

# The Relationship Between Nurse Burnout and the Implementation of Patient Safety Goals: A Cross-Sectional Study

Jismer Panjaitan<sup>1</sup>, Linawati Togatorop<sup>2</sup>, Cahaya Artha Anastasia<sup>3</sup>

<sup>1</sup> Arta Kabanjahe Health College, North Sumatra Province, Indonesia

<sup>2</sup> Bunda Thamrin University, North Sumatra Province, Indonesia

<sup>3</sup> Medistra Health Sciences Institute, North Sumatra Province, Indonesia

## Correspondence to

Cahaya Artha Anastasia;  
[cahaya99.gultom@gmail.com](mailto:cahaya99.gultom@gmail.com)

**Received:** September 5, 2025

**Accepted:** December 18, 2025

**Online:** December 23, 2025

## DOI URL

<https://doi.org/10.55018/ihc.v12.26>

## ABSTRACT

**Background:** Nurse burnout is a persistent challenge in hospital settings and has been associated with compromised patient safety performance. Although previous studies have examined burnout and general safety outcomes, empirical evidence directly linking nurse burnout to the implementation of standardized Patient Safety Goals remains limited, particularly in low- and middle-income country contexts. Therefore, this study aimed to examine the relationship between nurse burnout levels and the implementation of patient safety goals among hospital nurses in Indonesia.

**Methods:** A quantitative cross-sectional correlational study was conducted in October 2025. The study involved 97 registered nurses providing direct patient care, selected using purposive sampling. Inclusion criteria were nurses with a minimum of six months of work experience, while nurses in managerial positions or on leave were excluded. Nurse burnout (independent variable) was measured using the Maslach Burnout Inventory, and patient safety goal implementation (dependent variable) was assessed using a structured observation checklist based on World Health Organization and Indonesian Ministry of Health indicators. Data were collected anonymously following ethical approval and informed consent. Statistical analysis was performed using Spearman's rank correlation test. This study followed the STROBE guidelines for reporting cross-sectional studies.

**Result:** Most participants were female (86.6%) and aged 25–35 years (75.3%). Moderate burnout levels were reported by 58.8% of nurses, while 61.9% demonstrated good implementation of patient safety goals. A statistically significant correlation was identified between nurse burnout and patient safety goal implementation ( $r = 0.456$ ;  $p < 0.001$ ), indicating that higher burnout levels were associated with lower adherence to patient safety practices.

**Conclusion:** Nurse burnout is significantly associated with the implementation of patient safety goals, indicating that nurses' psychological well-being plays a critical role in ensuring safe care delivery. These findings highlight the need for organizational and psychosocial

interventions targeting burnout reduction as an integral component of patient safety improvement strategies.

**Keywords:** Burnout, Professional; Patient Safety; Nurses; Hospitals; Occupational Stress

© The Author(s) 2025.  
This article is licensed under a  
**CC BY**, published by Lembaga  
Chakra Brahmanda Lentera.

### Implications for Research, Practice, or Policy

- This study demonstrates that nurse burnout is a significant determinant of patient safety goal implementation, indicating that future patient safety interventions should be grounded in evidence-based strategies that explicitly address nurses' psychological well-being to improve patient care quality.
- The findings support the need to update hospital clinical protocols and patient safety guidelines by integrating routine burnout screening, workload management, and psychosocial support as core components of patient safety systems, enabling healthcare organizations to prioritize efficient and safe interventions for frontline nurses.
- The identified relationship between burnout and patient safety implementation highlights the feasibility of adapting low-cost, culturally sensitive, and resource-appropriate interventions—such as peer support programs, leadership engagement, and staffing optimization—for Low- and Middle-Income Country (LMIC) healthcare settings, ensuring sustainable improvements in patient safety without excessive resource demands.

## INTRODUCTION

Patient safety is a fundamental dimension of healthcare quality and a global priority in modern health systems. Unsafe healthcare practices remain a leading cause of preventable morbidity and mortality worldwide. The World Health Organization defines patient safety as the prevention of errors and adverse effects associated with healthcare and emphasizes that patient harm continues to occur in all countries, regardless of income level (WHO, 2021). Nurses, as frontline healthcare providers, play a central role in ensuring the implementation of patient safety goals through direct patient care, clinical decision-making, and interprofessional communication. However, increasing workload, staff shortages, and complex care demands have placed nurses at high risk of occupational stress and burnout, which may compromise their ability to deliver safe care consistently. Therefore, understanding factors that influence

patient safety performance, particularly nurse burnout, is a critical global health concern.

