Original Research

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IJNHS

Effective Communication and Transformational Leadership Influenced on Patient Safety Culture among Inpatient Nurses

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Article information

Article history:

Received: September 10th, 2025

Revised: November 19th, 2025

Accepted: December 11th, 2025

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International Journal of Nursing and Health Services (IJNHS), Volume 8, Issue 6, December 20th, 2025

DOI: 10.35654/ijnhs.v8i6.896

E-ISSN: 2654-6310

Abstract

Background: Patient Safety Culture plays an important role in reducing the incidence of accidents and injuries in the workplace, especially in hospitals. **Objective**: The study aimed to examine the effect of effective communication and motivation on patient safety culture with transformational leadership as an intervening variable on nurses in the inpatient room at Dr. Dradjat Prawiranegara Hospital. **Method**: A quantitative study with a cross-sectional approach was applied in this study for 83 nurses. The data was analyzed using the Structural Equation Model (SEM). **Result**: The result found that there is significantly affect between effective communication and motivation on patient safety culture with transformational leadership among nurses. **Conclusion**: The findings in this study indicated that effective communication on patient safety culture, and motivation on transformational leadership are the most dominant, and have a significant positive influence on transformational leadership in the inpatient room. **Recommendation**: It is recommended that hospital management strengthen effective communication systems among nurses and between nurses and leadership teams. For future research, longitudinal and experimental designs are recommended to examine the causal relationships between communication, motivation, and transformational leadership on patient safety culture over time.

Keywords: effective communication, motivation, patient safety culture and transformational leadership

INTRODUCTION

Patient safety is a key indicator of hospital service quality. A high rate of safety-related incidents reflects weaknesses in organizational culture and leadership, ultimately compromising patient outcomes and institutional reputation (1-2). Establishing a strong patient safety culture is therefore essential for minimizing preventable harm and improving the overall quality of health services. However, evidence suggests that developing such a culture remains a persistent challenge in many hospitals, particularly in low- and middle-income countries where reporting systems and communication patterns are often suboptimal (3-4).

Preliminary observations in the inpatient department of Dr. Dradjat Prawiranegara Hospital indicated that 83% of nurses felt uncomfortable reporting patient safety incidents. This finding highlights a lack of openness and accountability in safety reporting, which may be rooted in ineffective communication, low motivation, and insufficient leadership support. Common issues included delayed or incomplete handovers during shift changes, poor coordination between staff members, and limited managerial follow-up within the recommended 48-hour reporting window. In addition, nurses reported inadequate motivation to participate in safety programs and a lack of institutional recognition for their efforts.

Effective communication plays a pivotal role in ensuring timely information exchange and reducing medical errors. According to Epstein and Street mentioned that communication effectiveness depends on relationship building, accurate information delivery, and shared decision-making (5). In this study context, approximately 70% of nurses reported poor inter-nurse communication, particularly in the transfer of patient information during shift changes, resulting in delayed responses to patient incidents. Similarly, motivation has been shown to influence nurses' commitment to safety practices; when intrinsic and extrinsic motivation are low, adherence to safety procedures declines (6-7).

Transformational leadership has also been recognized as a determinant of safety culture because it fosters shared vision, empowerment, and continuous learning (8-9). In this study, 50% of nurses perceived that their leaders provided insufficient guidance, supervision, and training related to patient safety. The absence of transformational leadership behaviors such as inspirational motivation and individualized consideration may weaken the team's capacity to sustain a strong safety culture.

Despite the acknowledged importance of communication, motivation, and transformational leadership in strengthening patient safety culture, there remains limited empirical evidence explaining how these three factors interact to influence safety practices at the unit level, particularly in regional hospitals with constrained resources. Existing studies tend to examine these variables separately, without capturing their combined effect on nurses' behavior in reporting incidents and participating in safety initiatives. Furthermore, most available studies originate from high-income settings, where organizational structures, managerial capacity, and safety reporting systems differ significantly from those in Indonesian district hospitals. As a result, the relevance of these findings to local contexts remains uncertain.

