Safety Leadership and Work Environment Management in Building Patient Safety Culture through Work Motivation

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Abstract: This study investigates the effects of safety leadership and work environment on patient safety culture, with work motivation as an intervening variable among nurses at Hospital X in Jakarta. A quantitative approach using a cross-sectional design was employed, with data collected from 111 nurses through structured questionnaires. The data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The results show that safety leadership and work environment have significant positive impacts on nurses' work motivation. Additionally, work motivation directly influences patient safety culture. The study also finds that work motivation partially mediates the relationship between safety leadership and patient safety culture, as well as between work environment and patient safety culture. These findings suggest that both leadership practices and environmental conditions affect patient safety culture directly and indirectly by enhancing nurses' motivation. The study highlights the importance of safety leadership and supportive work environments in promoting a sustainable patient safety culture through improved nurse motivation. From a practical perspective, hospital management should focus on fostering effective safety leadership practices and creating conducive work environments to enhance patient safety culture. This research contributes to the literature on patient safety and management by providing empirical evidence on the role of work motivation in strengthening safety culture in hospitals.

Keywords: Hospital Management; Patient Safety Culture; Safety Leadership; Work Environment; Work Motivation.

1. Introduction

Patient safety culture has become a central concern in healthcare systems worldwide due to its critical role in preventing adverse events and improving the quality of patient care. Hospitals are complex organizations in which nurses play a pivotal role in ensuring patient safety through continuous clinical interactions, decision-making, and adherence to safety protocols. Despite the widespread implementation of patient safety programs, many hospitals continue to experience challenges in embedding safety values into daily clinical practice, resulting in preventable incidents and compromised healthcare outcomes.

Previous studies have emphasized that patient safety culture is not solely shaped by individual competence but is strongly influenced by organizational and managerial factors. Leadership practices, particularly safety-oriented leadership behaviors, have been identified as essential drivers in fostering a shared commitment to safety among healthcare professionals. Leaders who consistently prioritize safety, communicate safety expectations clearly, and support staff in reporting incidents without fear of blame contribute significantly to the development of a positive patient safety culture. In addition to leadership, the work environment, including physical conditions, workload, interpersonal relationships, and organizational support has been shown to affect how nurses perceive safety priorities and perform their duties.

Although prior research has documented the direct influence of safety leadership and work environment on patient safety culture, findings remain fragmented and context-dependent. Some studies report strong direct effects of leadership on safety culture, while

others suggest that leadership influences safety outcomes indirectly through psychological or motivational mechanisms. Similarly, a supportive work environment may enhance safety culture not only by reducing stress and errors but also by increasing nurses' intrinsic motivation to comply with safety standards. These inconsistencies indicate that the pathways through which organizational factors shape patient safety culture are not yet fully understood, particularly in hospital settings within developing healthcare systems.

Work motivation represents a critical yet underexplored mechanism in the relationship between organizational factors and patient safety culture. Motivated nurses are more likely to demonstrate proactive safety behaviors, adhere to clinical guidelines, and participate in incident reporting systems. Motivation influences how nurses respond to leadership practices and environmental conditions, translating organizational inputs into observable safety-related behaviors. However, empirical evidence examining work motivation as an intervening variable between safety leadership, work environment, and patient safety culture remains limited, especially in the context of Indonesian hospitals.

In Indonesia, hospitals face increasing demands to improve patient safety performance amid resource constraints, high patient volumes, and diverse workforce characteristics. While national regulations emphasize patient safety standards, implementation at the organizational level varies considerably. Hospitals often focus on structural compliance, such as accreditation requirements, without adequately addressing leadership effectiveness and motivational factors that sustain safety culture in everyday practice. This gap highlights the need for empirical studies that examine how leadership and work environment interact with nurses' motivation to shape patient safety culture.

Addressing this gap, the present study investigates the effects of safety leadership and work environment on patient safety culture, with work motivation serving as an intervening variable. By adopting a quantitative approach and analyzing data from hospital nurses, this study seeks to clarify whether work motivation functions as a mechanism that strengthens or explains the influence of organizational factors on patient safety culture. Understanding this mechanism is essential for developing targeted interventions that go beyond structural improvements and focus on human and managerial dimensions of patient safety.

This study offers several contributions to the existing literature. First, it extends patient safety research by integrating safety leadership, work environment, and work motivation into a single conceptual model, providing a more comprehensive explanation of patient safety culture formation. Second, it empirically tests the mediating role of work motivation, thereby addressing inconsistencies in prior findings regarding direct and indirect effects of organizational factors. Third, the study contributes context-specific evidence from a hospital setting in Indonesia, enriching the global patient safety literature with insights from a developing healthcare system. From a practical perspective, the findings are expected to inform hospital managers and clinical leaders about the importance of fostering motivational conditions alongside leadership development and environmental improvements to achieve sustainable patient safety culture.