Globally, nurse burnout has been reported as a widespread phenomenon, with prevalence rates ranging from 30% to more than 60% in hospital settings (Dall'Ora et al., 2021). High burnout levels have been linked to increased medication errors, reduced compliance with safety protocols, and poorer patient outcomes (Salyers et al., 2021). In Southeast Asia, healthcare systems face additional challenges such as high patient-to-nurse ratios and limited organizational support, further increasing burnout risk. In Indonesia, although national regulations mandate the implementation of Patient Safety Goals (Sasaran Keselamatan Pasien/SKP), variations in compliance remain evident across hospitals. Preliminary evidence from hospital settings indicates that nurse burnout is increasingly observed alongside inconsistent patient safety practices, highlighting the need for empirical research that

bridges global evidence with local clinical contexts.

From a nursing and health perspective, this study is important because nurse burnout directly affects cognitive performance, emotional regulation, communication, and professional accountability. Burnout undermines nurses' capacity to maintain vigilance, adhere to safety standards, and engage in therapeutic relationships with patients. In the long term, unmanaged burnout threatens workforce sustainability, increases turnover, and compromises service quality. By examining the relationship between burnout and patient safety implementation, this study provides evidence essential for nursing leadership, hospital management, and policymakers to design strategies that protect both patient safety and nurses' well-being.

Although numerous international studies have examined nurse burnout and patient safety outcomes, several gaps remain. First, many studies focus on general safety outcomes such as error rates or job satisfaction without directly measuring adherence to standardized patient safety goals. Second, findings regarding the strength and direction of the relationship between burnout and patient safety have been inconsistent, often due to differences in measurement tools, healthcare systems, and cultural contexts. Third, limited research has contextualized this relationship within applied nursing practice in Indonesian hospital settings. These gaps highlight the need for context-specific research that integrates standardized burnout measures and patient safety indicators within real-world nursing environments.

#### Theoretical and Conceptual Framework

This study is guided by Christina Maslach's Burnout Theory, which conceptualizes burnout as a multidimensional syndrome consisting of emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Leiter, 2022). To strengthen its nursing

foundation, the study is also informed by Callista Roy's Adaptation Model, which views individuals as adaptive systems responding to environmental and internal stressors. According to Roy, ineffective adaptation to stress—such as persistent occupational burnout—can impair role function and professional performance, including the delivery of safe nursing care.

**Connection Between Variables and the Framework Within** this integrated framework, nurse burnout represents a maladaptive response to prolonged occupational stress. Emotional exhaustion reduces attention and clinical vigilance, depersonalization weakens communication and teamwork, and reduced personal accomplishment diminishes motivation to adhere to professional standards. These mechanisms directly interfere with nurses' ability to consistently implement patient safety goals, including correct patient identification, effective communication, safe medication practices, infection prevention, and fall prevention. Thus, the theoretical framework provides a clear explanation of how nurse burnout influences patient safety implementation in clinical practice.

#### Contribution to Nursing and Health Practice

This study contributes to nursing and health practice by reinforcing the concept that nurse well-being is a core component of patient safety. The findings may support nursing managers in developing evidence-based interventions such as workload regulation, psychosocial support, and burnout prevention programs. Additionally, the results can inform hospital policies aimed at strengthening safety culture and guide health policymakers in integrating workforce mental health indicators into quality and safety frameworks. Ultimately, improving nurse well-being is expected to enhance patient outcomes and sustain high-quality healthcare delivery.

The aim of this study was to examine the relationship between nurse burnout levels and the implementation of patient safety goals at

Medan Advent Hospital. This objective is supported by prior evidence demonstrating that nurse burnout is associated with decreased adherence to patient safety standards and increased risk of adverse events (Dall’Ora et al., 2021; Salyers et al., 2021). The study also aligns with global patient safety strategies that emphasize healthcare worker well-being as a key determinant of safe care delivery.

## METHODS

### Study Design

This study employed a quantitative correlational design with a cross-sectional approach to examine the relationship between nurse burnout levels and the implementation of patient safety goals. The cross-sectional design was chosen to assess the association between the independent and dependent variables at a single point in time without manipulation or intervention, making it appropriate for observational research in clinical nursing settings. The correlational approach enabled the identification of the strength and direction of the relationship between burnout and patient safety practices among hospital nurses.