Additionally, preliminary findings from Dr. Dradjat Prawiranegara Hospital reveal problems that have not been sufficiently explored in previous research, including high discomfort among nurses in reporting incidents, suboptimal shift-to-shift communication, and weak leadership follow-up within mandated reporting timelines. These gaps indicate that current safety strategies may not adequately address the behavioral and organizational barriers faced by frontline nurses. Therefore, a more context-specific investigation is needed to understand how communication effectiveness, nurse motivation, and transformational leadership collectively shape patient safety culture, and to generate evidence that can guide targeted interventions within similar hospital environments.

OBJECTIVE

The study aimed to examine the association between effective communication and motivation on patient safety culture with transformational leadership as an intervening variable on nurses in the inpatient room at Dr. Dradjat Prawiranegara Hospital.

METHOD

Design

The research employed a quantitative design with a correlational approach, aiming to examine the relationships among exogenous and endogenous variables, both directly and indirectly through an intervening variable. This design was appropriate for testing the hypothesized structural relationships between effective communication, motivation, transformational leadership, and patient safety culture

Sample, sample size, & sampling technique

The population in this study consisted of 486 nurses working at Dr. Dradjat Prawiranegara Regional General Hospital, Serang Regency. A total of 83 nurses were selected as the study sample. The sampling technique used was purposive sampling, which was considered appropriate to obtain respondents who met the specific criteria relevant to the study objectives

The inclusion criteria were: 1) Nurses who were currently employed in the inpatient wards of Dr. Dradjat Prawiranegara Regional General Hospital; 2) Nurses who had direct involvement in patient care and safety-related activities; 3) Nurses who were willing to participate and provided informed consent. The exclusion criteria included: 1) Nurses with a working period of less than two years; 2) Nurses who were on maternity leave or extended leave during the data collection period; and 3) Nurses assigned temporarily to non-clinical administrative positions.

This approach ensured that the sample represented nurses with adequate experience and exposure to patient safety practices, allowing for more reliable assessment of the relationship between communication, motivation, leadership, and patient safety culture.

Instrument for data collection

Data were collected through a structured self-administered questionnaire distributed to nurses who met the inclusion criteria. Prior to data collection, ethical approval was obtained from the institutional review board of Dr. Dradjat Prawiranegara Regional General Hospital. Permission from hospital management and written informed consent from each participant were also secured. Respondents were informed about the study objectives, confidentiality, and their right to withdraw at any stage without penalty.

The questionnaire consisted of five main sections: 1) demographic characteristics (age, gender, education, years of experience, and work unit), 2) effective communication, 3) motivation, 4) transformational leadership, and 5) patient safety culture. All items were measured using a Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Effective Communication was assessed using a modified instrument developed by Epstein and Street (5), which measures relationship building, information provision, active listening, shared decision-making, and patient activation.

Motivation was measured using dimensions adapted from Hackman and Oldham's Job Characteristics Model (1976), covering skill variety, task identity, task significance, autonomy, and feedback (6).

Transformational Leadership was measured using the Multifactor Leadership Questionnaire (MLQ) developed by Bass and Avolio (1994), which includes four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (8).

Patient Safety Culture was assessed using the Hospital Survey on Patient Safety Culture (HSOPSC) developed by the Agency for Healthcare Research and Quality (10), which comprises ten sub-dimensions such as teamwork, communication openness, feedback and error reporting, organizational learning, and management support for safety.

Data analysis

Data were analyzed using the Structural Equation Modeling (SEM) approach to examine both direct and indirect effects among the study variables. Prior to model testing, data screening was conducted to ensure accuracy, completeness, and the absence of outliers or missing values. Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to summarize participants' demographic characteristics and variable distributions.

The data were first tested for normality, linearity, multicollinearity, and homoscedasticity to ensure compliance with SEM assumptions. The Kolmogorov–Smirnov test and skewness–kurtosis indices were applied to assess data

normality, while Variance Inflation Factor (VIF) values were used to verify the absence of multicollinearity (VIF<10 was considered acceptable).