2. Literature Review

Organizational Behavior Theory

Organizational behavior theory provides a fundamental framework for understanding how individual and group behaviors are shaped within organizations to enhance overall effectiveness. Early conceptualizations of organizational behavior, influenced by classical organizational theorists such as Max Weber, emphasized the role of structure, rules, and authority in directing employee behavior toward organizational goals. Contemporary perspectives, however, extend this view by integrating psychological, social, and managerial dimensions that influence behavior in complex organizational settings, including healthcare institutions.

Organizational behavior is commonly defined as the systematic study of how individuals and groups think, feel, and act within organizations, as well as how organizational structures and managerial processes influence these behaviors (Robbins & Judge, 2017). In hospital settings, organizational behavior plays a critical role in shaping healthcare workers' attitudes, compliance with procedures, and interactions across professional boundaries. The theory assumes that employee behavior is not random but can be predicted and managed through appropriate leadership practices, organizational systems, and supportive work environments.
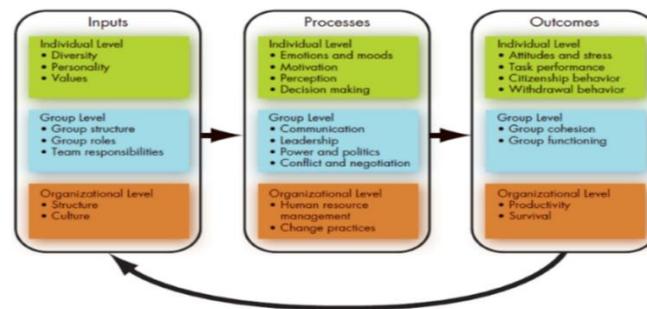
Figure 1. Organizational Behavior Model.

Source: Robbins & Judge (2017)

The input–process–output (IPO) model proposed within organizational behavior theory offers a useful analytical lens for examining safety-related behaviors in hospitals. Inputs include individual characteristics, group structures, and organizational factors such as leadership style and work environment. These inputs influence behavioral processes, including motivation, communication, and decision-making, which ultimately produce organizational outputs such as performance quality, job satisfaction, and safety-related outcomes (Robbins & Judge, 2017). Within this framework, safety leadership functions as a critical organizational input that shapes motivational and behavioral processes among nurses, while the work environment provides contextual support that enables or constrains safe practices.

Furthermore, organizational behavior theory highlights motivation as a key psychological mechanism that translates managerial actions into observable employee behavior. Leaders who demonstrate consistent commitment to safety and create supportive working conditions are more likely to enhance nurses' motivation, which in turn strengthens adherence to safety protocols and the internalization of safety values. Consequently, organizational behavior theory offers a coherent theoretical foundation for explaining how safety leadership and work environment interact through work motivation to influence the development of patient safety culture in hospital organizations.

Patient Safety Culture

Patient safety culture has become a central concept in healthcare management as hospitals increasingly recognize that patient safety is not solely determined by clinical competence, but also by organizational values, leadership practices, and shared behavioral norms. Patient safety culture refers to the collective values, beliefs, perceptions, and behavioral patterns that determine how safety is prioritized and practiced within healthcare organizations. At the global level, the World Health Organization emphasizes patient safety as the prevention of unnecessary harm to patients and the reduction of risks associated with healthcare delivery (WHO, 2009).

From an organizational perspective, patient safety culture reflects how safety-related values are embedded in daily work practices and managerial systems. Donabedian's quality-of-care framework highlights that patient safety is an outcome of well-designed healthcare systems that integrate structural, process, and outcome components (Donabedian, 2003). Similarly, Reason's systems approach to safety argues that adverse events often result from latent organizational weaknesses rather than individual negligence, underscoring the importance of organizational culture in preventing errors (Reason, 1997). These perspectives suggest that patient safety culture is fundamentally shaped by managerial decisions, leadership commitment, and organizational learning mechanisms.

Nieva and Sorra conceptualize patient safety culture as a multidimensional construct encompassing teamwork, communication openness, learning from errors, management support for safety, and non-punitive responses to mistakes. In hospital settings, a strong patient safety culture is characterized by open communication, mutual trust among staff, and shared accountability for safety outcomes. Vincent (2010) further emphasizes that patient safety culture emerges when healthcare organizations actively promote learning, transparency, and continuous improvement in response to safety incidents.

From a management and leadership standpoint, patient safety culture is not static but can be developed and strengthened through intentional organizational strategies. Leadership behaviors, policy consistency, and the provision of adequate resources play a decisive role in shaping how safety values are interpreted and enacted by healthcare workers. When hospital

leaders consistently prioritize safety, encourage reporting, and support staff psychologically, safety-related norms become internalized and guide daily clinical behavior.

In this study, patient safety culture is conceptualized as an organizational outcome that reflects the extent to which safety values are shared and practiced among nurses. As such, patient safety culture is expected to be influenced by safety leadership and the work environment, both directly and indirectly through motivational processes that drive consistent safety-oriented behavior.

