culture, including the importance of communication founded on openness; a nonblame, nonpunitive approach to incident reporting; organizational learning; proactive identification of latent threats to safety; and shared perceptions of the importance of patient safety.

Recently, awareness has increased that improving patient safety and creating a culture of safety may

depend, to a great extent, on leadership and communication in healthcare organizations. For example, root-cause analysis of sentinel events from the last 8 years in the United States confirmed that poor leadership and communication failures were consistently among the key factors leading to AEs.[7] Therefore, healthcare leaders need to prioritize patient safety when allocating limited resources.[8] Leadership engagement and accountability for patient safety are essential to the creation and maintenance of a care delivery system focused on AE prevention.[9]

One mechanism of achieving this goal is through proactive identification of latent safety threats.[4,5] Supporting the value of leaders' unit-level engagement with caregivers, Schwendimann et al[10] reported positive correlations between leadership walk-rounds (WRs) and caregivers' safety behaviors.

Another vital element of patient safety culture is trust in hospital management. To build and maintain this, essential management characteristics are integrity, benevolence, and competence.[11] As the foundation of the leader-member relationship, trust is essential to a positive safety culture and patient safety.[12] Nurses who trust their hospital managers are more likely to engage in safety-oriented behaviors, for example, discussing how errors could be prevented.[13] However, high trust in management can occur only when communication is open and fair.[14] Blame-free and nonpunitive management responses to staff members reporting errors, as well as fair analyses of causes after near-misses and critical incidents, are necessary to create open communication regarding errors.[14,15] Providing feedback about failures in care delivery, including critical incidents or near misses,[16] thus encouraging organizational learning, is another essential step in developing a safety culture.[10]

Understanding is limited as to how a safety culture can be established in a healthcare organization.[17] For instance, it remains unclear how overall hospital management support of clinicians and care teams might influence specific patient safety aspects, including clinicians' perceptions and attitudes toward patient safety and their trust in hospital management. In addition, although open communication, nonpunitive responses to error, communication and feedback regarding errors, and organizational learning play mediating roles in safety communication, specific knowledge is scant regarding their links to patient safety. We aimed to explore these relationships by testing our hypothesized model (Figure 1). On the basis of Reason's adapted causation model[2] and our literature review,[8-17] we assumed that higher hospital management support for