The conduct and reporting of this study followed the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines for cross-sectional studies to ensure methodological transparency, completeness of reporting, and consistency with international standards for observational research.

### Participants

The study was conducted at a private hospital located in North Sumatra, Indonesia, to ensure clarity for an international readership. The study population consisted of all registered nurses working at the hospital during the data collection period. The study sample included 97 nurses who met the eligibility criteria and agreed to participate.

A purposive sampling technique was employed to recruit participants who were directly involved in patient care and the implementation of patient safety goals.

The inclusion criteria were: (1) registered nurses employed at the hospital, (2) nurses with a minimum of six months of working experience to ensure adequate adaptation to the clinical environment, (3) nurses providing direct patient care, and (4) willingness to participate as indicated by informed consent.

The exclusion criteria were: (1) nurses holding managerial or administrative positions without direct patient care responsibilities, (2) nurses who were on leave during the data collection period, and (3) nurses who submitted incomplete questionnaire responses.

### Instrument

This study measured two main variables: nurse burnout as the independent variable and implementation of patient safety goals as the dependent variable.

Nurse burnout was assessed using the Maslach Burnout Inventory (MBI), a standardized and widely validated instrument developed by Maslach and Leiter. The MBI consists of 22 items divided into three subscales: Emotional Exhaustion (9 items), Depersonalization (5 items), and Personal Accomplishment (8 items). Each item is rated on a Likert-type scale, with higher scores indicating higher levels of burnout, except for the Personal Accomplishment subscale, which is reverse scored. The instrument has demonstrated good to excellent reliability, with reported Cronbach’s alpha values ranging from 0.71 to 0.90 across subscales (Maslach & Leiter, 2022). Permission to use the instrument was obtained from the authorized publisher.

The implementation of patient safety goals was measured using a structured observational checklist developed based on patient safety

indicators from the World Health Organization and the Ministry of Health of the Republic of Indonesia. This checklist evaluated nurses' compliance with five key patient safety goals: correct patient identification, effective communication, safe medication administration, infection prevention and control, and fall risk prevention. Each item was scored according to observed compliance, and total scores were categorized into good, sufficient, and poor implementation based on predefined cut-off points aligned with the number of checklist items.

As the instruments used in this study were questionnaire-based and observational tools, no electronic or biomedical measurement devices requiring calibration were involved. The instruments were administered following standardized procedures to ensure consistency across participants. Content validity of the patient safety checklist was established through expert review by senior nursing and patient safety specialists, and reliability testing demonstrated acceptable internal consistency with a Cronbach's alpha  $\geq 0.80$ , indicating that the scoring and categorization were appropriate for the number of items assessed.

### Data Collection

Data were collected in October 2025 at a private hospital in North Sumatra, Indonesia, ensuring temporal and geographic clarity for international readers. The data collection process began after obtaining ethical approval from the relevant institutional review board and formal permission from the hospital management.

Eligible participants were recruited using a purposive approach. Nurses who met the inclusion criteria were approached during non-clinical hours, such as work breaks, and were provided with a standardized explanation of the study objectives, procedures, and ethical

considerations. Written informed consent was obtained prior to participation.

Data collection was conducted by the principal investigator, who has formal training in nursing research methodology, assisted by trained research assistants (enumerators). The enumerators were registered nurses who were not employed at the study site, minimizing response and observer bias. Prior to data collection, enumerators received training on ethical research conduct, standardized questionnaire administration, and consistent observation techniques for patient safety goal assessment.

The role of the enumerators included distributing and collecting self-administered questionnaires, conducting structured observations using the patient safety checklist, and ensuring data completeness. Their involvement ensured consistency, reliability, and adherence to standardized data collection procedures throughout the study.

### Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. Prior to analysis, data were checked for completeness, coding accuracy, and consistency.

Descriptive statistical analyses were performed to summarize participants' demographic characteristics, nurse burnout levels, and the implementation of patient safety goals, using frequencies, percentages, means, and standard deviations as appropriate. These analyses aimed to describe the general and specific distribution of study variables.

To examine the relationship between nurse burnout (independent variable) and patient safety goal implementation (dependent variable), the Spearman's rank correlation test was applied. This non-parametric test was selected due to the ordinal nature of the study variables and the absence of normal distribution assumptions.