Safety Leadership

Safety leadership has emerged as a critical managerial capability in high-risk organizations, including healthcare institutions, where safety outcomes depend not only on technical expertise but also on leadership commitment and behavior. Safety leadership refers to leadership practices that consistently prioritize safety as a core organizational value and actively influence employees' attitudes, motivations, and behaviors toward safe work practices. In hospital settings, safety leadership is particularly important because clinical work is characterized by complexity, uncertainty, and interdependence among professionals.

From a leadership perspective, safety leadership extends beyond formal authority and encompasses leaders' daily actions, communication patterns, and decision-making processes related to safety. Leaders who demonstrate visible commitment to safety, allocate resources to safety initiatives, and encourage open communication about errors create an environment in which safety is perceived as a shared responsibility rather than an individual burden. Such leadership behaviors signal organizational priorities and shape employees' interpretations of acceptable and expected conduct within the workplace.

Theoretical perspectives on safety leadership emphasize its role in shaping safety-related attitudes and norms through social learning and role modeling. Leaders serve as reference figures whose behaviors are observed and emulated by subordinates. When leaders consistently adhere to safety standards and respond constructively to safety incidents, employees are more likely to internalize safety values and engage in proactive safety behaviors. Conversely, inconsistent leadership messages or tolerance of unsafe practices may weaken safety norms and undermine safety culture.

In the context of healthcare management, safety leadership is closely linked to transformational and supportive leadership behaviors. Leaders who empower staff, provide feedback, and involve nurses in safety-related decision-making processes foster psychological safety and trust. These conditions are essential for encouraging incident reporting, learning from errors, and continuous improvement. Safety leadership therefore functions not only as a control mechanism but also as a motivational force that enhances employees' willingness to participate in safety initiatives.

Within this study, safety leadership is conceptualized as a key organizational input that influences patient safety culture both directly and indirectly. Directly, safety leadership shapes shared safety values and norms among nurses. Indirectly, leadership behaviors are expected to enhance nurses' work motivation, which in turn strengthens adherence to safety practices and the internalization of safety culture. This dual role positions safety leadership as a central managerial lever in building and sustaining patient safety culture in hospital organizations.

Work Environment

The work environment is a critical organizational factor that shapes employees' behavior, performance, and well-being, particularly in high-risk sectors such as healthcare. In hospital settings, the work environment encompasses physical conditions, workload, staffing adequacy, availability of resources, interpersonal relationships, and managerial support systems that collectively influence how nurses perform their duties. A supportive work environment enables healthcare workers to deliver safe and high-quality care, while unfavorable conditions may increase stress, fatigue, and the likelihood of errors.

From an organizational behavior perspective, the work environment functions as a contextual system that either facilitates or constrains individual and group behavior. According to systems theory, organizational outcomes are influenced by the interaction between individuals and their working conditions. In hospitals, nurses' ability to comply with safety standards and engage in proactive safety behaviors depends heavily on whether the work environment provides sufficient resources, clear procedures, and supportive supervision. Excessive workload, inadequate staffing, and poor communication structures may undermine safety practices, regardless of individual competence or motivation.

Empirical studies in healthcare management consistently demonstrate that a positive work environment is associated with improved job satisfaction, lower burnout, and better

patient outcomes. Aiken et al. highlight that supportive nursing work environments, characterized by adequate staffing and managerial support, contribute to safer care delivery and reduced adverse events. Similarly, Lake's Practice Environment framework emphasizes that nurses' perceptions of their work environment reflect broader organizational priorities and management effectiveness.

From a managerial standpoint, the work environment is not merely a physical setting but a strategic resource that can be shaped through leadership decisions and organizational policies. Hospital management plays a decisive role in designing work systems, allocating resources, and fostering collaborative relationships among staff. When management actively supports nurses by addressing workload issues, ensuring access to necessary equipment, and promoting teamwork, the work environment becomes conducive to safe and effective practice.

In this study, the work environment is conceptualized as an organizational condition that directly influences patient safety culture and indirectly affects it through nurses' work motivation. A supportive work environment is expected to enhance nurses' motivation by reducing job-related stress and reinforcing perceptions of organizational support. In turn, motivated nurses are more likely to adhere to safety protocols and contribute to the development of a strong patient safety culture. Thus, the work environment serves as a key managerial determinant in translating organizational intent into consistent safety-oriented behavior within hospital settings.