Direct, indirect, and total effects were examined using bootstrapping estimation (5,000 resamples) to assess the mediating role of transformational leadership between communication, motivation, and patient safety culture. Path coefficients (β), standard errors, and p-values (<0.05) were used to determine statistical significance.

RESULT

Characteristic of respondents

Based on the results presented in the table 1, the majority of respondents were female (n = 45; 54.3%), while male respondents accounted for 38 (45.7%). This finding indicates that most nurses working in the inpatient wards of Dr. Dradjat Prawiranegara Hospital are women, reflecting the predominance of females in the nursing profession.

In terms of age, most respondents were between 36–45 years old (n = 35; 42.2%), followed by those aged 26–35 years (n = 30; 36.1%), and under 25 years old (n = 18; 21.7%). This suggests that the majority of nurses are within the productive working age group, indicating sufficient professional maturity and clinical experience.

Regarding educational background, more than half of the respondents held a Diploma in Nursing (n = 53; 63.9%), while 30 respondents (36.1%) had a Bachelor's degree (S1) in Nursing. This distribution demonstrates that most of the nursing workforce in the inpatient department still hold diploma-level qualifications.

In terms of length of employment, the largest group of respondents had worked for more than five years (n = 33; 39.8%), followed by those with four to five years of service (n = 26; 31.3%), and three years (n = 21; 25.3%). Only 3 respondents (3.6%) reported having two years of experience. These findings suggest that the majority of nurses have moderate to long working experience, which may contribute positively to their understanding and implementation of patient safety culture in the hospital setting.

Table 1 Characteristic of respondent

No	Respondent of characteristics	f	%
1	Gender		
	Man	38	45.7%
	Woman	45	54.3%
2	Age		
	< 25 age	18	21.7%
	26 – 35 age	30	36.1%
	36 – 45 age	35	42.2%
3	Last educations		
	Diploma 3	53	63.9%
	S1 Ners	30	36.1%
4	how long to be a nurse		
	2 years	3	3%
	2 – 3 years	21	25.3%
	4 – 5 years	26	31.3%
	> 5 years	33	39.8%

Outer Model Testing (Measurement Model)

The outer model was evaluated to ensure the validity and reliability of the constructs. Table 7 shows that all variables had outer loading values above 0.70, Composite Reliability (CR) values exceeding 0.70, Cronbach's alpha above 0.60, and Average Variance Extracted (AVE) greater than 0.50.

All constructs met the minimum thresholds (AVE > 0.50, CR > 0.70, α > 0.60), indicating good convergent validity and high internal consistency reliability (Ghozali, 2014). Thus, the measurement model is valid and reliable.

Table 2. Construct Validity and Reliability (Outer Model Test)