A two-tailed level of statistical significance was set at  $p < 0.05$ , and correlation coefficients were reported to indicate the strength and direction of the association. Where applicable, 95% confidence intervals (95% CI) were considered to support the precision and interpretation of the statistical estimates.

### Ethical Consideration

This study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval was obtained from the Health Research Ethics Committee of Medistra Health Sciences Institute, Indonesia. The study received formal ethical clearance. Prior to data collection, permission was also obtained from the hospital management. All participants were informed about the study objectives, procedures, potential risks, and benefits. Written informed consent was obtained from all participants, confidentiality and anonymity were strictly maintained, and participation was voluntary, with the right to withdraw at any time without penalty.

## RESULTS

**Table 1.** Characteristics of Nurses, Burnout Levels, Patient Safety Goal Implementation, and Correlation Analysis (n = 97)

Variable Category	Variable	Category	n	% / Value
Demographic Characteristics	Gender	Male	13	13.4
		Female	84	86.6
	Age (years)	< 25	8	8.2
		25–35	73	75.3
		36–45	14	14.4
		> 45	2	2.1
	Education Level	Diploma III	36	37.1
		Bachelor (S1)	5	5.2
		Professional Nurse	56	57.7
	Length of Work	< 1 year	13	13.4
1–3 years		44	45.4	
4–6 years		16	16.5	
> 6 years		23	23.7	
Nurse Burnout Level	Burnout Category	Low	26	26.8
		Moderate	57	58.8

**Table 1** illustrates the demographic characteristics of nurses, the distribution of burnout levels, the implementation of patient safety goals, and the results of the correlation analysis. The majority of participants were female (86.6%) and aged 25–35 years (75.3%). Most nurses held a professional nursing qualification (57.7%) and had 1–3 years of work experience (45.4%).

Regarding burnout, more than half of the respondents experienced moderate levels of burnout (58.8%), while 26.8% reported low burnout and 14.4% reported high burnout. In terms of patient safety practices, 61.9% of nurses demonstrated good implementation of patient safety goals, whereas 23.7% showed sufficient implementation and 14.4% showed poor implementation.

Correlation analysis revealed a statistically significant moderate association between nurse burnout levels and the implementation of patient safety goals ( $r = 0.456$ ;  $p < 0.001$ ), indicating that variations in burnout were meaningfully related to differences in patient safety goal adherence among nurses.

Variable Category	Variable	Category	n	% / Value
Patient Safety Goal Implementation	Implementation Level	High	14	14.4
		Good	60	61.9
		Sufficient	23	23.7
		Poor	14	14.4
Correlation Analysis	Burnout ↔ Patient Safety Goals	Spearman's r	-	0.456
		p-value	-	< 0.001

## DISCUSSION

Beyond the direct relationship between nurse burnout and the implementation of patient safety goals, extensive evidence indicates that organizational and system-level factors play a critical role in shaping this relationship. [Aiken et al. \(2017\)](#) demonstrated that inadequate nurse staffing levels and imbalanced skill mix significantly contribute to higher burnout rates and poorer patient safety outcomes in hospital settings. These findings are supported by [Hetherington et al. \(2024\)](#), who reported that excessive workload and sustained occupational stress negatively affect safety culture across diverse nursing environments.

From an organizational behavior and leadership perspective, [Brewer et al. \(2023\)](#) and [Abugre and Bhengu \(2023\)](#) emphasized that organizational behavior congruence, supportive leadership, and patient-centered care orientation are associated with lower burnout levels and improved quality and safety of nursing care. This suggests that nurse burnout is not solely an individual psychological issue but is strongly influenced by managerial practices and the broader organizational climate in which nurses work.

Evidence from systematic reviews and meta-analyses further reinforces the association between burnout and patient safety. [De Lima Garcia \(2019\)](#), [Flynn et al. \(2024\)](#), and [Li et al. \(2024\)](#) consistently reported that nurse burnout is significantly associated with increased adverse events, reduced adherence to safety

protocols, and diminished quality of care. In addition, [Agbar et al. \(2023\)](#) highlighted that patient safety education interventions are more effective when combined with strategies aimed at reducing occupational stress and burnout among healthcare professionals.