Work Motivation

Work motivation represents a fundamental psychological mechanism that explains why employees initiate, direct, and sustain work-related behaviors toward organizational goals. In organizational behavior theory, motivation is viewed as an internal drive that determines the intensity, direction, and persistence of individual effort. Within healthcare organizations, nurses' work motivation is particularly important because clinical tasks demand high levels of vigilance, responsibility, and adherence to safety standards under conditions of pressure and uncertainty.
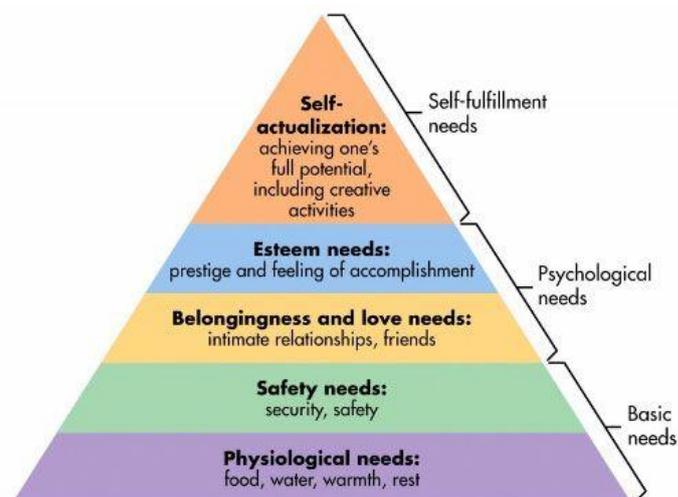

Figure 2. Maslow's hierarchy of needs (Maslow, 1994).

Classical motivation theories, such as Maslow's hierarchy of needs and Herzberg's two-factor theory, emphasize that employees' motivation is influenced by both intrinsic and extrinsic factors. Intrinsic motivation arises from meaningful work, professional pride, and a sense of contribution, whereas extrinsic motivation is shaped by organizational policies, leadership support, recognition, and working conditions. In hospital settings, nurses' motivation is often closely linked to perceptions of leadership fairness, workload balance, professional autonomy, and managerial appreciation.

From a management perspective, motivation functions as a critical link between organizational inputs and behavioral outcomes. Leadership behaviors and work environment conditions do not automatically translate into desired performance unless they are perceived by employees as motivating. Leaders who communicate clear safety expectations, provide feedback, and recognize safe practices are more likely to enhance nurses' motivation to comply with safety procedures. Similarly, a supportive work environment reduces job strain and reinforces nurses' willingness to invest effort in maintaining patient safety.

Empirical studies in healthcare management indicate that motivated nurses demonstrate higher levels of job engagement, safety compliance, and proactive safety behavior. Motivation has been shown to influence nurses' willingness to report incidents, follow standard operating procedures, and participate in continuous improvement initiatives. These behaviors are essential components of a strong patient safety culture, suggesting that motivation plays a pivotal role in translating organizational intent into consistent safety-oriented actions.

In this study, work motivation is conceptualized as an intervening variable that mediates the effects of safety leadership and work environment on patient safety culture. Safety leadership and a supportive work environment are expected to enhance nurses' motivation, which in turn strengthens the internalization of safety values and adherence to safety practices. By positioning motivation as a mediating mechanism, this study integrates leadership, organizational context, and individual psychology into a coherent framework for understanding the development of patient safety culture in hospital organizations.

Research Framework

This study is grounded in organizational behavior theory, which posits that organizational outcomes are shaped by the interaction between leadership practices, contextual work conditions, and individual psychological mechanisms. In hospital settings, patient safety culture represents an organizational outcome that reflects shared values, norms, and behaviors related to safety. Safety leadership and work environment are positioned as key organizational inputs, while nurses' work motivation functions as a psychological process that translates managerial actions into consistent safety-oriented behavior.

Safety leadership reflects leaders' commitment, communication, and role modeling related to safety, which signal organizational priorities and influence nurses' perceptions and attitudes. A supportive work environment provides the structural and social conditions necessary for nurses to perform their duties safely and effectively. However, these organizational factors are unlikely to directly influence patient safety culture unless nurses are sufficiently motivated to internalize safety values and engage in safe practices. Therefore, work motivation is proposed as an intervening mechanism that explains how safety leadership and work environment affect patient safety culture.
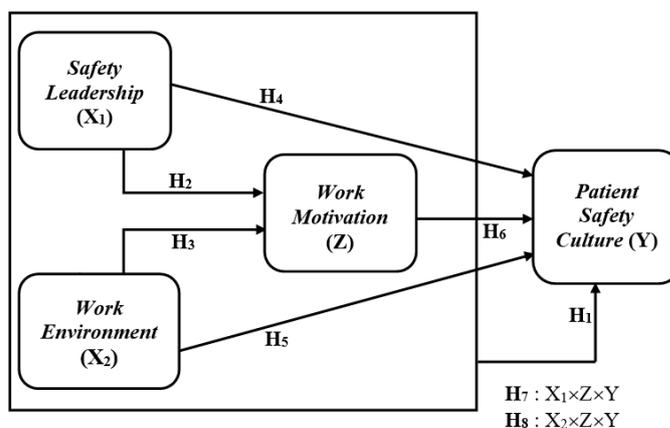

Figure 3. Conceptual Framework.