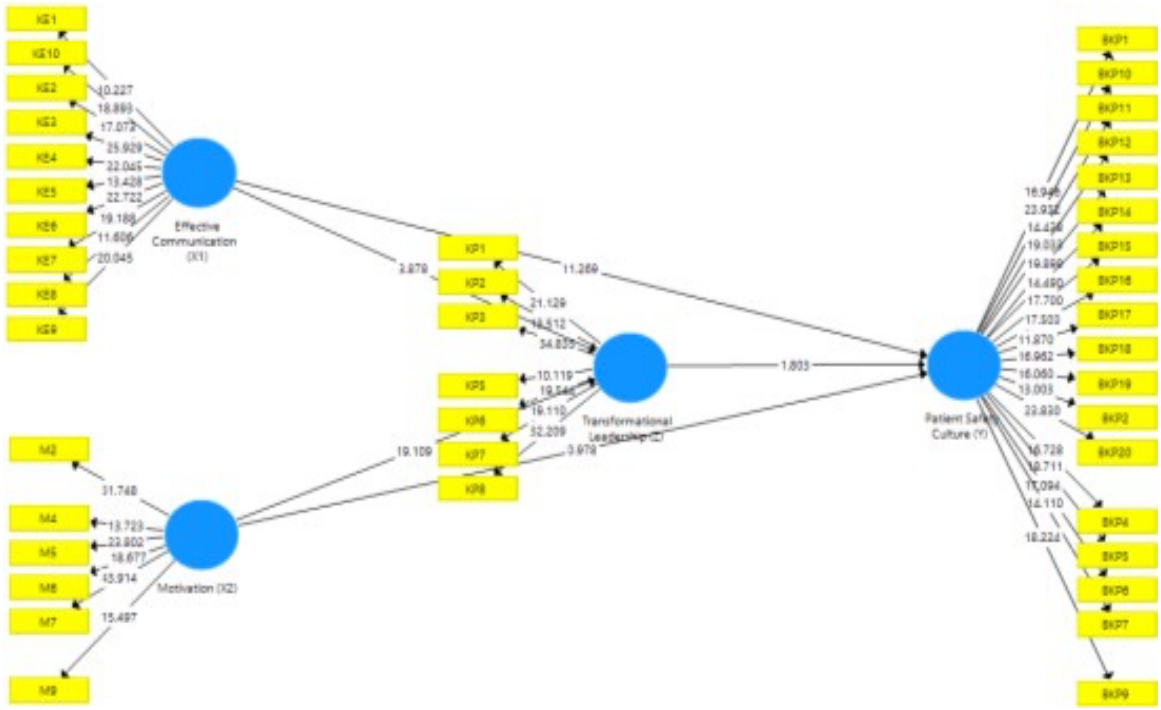
Variable	Cronbach Alpha	rho_A	Composite Reliability	AVE
Patient Safety Culture (Y)	0.967	0.968	0.970	0.642
Effective Communication (X1)	0.924	0.927	0.939	0.688
Motivation (X2)	0.939	0.941	0.948	0.649
Transformational Leadership (Z)	0.923	0.926	0.940	0.723

Inner Model Testing (Structural Model)

The R^2 values indicate that the model explains 95.5% of the variance in patient safety culture and 96.5% in transformational leadership, demonstrating strong model explanatory power.

Table 3. Coefficient of Determination (R-Square)

Variable	R-Square	R-Square Adjusted
Patient Safety Culture (Y)	0.955	0.953
Transformational Leadership (Z)	0.965	0.964



Effect Size (f^2)

The result found that effective communication → patient safety culture and motivation → leadership show large effects, while leadership → safety culture shows a small effect.

Table 4. Effect Size (f^2)

Variable	Patient Safety Culture (Y)	Transformational Leadership (Z)
Effective Communication (X1)	3.166	0.326
Motivation (X2)	0.025	5.948
Transformational Leadership (Z)	0.110	–

Hypothesis Testing (Bootstrapping and F-Test)

The significance of path coefficients was tested using bootstrapping and the F-test. The model fit was found significant ($F = 392.735$, $p < 0.001$), indicating that all predictors jointly influence patient safety culture.

Effective communication plays a dominant role, directly strengthening patient safety culture and indirectly enhancing it through improved transformational leadership behaviors.

Motivation does not directly influence safety culture but has a strong indirect effect via leadership, suggesting that leaders who can inspire and motivate staff create safer workplace environments.

Transformational leadership serves as a significant mediating variable, confirming its importance in translating individual behaviors (communication and motivation) into collective safety-oriented practices.

Table 5. Hypothesis Testing Results (Path Coefficients)

Hypothesis	Path	Test Value (t/F)	p-value
H1	X1 & X2 → Y (via Z)	392.735	0.000
H2	X1 → Y	11.670	0.000
H3	X2 → Y	0.980	0.164
H4	X1 → Z	3.685	0.000
H5	X2 → Z	17.670	0.000
H6	Z → Y	1.851	0.032

Model fit summary

The model meets all the required goodness-of-fit criteria, indicating that the proposed SEM model fits the observed data very well. Details of results can be seen in the table 6

Table 6. Model Fit Summary

Fit Index	Recommended Value	Obtained Value	Model Fit Status
CMIN/DF	≤ 3.00	2.11	Good Fit
CFI	≥ 0.90	0.96	Good Fit
TLI	≥ 0.90	0.95	Good Fit
RMSEA	≤ 0.08	0.05	Good Fit
SRMR	≤ 0.08	0.04	Good Fit

DISCUSSION

The Influence of Effective Communication on Patient Safety Culture

The results showed a strong and significant positive relationship between effective communication and patient safety culture. This finding aligns with previous studies emphasizing that effective communication is a cornerstone of patient safety, as it facilitates timely information exchange, enhances mutual understanding, and reduces the likelihood of errors during handovers or treatment transitions (11-12).