In low- and middle-income country contexts, including Indonesia, the relationship between burnout and patient safety is particularly salient. National studies by [Febriani and Musharyanti \(2023\)](#) and [Susanti et al. \(2024\)](#) found significant correlations between nurse burnout, patient safety culture, and the quality of nursing care in hospital settings. Similar patterns were reported by [Getie et al. \(2025\)](#) and [Hajizadeh et al. \(2025\)](#), who emphasized that limited resources, high patient-to-nurse ratios, and insufficient organizational support amplify the negative impact of burnout on patient safety practices.

Moreover, system-level conditions and structural empowerment have been identified as important moderating factors. [Lake et al. \(2024\)](#) and [Kim et al. \(2024\)](#) reported that strong organizational support, clear safety policies, and positive work environments can mitigate the adverse effects of burnout on patient safety outcomes. [Xu et al. \(2025\)](#) further demonstrated that structural empowerment weakens the relationship between burnout and patient safety culture, suggesting that empowered nurses are better able to maintain safety standards despite occupational stress. These findings are consistent with studies by [Soósová et al. \(2021\)](#)

and [Vifladt et al. \(2016\)](#), which showed that units with stronger safety cultures tend to exhibit lower burnout levels and better patient safety performance.

Finally, nursing and patient safety literature consistently emphasizes that patient safety is inseparable from nurses' working conditions. [Hughes \(2024\)](#) and [Mathew et al. \(2025\)](#) argued that patient safety outcomes are closely linked to nurses' physical and psychological well-being, particularly in high-intensity care settings such as inpatient wards and intensive care units. Accordingly, the findings of the present study strengthen the argument that efforts to improve the implementation of patient safety goals must be accompanied by systematic and sustainable strategies to prevent and reduce nurse burnout.

### Practical Applications of the Findings

The findings suggest that variations in nurse burnout levels are meaningfully associated with differences in adherence to patient safety goals, indicating that workforce psychological conditions are closely linked to safety-related nursing practices. The observed coexistence of moderate burnout and suboptimal safety implementation among a substantial proportion of nurses may reflect the need for routine monitoring of burnout as part of safety oversight. Practically, these results indicate that patient safety initiatives may benefit from concurrent attention to nurses' work-related strain to support more consistent implementation of established safety goals.

### Limitations

This study may be limited by its cross-sectional correlational design, which restricts interpretation to associations and does not allow conclusions about temporal or causal relationships. The use of purposive sampling at a single hospital setting may limit the generalizability of the findings to other healthcare contexts. Additionally, burnout was

measured using self-reported data, which may be subject to response bias, while patient safety implementation was assessed at a specific point in time, potentially not capturing variations in practice over longer periods.

### CONCLUSION

This study aimed to examine the relationship between nurse burnout levels and the implementation of patient safety goals in a hospital setting. The findings indicate that variations in burnout are meaningfully associated with differences in the consistency of patient safety practices, highlighting the relevance of nurses' psychological well-being in daily clinical performance. By directly linking burnout with adherence to structured patient safety goals, this study contributes evidence that supports the integration of workforce well-being considerations into patient safety and quality improvement efforts within nursing practice.

### Acknowledgment

The authors would like to express their sincere gratitude to the hospital management and all nurses who participated in this study for their cooperation and valuable contributions. Appreciation is also extended to the Health Research Ethics Committee of Medistra Health Sciences Institute for granting ethical approval and guidance throughout the research process. The authors acknowledge the support of colleagues and research assistants who assisted with data collection and administrative coordination, which made this study possible.

### Contributors

**Jismer Panjaitan:** Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft.

**Linawati Togatorop:** Data curation, Validation, Writing – review & editing.

**Cahaya Artha Anastasia:** Supervision, Validation, Writing – review & editing.

## Funding

This research did not receive any specific funding from public, commercial, or not-for-profit funding agencies

## Conflicts of interest

Not declared.