In this framework, patient safety culture is conceptualized as the result of both direct managerial influence and indirect motivational processes. The proposed model integrates leadership, organizational context, and individual motivation into a coherent explanation of how patient safety culture is developed and sustained within hospital organizations.

Based on the relationships among the variables and the proposed conceptual framework, the research hypotheses are formulated as follows:

H_1: Safety leadership, work environment, and nurse work motivation simultaneously influence patient safety culture.

H_2: Safety leadership influences nurse work motivation.

H_3: The work environment influences nurse work motivation.

H_4: There is an influence of safety leadership on patient safety culture

H_5: There is an influence of work environment on patient safety culture

H_6: There is an influence of nurses' work motivation on patient safety culture

H_7: There is an influence of safety leadership on patient safety culture with work motivation as an intervening variable

H8: There is an influence of the work environment on patient safety culture with work motivation as an intervening variable

Synthesis and Research Gap

Based on the reviewed literature, patient safety culture can be understood as an organizational outcome shaped by leadership behavior, work system design, and human motivation rather than merely an individual compliance issue. Organizational behavior theory highlights that leadership practices and work environments function as structural mechanisms that influence employees' psychological states and work-related attitudes, which ultimately affect organizational performance. Although prior studies have extensively examined safety leadership, work environment, and patient safety culture as separate constructs, empirical research that integrates these variables into a unified management-oriented framework remains limited. In particular, the mediating role of work motivation has received insufficient attention, despite its strategic importance in translating leadership practices and environmental conditions into sustainable safety culture outcomes. Most existing studies tend to focus on direct effects or adopt a profession-specific perspective, leaving a gap in understanding how leadership and organizational systems jointly shape safety culture through motivational processes. Therefore, this study addresses this gap by proposing and testing an integrative model that positions work motivation as a key mechanism linking safety leadership and work environment to patient safety culture. By doing so, the study contributes to the management and leadership literature by offering a more comprehensive explanation of how organizational factors interact to strengthen safety culture within hospital settings.

3. Materials and Method

Research Design

This study employed a quantitative research approach using a cross-sectional design. The design was selected to examine the relationships among safety leadership, work environment, work motivation, and patient safety culture at a single point in time. A survey method was used to capture nurses' perceptions of leadership practices, workplace conditions, motivational states, and safety culture within the hospital setting.

Population and Sample

The population of this study consisted of nurses working at Hospital X, Jakarta. A purposive sampling technique was applied to select respondents who met predefined criteria, including active clinical involvement and a minimum period of work experience at the hospital. A total of 111 nurses participated in the study and provided complete responses suitable for data analysis. The sample size was considered adequate for Structural Equation Modeling–Partial Least Squares (SEM-PLS), which is appropriate for exploratory and predictive models with relatively small samples.

Variables and Measurement

This study involved four main constructs: safety leadership, work environment, work motivation, and patient safety culture. All variables were measured using structured questionnaires adapted from established instruments in the healthcare and organizational behavior literature. Responses were recorded using a Likert-type scale to capture the degree of agreement with each statement.

Safety leadership reflects leadership behaviors that prioritize safety values, support safe practices, and encourage open communication regarding safety issues. Work environment represents nurses' perceptions of physical conditions, workload, interpersonal relationships, and organizational support. Work motivation refers to the internal drive that influences nurses' willingness to exert effort and engage in safety-related behaviors. Patient safety culture captures shared values, attitudes, and practices related to patient safety within the hospital.

Data Collection Procedure

Data were collected through self-administered questionnaires distributed to eligible nurses. Prior to data collection, respondents were informed about the purpose of the study and assured of confidentiality and anonymity. Participation was voluntary, and completed questionnaires were used solely for research purposes. The data collection process was conducted in accordance with ethical research principles applicable to healthcare studies.

Data Analysis Technique

The collected data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). This technique was chosen due to its suitability for testing complex

models involving multiple relationships and mediating effects. SEM-PLS allows for simultaneous evaluation of the measurement model and the structural model, focusing on prediction and variance explanation.

The analysis involved two main stages. First, the measurement model was assessed to examine construct reliability and validity, including indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Second, the structural model was evaluated to test the proposed hypotheses by examining path coefficients, coefficient of determination (R^2), and the significance of direct and indirect effects. Bootstrapping procedures were applied to assess the statistical significance of the hypothesized relationships.

4. Results and Discussion

Respondent Characteristics

The respondents in this study consisted of 111 nurses working at Hospital X, Jakarta. The sample represents nurses who are directly involved in patient care and safety-related activities. The demographic characteristics indicate a diverse composition in terms of age, length of service, and educational background, reflecting the typical structure of nursing staff in hospital settings. This diversity supports the relevance of the findings in capturing varied perceptions of leadership, work environment, motivation, and patient safety culture.

Table 1. Respondent Characteristics.