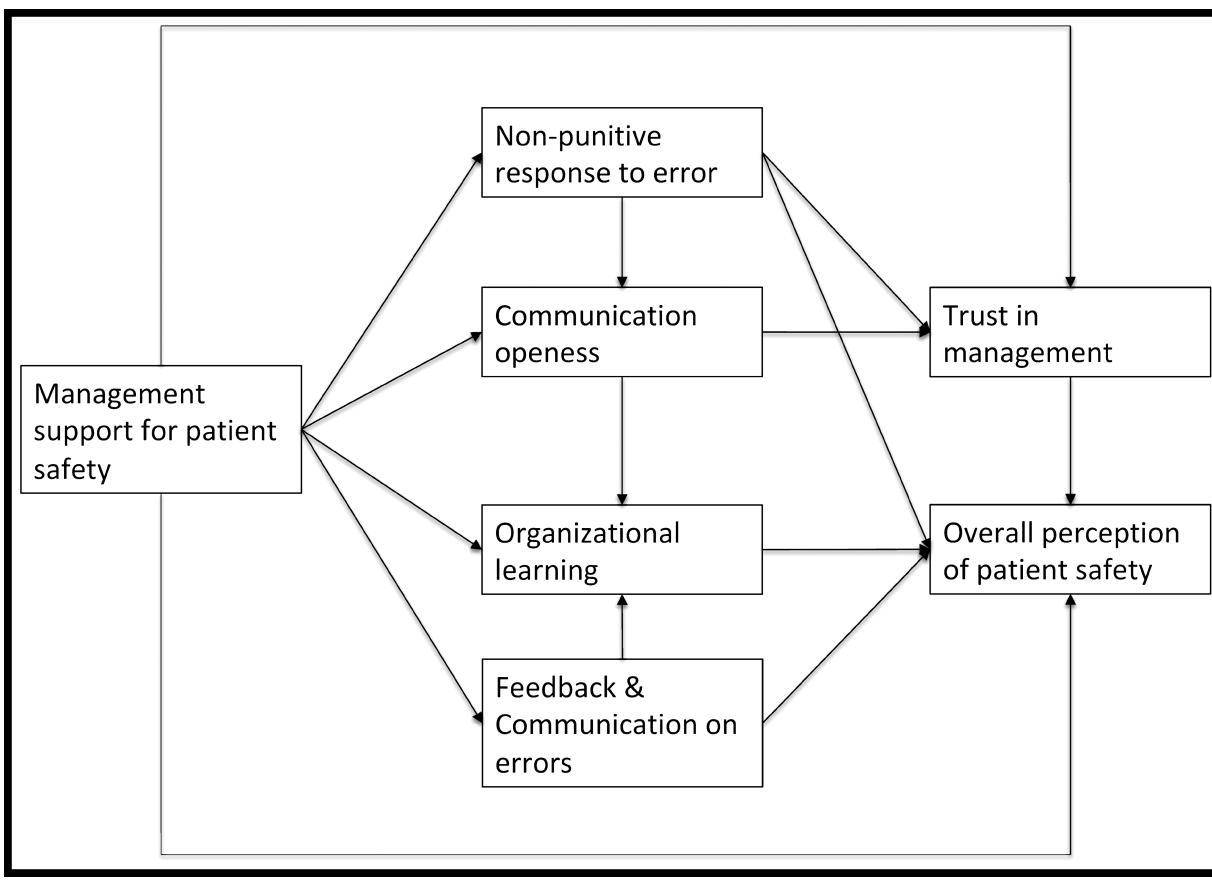

Figure 1. Hypothesized model of Management support for patient safety.

patient safety is related to more favorable overall perceptions of safety and trust in hospital management, with aspects of safety communication acting as mediating variables.

Methods

Design, Setting, and Sample and Data Collection

This study used cross-sectional nurse survey data (see Table, Supplemental Digital Content 1, http://links.lww.com/JONA/A282) collected between September 2009 and June 2010 for the Swiss arm of the RN4CAST (Nurse Forecasting in Europe) study. To date, the international RN4CAST study, which involved data collected in 12 European countries, is the most comprehensive multicenter hospital study conducted in Europe on the nursing workforce. It aimed to investigate how features of the nursing work environment and nursing staff deployment affect nurse recruitment, retention, and productivity, as well as patient outcomes.[18] The main results, regarding patient safety, patient satisfaction, quality of hospital care (at the international level), and patient safety climate in Swiss hospitals, have been reported elsewhere.[19,20]

Swiss nurse survey data were provided by 1,633 registered nurses (RNs) (see Table, Supplemental Digital Content 1, http://links.lww.com/JONA/A282) working in 134 medical, surgical, and mixed medical-surgical units in 35 adult acute care hospitals in the German-, French- and Italian-speaking regions of Switzerland. Inclusion criteria for nurses were as follows: RNs and working in direct patient care in their hospitals' general medical, surgical, or mixed units. The study was approved by all participating hospitals' cantonal ethics committees for human protection.[21]

Variables and Measurement

To test our hypothesized model (Figure 1), we used 7 items from the "safety and quality" subsection of the RN4CAST nurse questionnaire.[18] Six of these items were originally used in the Agency for Healthcare Research and Quality's Hospital Survey on Patient Safety Culture, which consists of 42 items reflecting 12 dimensions.[22] The international RN4CAST research group selected 6 specific items regarding the following dimensions: communication openness, feedback and communication about errors, nonpunitive response to error, organizational learning, hospital management support for patient safety, and overall perception of patient safety (Figure 1). These 6 items were considered as most relevant to add to the RN4CAST nurse survey questionnaire on nurse-related organizational factors considering also the additional survey burden. All 6 use a 5-point Likert-type scale, with possible responses for the 1st 5 items ranging from "strongly disagree" (1 point) to "strongly agree" (5 points); the 6th, on nurses' overall perception of patient safety, ranged from failing (1 point) to excellent (5 points).

The 7th and final item, "trust in management," consisted of a single question asking participants how confident they were that hospital management would act to resolve reported problems in patient care. This item was developed by the RN4CAST consortium, with responses limited to a 4-point Likert-type scale ranging from "not at all confident" (1 point) to "very confident" (4 points). The content validity indices for the 7 single items ranged from 0.56 ("Staff feel like their mistakes are held against them") to 1.00 ("In this unit, we discuss ways to prevent errors from happening again"). Thus, the selected items were considered as appropriate and meaningful to measure specific aspects of hospitals' safety climate in the Swiss cultural setting.