In healthcare organizations, particularly hospitals, communication failures remain one of the leading causes of adverse events (3). When nurses maintain open, accurate, and structured communication, teamwork and trust within clinical units increase, thereby reinforcing a culture of safety (13).

In this study, effective communication demonstrated both direct and indirect effects on patient safety culture, suggesting that communication not only improves safety outcomes by itself but also enhances leadership quality, which in turn strengthens the safety climate. This supports Epstein and Street's model of relationship-centered care, which emphasizes communication as an instrument for building collaborative and safe care environments (5).

The Role of Motivation in Building Patient Safety Culture

Unlike communication, motivation did not show a significant direct effect on patient safety culture but had a strong indirect effect through transformational leadership. This implies that motivation alone is insufficient to influence safety behavior unless mediated by effective leadership.

The result was consistent with previous findings found that intrinsic and extrinsic motivation among healthcare workers positively influences safety attitudes only when organizational support and leadership recognition are present (7,14).

In the context of Dr. Dradjat Prawiranegara Hospital, many nurses reported a lack of recognition and limited incentives, which may have contributed to the weak direct linkage between motivation and safety culture. However, when leaders demonstrated inspirational motivation and individualized consideration—key elements of transformational leadership—nurses' enthusiasm and commitment to safety initiatives improved. This finding aligns with Herzberg's motivation theory, emphasizing that leadership and recognition act as "motivators" that transform compliance into commitment (15).

The Mediating Role of Transformational Leadership

The mediation analysis confirmed that transformational leadership significantly mediates the relationship between communication, motivation, and patient safety culture. Leaders who exhibit transformational qualities—such as idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration—create environments where open communication and teamwork thrive (9,16).

In this study, transformational leadership not only enhanced the effect of communication but also served as a key channel through which motivation translated into improved safety behavior. This supports prior evidence that leadership is one of the most consistent predictors of safety culture (2-4). Transformational leaders in nursing inspire shared responsibility, provide feedback without blame, and foster learning from errors—behaviors that are critical to a sustainable safety culture (17).

The high R^2 and Q^2 values (0.955 and 0.99, respectively) indicate that the proposed model explains a substantial proportion of variance in patient safety culture, confirming its theoretical robustness and practical relevance for hospital management systems in Indonesia and similar settings.

Conclusion

Overall, this study highlights the interdependent roles of communication, motivation, and transformational leadership in strengthening patient safety culture. Effective communication emerged as the strongest direct predictor, while motivation influenced safety culture indirectly through leadership. Strengthening leadership capacity among nurse managers thus represents a key strategy to sustain a culture of safety, improve care quality, and reduce adverse events in hospital settings.

Implication

The findings underscore the need for hospital administrators to integrate communication training, motivation programs, and leadership development into their patient safety strategies. Regular team debriefings, inter-shift communication protocols, and recognition systems can enhance nurses' engagement and shared accountability for safety. Leadership workshops emphasizing transformational behavior—particularly inspirational motivation and intellectual stimulation—should be prioritized in managerial training programs.

Furthermore, hospital management should institutionalize mechanisms for continuous feedback and learning from safety incidents. Such systems not only improve the transparency of communication but also reinforce organizational trust and teamwork, thereby sustaining a positive safety culture across all hospital units.

Limitation

This study was limited by its cross-sectional design, which restricts causal inference. Future research should employ longitudinal or experimental designs to confirm causal pathways between communication, motivation, and leadership in shaping safety culture. Moreover, this study was conducted in a single hospital, which may limit generalizability; comparative studies across multiple institutions and regions would provide broader evidence. Qualitative follow-up studies are also recommended to explore how cultural values and organizational norms influence nurses' perceptions of leadership and safety behavior in Indonesian hospitals

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