No	Characteristics	Category	Frequency (f)	Percentage (%)
1	Age	< 25 y.o	23	20.7
		25 - 30 y.o	38	34.2
		31 - 35 y.o	37	33.3
		36 - 40 y.o	11	9.9
		> 40 y.o	2	1.8
	Total Age		111	100.0
2	Gender	Male	40	36.0
		Female	71	64.0
	Total Gender		111	100.0
3	Level of education	DIII Nursing	54	48.6
		Ners	15	13.5
		S1 Nursing	39	35.1
		S2 Nursing	3	2.7
	Total Level of education		111	100.0
4	Marital Status	Not married	45	40.5
		Married	66	59.5
	Total Marital Status		111	100.0
5	Length of Service	< 1 year	15	13.5
		1 - 2 years	36	32.4
		2 - 5 years	45	40.5
		5 - 10 years	12	10.8
		> 10 years	3	2.7
	Total Length of Service		111	100.0

Measurement Model Evaluation

The measurement model evaluation was conducted to assess the reliability and validity of the constructs prior to testing the structural relationships. Consistent with the procedure described in the original thesis, the assessment focused on indicator reliability, internal consistency reliability, convergent validity, and discriminant validity using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach.

Indicator reliability was examined through outer loading values. As reported in the thesis, most measurement indicators demonstrated loading values exceeding the recommended threshold of 0.70, indicating that the indicators adequately represented their respective latent constructs. Indicators with slightly lower loadings were retained when they remained theoretically relevant and contributed to acceptable levels of construct reliability and validity, consistent with PLS-SEM guidelines.

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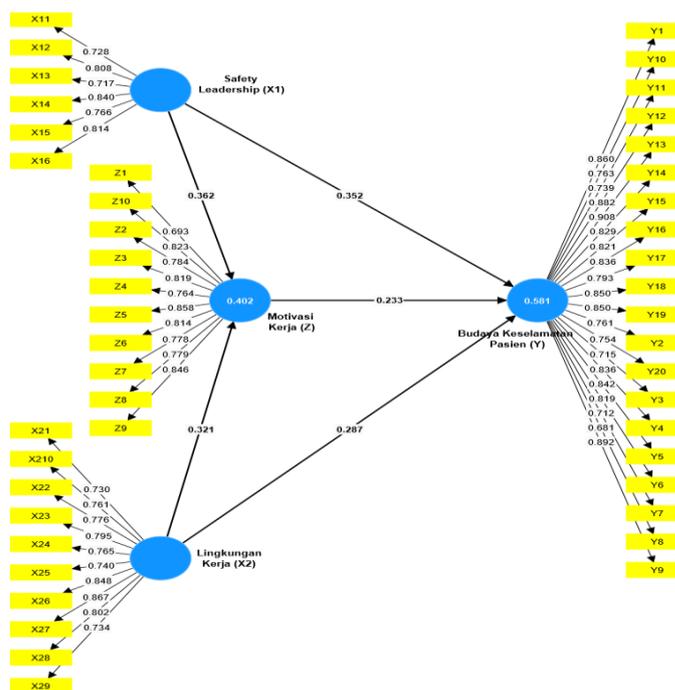
Figure 4. Model Construct Score.

Overall, the measurement model met all recommended reliability and validity criteria. The indicators demonstrated adequate reliability, and the constructs showed strong internal consistency, convergent validity, and discriminant validity. These results confirm that the measurement instruments used in this study were appropriate for capturing the latent variables and provided a sound basis for subsequent structural model analysis.

Structural Model Evaluation

Following the confirmation of an adequate measurement model, the structural model was evaluated to examine the relationships among the latent constructs and to assess the predictive power of the proposed research model. In line with the procedures applied in the original thesis, the evaluation focused on collinearity assessment, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2).

The goodness-of-fit assessment indicates that the PLS structural model demonstrates a high level of overall model fit. The obtained values of the Standardized Root Mean Square Residual (SRMR), Chi-square, and Normed Fit Index (NFI) meet the recommended criteria, supporting the adequacy of the proposed model for hypothesis testing. These results suggest that the estimated model exhibits an acceptable level of correspondence between the theoretical structure and the observed data. Accordingly, the model can be considered reliable for providing accurate and meaningful analysis of the relationships among the study variables, confirming that the structural model is appropriate for further interpretation of the research findings.