Four sociodemographic and professional characteristics were used to describe the Swiss nurse sample: gender, age (in years), professional experience as a nurse in the current hospital (in years), and employment level (ie, percentage of nurses are employed compared with a full-time equivalent nurse) (see Table, Supplemental Digital Content 1, http://links.lww.com/JONA/A282). In Switzerland, the nurse questionnaire was translated into German, French, and Italian language versions using a systematic translation process, including forward-backward translation and expert panel review with content validity indexing.[23]

Statistical Analysis

Descriptive statistics, including means, standard deviations, and frequencies, were used to describe nurses' characteristics as measured by the included RN4CAST nurse survey items. The hypothesized model was evaluated using path analysis (Figure 2), which allowed the identification of direct and indirect relationships between observed variables.[24] Model fit was assessed using both comparative fit index (CFI) and Tucker-Lewis index (TLI), with values close to 0.95 as comparative (incremental) fit measures, and root-mean-square error approximation (RMSEA) less than 0.06 as a parsimony-adjusted fit measure.[25] The modification indices and standardized residual covariances were also examined to evaluate model fit, to indicate misspecification of our hypothesized model and to guide model modification. We used maximum likelihood estimation with missing values, which is equivalent to imputation using full information maximum likelihood.[26] Descriptive statistics were computed using IBM SPSS 20 (IBM Inc, Armonk, New York), with STATA 12.1 (StataCorp LP, College Station, Texas)