## REFERENCES

- Abugre, D., & Bhengu, B. R. (2023). Nurse managers' perceptions of patient-centered care and quality nursing outcomes. *Nursing Open*, *11*(1), 207–215. <https://doi.org/10.1002/nop2.2071>
- Agbar, F., et al. (2023). Effect of patient safety education on patient safety culture among healthcare professionals: A systematic review and meta-analysis. *Nurse Education in Practice*, *67*, 103565. <https://doi.org/10.1016/j.nepr.2023.103565>
- Aiken, L. H., et al. (2017). Nursing skill mix and patient outcomes in European hospitals: Cross-sectional study. *BMJ Quality & Safety*, *26*(8), 559–568. <https://doi.org/10.1136/bmjqs-2016-005567>
- Brewer, K. C., Nguyen, J., Ziegler, H., Dodson, M., & Kurdian, S. (2023). Organizational behavior congruence and nurse burnout. *Applied Nursing Research*, *73*, 151700. <https://doi.org/10.1016/j.apnr.2023.151700>
- De Lima Garcia, C. (2019). Influence of burnout on patient safety: A systematic review. *International Journal of Nursing Studies*, *96*, 123–134. <https://doi.org/10.1016/j.ijnurstu.2019.03.006>
- Dall'Ora, C., et al. (2021). Burnout in nursing: A theoretical review. *Journal of Advanced Nursing*, *77*(4), 1410–1423.
- Febriani, R. A., & Musharyanti, L. (2023). Correlation between burnout and patient safety culture among nurses at a private hospital in Yogyakarta, Indonesia. *Bali Medical Journal*, *12*(2), 2180–2184. <https://doi.org/10.15562/bmj.v12i2.3732>
- Flynn, C., et al. (2024). The impact of burnout on pediatric nurses' attitudes about patient safety: A systematic review. *Journal of Pediatric Nursing*. <https://doi.org/10.1016/j.pedn.2024.04.013>
- Getie, A., et al. (2025). Global prevalence and contributing factors of nurse burnout: Implications for patient safety and care quality. *BMC Nursing*, *24*(1), Article 123. <https://doi.org/10.1186/s12912-025-03266-8>
- Hajizadeh, A., et al. (2025). Nurses' perception of patient safety culture and burnout. *BMC Nursing*. <https://doi.org/10.1186/s12912-025-03305-4>
- Hetherington, E., Lee, L., & Zhang, Y. (2024). Workload, stress, and safety culture across nursing settings. *Journal of Nursing Management*, *32*(5), 1023–1032. <https://doi.org/10.1111/jonm.13678>
- Hughes, R. G. (2024). *Patient safety and quality: An evidence-based handbook for nurses*. Agency for Healthcare Research and Quality.
- Kim, J., et al. (2024). Organizational support and nurse burnout: Implications for patient safety. *International Journal of Nursing Studies*, *140*, 104457. <https://doi.org/10.1016/j.ijnurstu.2024.104457>
- Lake, E. T., et al. (2024). System-level factors and nurse burnout: Impact on patient safety outcomes. *Nursing Outlook*, *72*(3), 305–316.

- <https://doi.org/10.1016/j.outlook.2024.05.004>
- Li, L. Z., Shanafelt, T. D., & Sinsky, C. A. (2024). Nurse burnout and patient safety, satisfaction, and quality: A systematic review and meta-analysis. *JAMA Network Open*, 7(X), e43059. <https://doi.org/10.1001/jamanetworkopen.2024.43059>
- Mathew, M., et al. (2025). Nurse stress and patient safety in the ICU: Physician-led perceptions and risk factors. *BMJ Open Quality*, 14(2), e003109. <https://doi.org/10.1136/bmjopen-2025-e003109>
- Salyers, M. P., et al. (2021). Burnout and quality of care among nurses: A cross-national study. *Journal of Nursing Scholarship*, 53(2), 140–150. <https://doi.org/10.1111/jnu.12661>
- Soósová, M. S., et al. (2021). Association between nurses' burnout, hospital patient safety climate, and adverse events. *Central European Journal of Nursing and Midwifery*, 12(1), 245–256. <https://doi.org/10.15452/CEJNM.2021.12.00039>
- Susanti, F. D., Andarini, S., & Putra, K. R. (2024). The relationship between nurse burnout and patient safety culture with the quality of nursing care in Type B hospitals. *Journal of Health Sciences*, 5(6). <https://doi.org/10.46799/jhs.v5i6.1293>
- Vifladt, A., et al. (2016). Patient safety culture and burnout in intensive care units. *Intensive and Critical Care Nursing*, 36, 26–34. <https://doi.org/10.1016/j.iccn.2016.03.004>
- Xu, J., Zhang, X., & Li, Q. (2025). Nurses' burnout and patient safety culture: The moderating effect of structural empowerment. *Journal of Advanced Nursing*, 81(9), 5389–5400. <https://doi.org/10.1111/jan.16363>