The strength of the structural model was evaluated using the coefficient of determination (R^2) and effect size (f^2) to assess the explanatory power of the exogenous variables on the endogenous constructs. This evaluation provides insight into the extent to which the proposed model explains variance in the dependent variables.
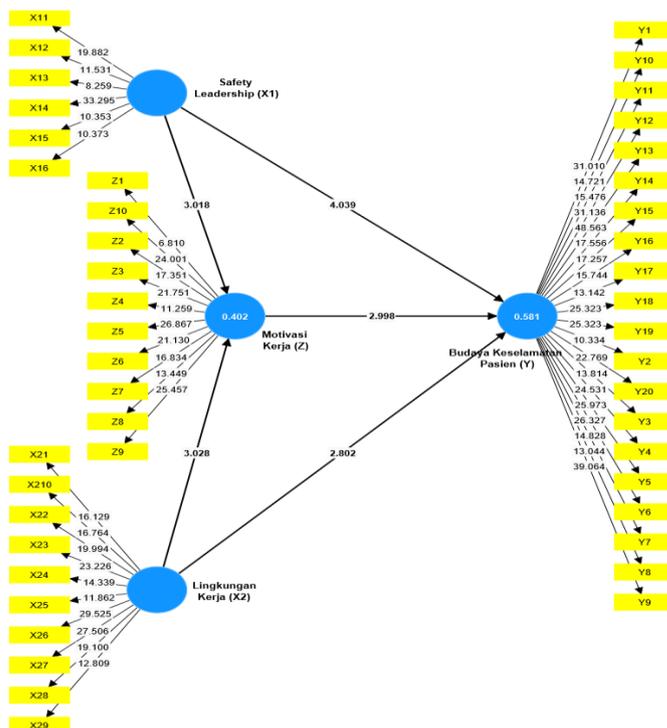
Figure 5. Bootstrapping Model (Inner Model).

In the first sub-structure, which examines the effects of safety leadership and work environment on work motivation, the R^2 value of 0.402 indicates a moderate level of explanatory power. This result suggests that approximately 40.2% of the variance in nurses' work motivation is explained by safety leadership and work environment. The remaining 59.8% of the variance is attributable to other factors not included in the model, indicating that work motivation is influenced by additional organizational and individual variables that warrant further investigation.

In the second sub-structure, which analyzes the effects of safety leadership, work environment, and work motivation on patient safety culture, the R^2 value of 0.581 reflects a substantial level of explanatory power. This finding indicates that 58.1% of the variance in patient safety culture can be explained by the combined effects of safety leadership, work environment, and work motivation, while the remaining 41.9% is influenced by external factors beyond the scope of the current model. These results suggest that patient safety culture is shaped by multiple interrelated organizational factors, and the proposed model captures a considerable proportion of these influences.

Overall, the R^2 values demonstrate that the structural model possesses adequate explanatory strength, particularly in explaining patient safety culture. This supports the robustness of the proposed framework and its suitability for examining the relationships among leadership, work environment, motivation, and patient safety outcomes in hospital settings.

Overall, the structural model demonstrates adequate quality and robustness. The absence of multicollinearity issues, strong goodness-of-fit, moderate to substantial explanatory power, meaningful effect sizes, and satisfactory predictive relevance indicate that the proposed model is suitable for hypothesis testing. These results provide a solid foundation for examining the direct and indirect effects among safety leadership, work environment, work motivation, and patient safety culture in the subsequent hypothesis testing analysis.

Discussion

This study examines how safety leadership and work environment influence patient safety culture, both directly and indirectly through nurses' work motivation. The discussion is aligned with the empirical findings and reflects the theoretical arguments presented in the original thesis, while emphasizing their implications within a management and leadership context.

The findings demonstrate that safety leadership has a significant direct effect on patient safety culture. This result supports organizational behavior theory, which posits that leadership plays a central role in shaping shared values, norms, and behavioral expectations within organizations. In line with the discussion in the thesis, leaders who consistently

prioritize patient safety, communicate clear safety expectations, and provide support for safety-related initiatives contribute to the development of a stronger safety culture among nurses. This finding reinforces the notion that patient safety culture is not merely a technical outcome but a reflection of leadership commitment and managerial consistency.

Similarly, the work environment is found to have a significant direct effect on patient safety culture. As discussed in the thesis, nurses' perceptions of workload, staffing adequacy, resource availability, and interpersonal relationships influence their ability to consistently implement safety practices. A supportive work environment reduces job strain and uncertainty, enabling nurses to focus on safe patient care. This finding aligns with systems-based perspectives in healthcare management, which emphasize that safety outcomes are shaped by organizational conditions rather than individual effort alone.

The results further indicate that safety leadership and work environment significantly influence nurses' work motivation. This supports the thesis discussion that leadership behaviors and environmental conditions function as key organizational stimuli that shape nurses' psychological engagement with their work. Leaders who demonstrate fairness, recognition, and involvement in safety initiatives enhance nurses' intrinsic and extrinsic motivation. Likewise, favorable working conditions strengthen nurses' willingness to invest effort and maintain professional responsibility, particularly in safety-critical situations.

Work motivation is also shown to have a significant direct effect on patient safety culture. This finding confirms the argument presented in the thesis that motivated nurses are more likely to comply with safety procedures, report incidents, and participate in patient safety improvement activities. Motivation acts as an internal driver that translates organizational policies and leadership intentions into consistent safety-oriented behavior.