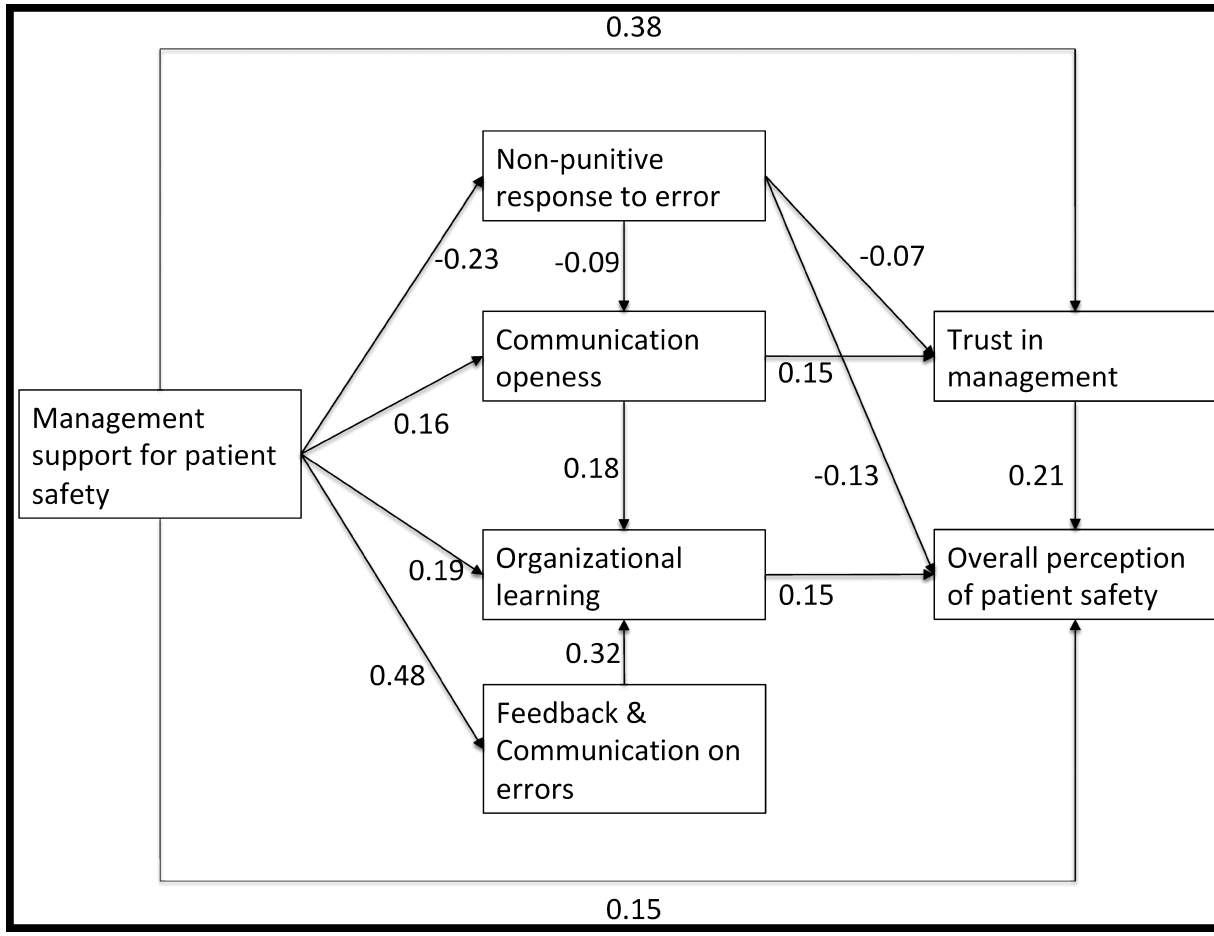

Figure 2. Final model of Management support for patient safety with standardized path coefficients.

used for path analysis. Tests were 2 sided, and a P value < .05 was considered significant.

Results

The RN4CAST questionnaire of the Swiss sample yielded an overall response rate of 73% (n = 1,633),[27] with 91.7% of eligible respondents being women (see Table, Supplemental Digital Content 1, http://links.lww.com/JONA/A282). The descriptive statistics of the items used for our model are shown in Table 1. More than one-half (50.4%) of the nurses rated the patient safety on their wards as very good or excellent. Furthermore, more than half (57.8%) of the nurses felt that their mistakes were not held against them and that their hospitals' managements' actions indicated that patient safety was a top priority (57.9%). Clear majorities reported receiving feedback about changes enacted based on event reports (68%), as well as discussing ways to prevent errors from recurring (over 81.3%). However, fewer than 50% felt free to question the decisions or actions of those in authority, and only a quarter (24.6 %) were confident that the hospital management would act to resolve problems they personally had reported in patient care.

Results of Path Analysis

In our hypothesized model (Figure 1), all paths except that from "feedback and communication on errors" to "overall perception of patient safety" were statistically significant ($P < .05$). Excellent model fit was indicated, with the following fit indices: CFI = 0.99, TLI = 0.95, RMSEA = 0.05 (90% confidence interval [CI], 0.03-0.07). Subsequently, we retested the model, omitting the nonsignificant pathway (CFI = 0.99, TLI = 0.95, RMSEA = 0.05; 90% CI, 0.03-0.06). Because the results indicated no significant decline in the model fit ($\Delta\chi^2 = 0.46$, $df = 1$, $P > .05$), we considered the use of the simplified model appropriate. The overall variance (R^2) explained by the final model was 0.39. Our final model, with standardized path coefficients, is depicted in Figure 2.

We observed significant direct associations between "management support for patient safety" and both "trust in management" (standardized path coefficient = 0.38) and "overall perception of patient safety" (standardized path coefficient = 0.15). Summarizing the indirect associations, that is, counting all indirect paths leading to "trust in management" and to "overall perception of patient safety," we found

Table 1. Descriptive Statistics for the Safety and Quality Items

Item	Mean	SD	% Positive Respondents[a]
Trust in management: How confident are you that hospital management will act to resolve problems in patient care that you report?	2.04	0.72	24.6*
Overall perception of patient safety: Please give your unit an overall grade on patient safety.	3.48	0.64	50.4**
Nonpunitive response to errors: Staff feel like their mistakes are held against them.	3.54	1.03	57.8***
Communication openness: Staff feel free to question the decisions or actions of those in authority.	3.19	0.96	45.6*
Organizational learning: In this unit, we discuss ways to prevent errors from happening again.	3.94	0.83	81.3*
Feedback and communication on errors: We are given feedback about changes put into place based on event reports.	3.62	1.00	67.7*
Management support for patient safety: The actions of hospital management show that patient safety is a top priority.	3.50	0.95	57.9*

[a]Percentage of RNs responding with "agree" or "srongly agree" (*), "very good" or "excellent" (**), and "disagree strongly" or "disagree" (***; reverse coded item).

that the indirect association via safety communication for "trust in management" was low (0.04). For "overall perception of patient safety," the observed indirect association was 0.29, almost double the figure for direct association (0.15).

Discussion

To our knowledge, this is the 1st study to test the relationships between hospital management support for patient safety, trust in hospital management, and overall perception of patient safety while considering aspects of safety communication as mediating variables. The results of the path analysis confirmed that higher hospital management support for patient safety was related to overall higher perceptions of safety with aspects of safety communication, that is, nonpunitive response to error, communication openness, organizational learning and feedback, and communication of errors, functioning as important factors playing a partial mediating role. Analysis indicated a moderate direct association between "management support for patient safety" and "trust in management."