Importantly, this study confirms the mediating role of work motivation in the relationships between safety leadership and patient safety culture, as well as between work environment and patient safety culture. As discussed in the thesis, leadership and environmental improvements alone do not automatically lead to stronger safety culture unless they enhance nurses' motivation. The partial mediation observed in this study indicates that safety leadership and work environment influence patient safety culture both directly and indirectly, underscoring the importance of integrating managerial actions with motivational strategies.

Overall, the discussion highlights that patient safety culture emerges from the interaction between leadership practices, organizational conditions, and individual motivation. Consistent with the thesis findings, this study reinforces the view that hospitals must adopt a holistic management approach in which safety leadership, supportive work environments, and nurse motivation are aligned to achieve sustainable improvements in patient safety culture.

5. Comparison

This section compares the findings of the present study with prior research to highlight similarities, differences, and the added value of the proposed model. Previous studies have consistently reported that leadership plays a critical role in shaping patient safety culture in healthcare organizations. Research conducted in various hospital settings has shown that leaders who prioritize safety, encourage open communication, and support non-punitive reporting systems contribute positively to safety culture. The findings of this study are consistent with these results, confirming that safety leadership has a significant positive effect on patient safety culture.

Similarly, the positive relationship between work environment and patient safety culture observed in this study aligns with prior evidence indicating that supportive working conditions are essential for safe nursing practice. Earlier studies emphasize that adequate staffing, manageable workloads, and organizational support reduce error risk and strengthen safety norms. The present findings reinforce this perspective by demonstrating that work environment remains a significant predictor of patient safety culture in the hospital context.

However, this study extends existing research by explicitly examining work motivation as an intervening mechanism linking safety leadership and work environment to patient safety culture. While many previous studies have focused primarily on direct relationships, fewer have explored how motivational factors translate organizational conditions into safety-related behaviors. The results reveal that work motivation partially mediates the effects of both safety leadership and work environment on patient safety culture, suggesting that organizational

factors influence safety outcomes not only through structural and managerial pathways but also through psychological processes.

Compared with studies that report only direct effects of leadership and environment on safety culture, this research provides a more nuanced explanation of the underlying mechanism. The partial mediation effect indicates that even when leadership and work environment are favorable, their impact on patient safety culture is strengthened when nurses are highly motivated. This finding helps explain inconsistencies in previous research regarding the magnitude of leadership and environmental effects, as variations in motivation may account for differences in reported outcomes.

In addition, this study contributes context-specific evidence from an Indonesian hospital setting, which remains underrepresented in the international patient safety literature. While many prior studies have been conducted in Western healthcare systems, the present findings demonstrate that the interplay between leadership, work environment, motivation, and safety culture is also relevant in developing healthcare systems. This contextual comparison enhances the generalizability of existing theories while emphasizing the importance of considering local organizational and cultural factors.

Overall, compared with prior research, this study offers an integrated perspective by combining organizational and motivational variables within a single empirical model. By positioning work motivation as a key mediating factor, the study advances understanding of how patient safety culture is formed and sustained, providing both theoretical refinement and practical insights for hospital management.

6. Conclusion

This study provides empirical evidence that patient safety culture in hospital settings is strongly shaped by organizational and managerial factors, particularly safety leadership, work environment, and nurses' work motivation. Consistent with the findings discussed in the original thesis, the results confirm that safety leadership and work environment play pivotal roles not only in directly strengthening patient safety culture, but also in indirectly influencing it through nurses' motivation.

The findings indicate that safety leadership is a critical driver of safety-oriented values and behaviors among nurses. Leaders who demonstrate commitment to safety, communicate clear expectations, and support staff in safety-related activities contribute to the internalization of safety norms within the organization. Similarly, a supportive work environment, characterized by adequate resources, manageable workloads, and positive interpersonal relationships creates conditions that enable nurses to consistently apply safety principles in daily clinical practice.

Importantly, this study highlights work motivation as a key psychological mechanism that links managerial practices to patient safety culture. The mediating role of motivation suggests that leadership initiatives and environmental improvements alone are insufficient unless they enhance nurses' intrinsic and extrinsic motivation. Motivated nurses are more likely to comply with safety procedures, report incidents, and actively participate in patient safety improvement efforts, thereby reinforcing a sustainable safety culture.

From a management and leadership perspective, these findings underscore the need for hospitals to adopt an integrated approach to patient safety culture development. Strengthening safety leadership competencies, improving work environment conditions, and systematically fostering nurses' motivation should be treated as interconnected strategies rather than isolated interventions. By aligning leadership behavior, organizational systems, and motivational processes, hospital management can more effectively build and sustain a strong patient safety culture that supports high-quality and safe healthcare delivery.

collection process. Appreciation is also extended to all respondents who voluntarily participated in this study.

Conflicts of Interest: The authors declare no conflict of interest.

Ethical Considerations: This study was conducted in accordance with ethical research principles. Participation was voluntary, and informed consent was obtained from all respondents. Confidentiality and anonymity of participants were maintained throughout the research process.

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