In Switzerland, as well as in many other countries, chief nursing officers (CNOs) are part of the hospital management board. According to the European Nurse Directors Association, personal integrity, courtesy, honesty, trust, and mutual respect should be key characteristics of CNOs.[28] In particular, trust links and forms the basis of productive collaboration between management and frontline staff.[11] To gain and nurture trust, hospital leaders, including CNOs, need to enhance the priority given to patient safety and take a genuine and continuing interest in creating a patient safety culture.[6] They also need to show their commitment to their institutions' safety with words and actions and to include their staff in this commitment.[8] Their clear determination to promote patient safety is crucial in creating and maintaining a care delivery system focused on prevention of harmful events, while concurrently responding to AEs and their consequences.[28] For instance, over the last decade, along with many healthcare institutions worldwide, Swiss hospitals have implemented Critical Incident Reporting Systems (CIRS) to enhance organization-wide learning via error and risk analysis.[29,30] Through the implementation of such systems, hospital leaders demonstrate a commitment to patient safety, enhancing the trust not only of their RNs but also of all the healthcare professionals they employ.

On the other hand, it is well known that CIRS often face major barriers in keeping clinicians continuously engaged, for example, lack of or delayed feedback/analytical results to frontline clinicians, including problem identification and actions taken to foster safer care.[31,32] Two-thirds of our nurse sample reported receiving feedback from their hospital management about changes based on event reports. Surprisingly, however, the path between "feedback and communication regarding errors" and "overall perception of patient safety" was not statistically significant. This finding suggests that feedback alone is insufficient to directly improve patient safety. However, the path analysis indicates the crucial importance of hospital leaders' promotion of organizational learning at the unit level to improve patient safety, that is,

discussing with teams how error recurrences can be avoided, including action planning, implementation support, feedback, and safety progress reports.[20]

Because the indirect associations between "management support for patient safety" and "trust in management" were more prominent than the direct association, developing a culture of patient safety might require concentrated efforts by hospital leaders to foster various aspects of safety communication, such as an open and blame-free environment, to support open safety communication.[15,16] This might include regular safety meetings, where hospital leaders and frontline staff can collaborate on patient safety issues. At the unit level, proactive learning activities, such as executive or leadership WRs, are promising approaches to improve safety communication regarding risks and safety concerns and to solve systemic problems.[33] During their regular WRs to discuss safety issues, hospital leaders can create a dialogue with frontline staff to improve care processes in general.[34] Findings from previous studies indicate that unit participation in WRs is associated with a positive safety climate, safety risk reduction, and feedback about WR actions.[10,33] This substantiates findings regarding the positive effects of WRs on unit teams' safety behaviors and emphasizes the value of leaders' direct unit-level engagement.[16]

Limitations

The following limitations should be considered when interpreting this study's findings. Although the results of the path analysis show significant interrelationships between the study variables and an excellent model fit, the cross-sectional design of the RN4CAST study allows no inference or assessment of causal relationships. In addition, the data used for this study were derived from nurse survey data from a national sample of acute care hospitals and may not be transferable to other types of institutions. Social desirability bias is always a potential limitation when self-report data are collected. Nevertheless, this study's findings indicate significant associations between variables, which are clinically meaningful and relevant to leadership practices, including direct interaction with nurses on the frontline, to build mutual trust, thereby promoting patient safety and overall quality of care. Given that a major limitation of our study is the cross-sectional design of the parent study (RN4CAST), our model requires testing in a prospective study to understand the nature of the indicated relationships.

Conclusion

The path analysis confirmed our assumption that higher hospital management support for patient safety is related to overall higher perceptions of safety and trust in hospital management, with various aspects of safety-related communication acting as partially mediating variables. Improving patient safety requires an open and blame-free environment to support uninhibited communication, feedback and communication on errors, and organizational learning. For instance, involving and engaging RNs and other healthcare professionals in learning activities, for example, leadership WRs, could foster safety communication, increasing safety awareness of individual nurses and teams and the willingness of individuals and teams to share errors and risks on an organizational level (CIRS). Because the implementation of such learning activities needs further evaluation in interventional studies, our hypothesized model could provide conceptual guidance.

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