Accepted Manuscript

Accepted Manuscript (Uncorrected Proof)

Title: The Mediating Role of Motivation in The Relationship Between Nurses' Professional Competence and The Nursing Work Environment with Patient Safety Management Activities

Authors: Clara Agustina[1,*], Kuswantoro Rusca Putra[1], Fransiska Imavike Fevriasanty[1]

1. *Department of Nursing, Faculty of Health Science, Universitas Brawijaya, Malang, Indonesia.*

To appear in: ***Journal of Client-centered Nursing Care***

Received date: 2025/11/13

Revised date: 2025/12/02

Accepted date: 2025/12/07

Please cite this article as:

Agustina, C., Rusca Putra, K. & Imavike Fevriasanty, F., 2026. The Mediating Role of Motivation in The Relationship Between Nurses' Professional Competence and The Nursing Work Environment with Patient Safety Management Activities. To be published in *Journal of Client-centered Nursing Care* [Preprint].

Doi: http://dx.doi.org/10.32598/jccnc.12.2.1173.1

Abstract

Background: Nurses' motivation bridges individual and organizational factors with patient safety practices, yet inconsistent findings on its mediating role highlight the need of further context-based investigation. Therefore, this study aimed to analyse the mediating role of motivation in the relationship between nurses' professional competence and work environment with patient safety management activities.

Methods: This cross-sectional correlational study was conducted in three hospitals in Malang Raya, East Java, Indonesia from August to September 2025. The study sample included 225 nurses recruited by proportional quota sampling. Data were collected using Nurse Professional Competence (NPC) scale, Practice Environment Scale of the Nursing Work Index (PES-NWI), Safety Motivation Tool, and Safety Care Activity scale. Data analysis was conducted using Structural Equation Modelling-Partial Least Squares (SEM-PLS) with SmartPLS version 4.0, applying a significance level of 5% to examine the relationships among the variables.

Results: Professional competence significantly affected motivation ($\beta = 0.354$, $p = 0.000$) and patient safety management activities ($\beta = 0.082$, $p = 0.042$). The work environment also showed significant effects on motivation ($\beta = 0.177$, $p = 0.005$) and patient safety management activities ($\beta = 0.119$, $p = 0.002$). Motivation had a strong effect on patient safety management activities ($\beta = 0.734$, $p = 0.000$) and significantly mediated the relationships between professional competence ($\beta = 0.260$, $p = 0.000$), work environment ($\beta = 0.130$, $p = 0.007$), and patient safety management activities. The model demonstrated good fit (SRMR = 0.059).

Conclusion: The results emphasize that enhancing nurses' professional competence through continuous learning and career development programs is crucial to strengthening motivation and improving patient safety management activities. This study contributes to understanding patient safety practices in Indonesian hospitals. Further research is recommended to compare hospital types to explore organizational context differences.

Keywords: Nurses, Professional Competence, Work Environment, Motivation, Patient Safety

Highlights

- Nurses' motivation plays a crucial mediating role between professional competence and nursing working environment with patient safety management activities.
- Strengthening nurses' competence and creating supportive work environments can enhance motivation and promote safer and higher-quality nursing care.
- Future studies recommended to compare hospital types to explore organizational context differences.

Plain Language Summary

Patient safety is an essential part of healthcare, and nurses play a crucial role in maintaining it. This study examined how nurses' competence and work environment influence patient safety management activities through motivation. The findings showed that nurses with stronger competence and a more supportive work environment tend to have higher safety motivation. Greater motivation then leads to better safety practices, such as preventing errors and following safety procedures. These results highlight the importance of improving nurses' skills and creating supportive workplaces to strengthen patient safety, which ultimately contributes to safer care and better overall healthcare quality.

Background

Patient safety represents a serious global challenge in healthcare systems. The World Health Organization (WHO, 2021) reports that approximately 134 million patient safety incidents (PSIs) occur annually in low- and middle-income countries, causing 2.6 million deaths, while around 10% of hospitalized patients in high-income countries experience similar events. Adverse Events (AEs) are the most frequent type of PSI, accounting for 72.5% in South Africa (Singh and Mahomed, 2023) and 87.78% in Indonesia (Dhamanti *et al.*, 2024). Commonly reported incidents include medication errors, patient falls, healthcare-associated infections (HAIs), procedural errors, and patient identification errors (WHO, 2021). The impacts of AEs include injury, prolonged hospitalization, increased complications, death, psychological stress on healthcare workers, and financial and reputational losses for hospitals (Lee and Cho, 2022; Almanhali *et al.,* 2024; Kim and Kim, 2024). Globally, AEs also hinders the achievement of Universal Health Coverage (UHC) and Sustainable Development Goals (SDGs) (WHO, 2024).

Nurses play a central role in the patient safety practices, as they engage in direct and continuous interactions with patients, encompassing all areas of the International Patient Safety Goals (IPSG) such as patient identification, effective communication, and fall prevention (Jeong and Jeong, 2022; Ramsay *et al.*, 2025). Nurses' compliance with IPSG procedure is influenced by individual factors such as motivation, knowledge, and fatigue, as well as organizational factors including work environment support and safety culture (Bjerkan *et al.,* 2021; Cho and Steege, 2021; Janes *et al.,* 2021; Wang *et al.*, 2024). Therefore, organizations need to ensure synergy between nurses' internal and external factors to strengthen compliance with patient safety practices (Astarini and Lilyana, 2021; Kim et al., 2022).

Professional competence, as one of the internal factors identified in numerous previous studies, has a significant relationship with the quality of care and patient safety. (Halabi *et al.,* 2021; Zaitoun *et al.,* 2023). This competence is developed through formal education, training,

and continuous clinical experience, as emphasized in Benner's theory From Novice to Expert (Zaitoun, 2024). Organizational support for both formal and informal learning is essential to strengthen nurses' competencies in applying patient safety principles (Kim, 2020; Taji *et al.,* 2023; Hamid *et al*, 2024).

Organizational factors, including the nursing work environment, has also been widely identified in previous studies as an external factor influencing patient safety. A positive work environment that fosters collaboration, team communication, and professional autonomy has been shown to have a direct effect on nurses' compliance with patient safety practices (Cho and Steege, 2021; Hennus *et al.*, 2021; Kim and Kim, 2024). Healthy work environment enhance job satisfaction and work engagement, whereas high workloads and lack of organizational support can trigger burnout and reduce safety motivation (El-Gazar *et al.*, 2022; Arsani *et al.*, 2023; Fan *et al.*, 2024).

Motivation has been widely recognized as a mediating factor linking both internal and external factors of individuals and the implementation of patient safety practices, given its role as a key mechanism in enhancing nurses' awareness (Subramaniam *et al.*, 2023). Structural model analyses have shown that safety climate (Seo and Lee, 2022) and leadership (Subramaniam *et al.*, 2023) indirectly influence patient safety compliance through the mediation of motivation and knowledge. However, research by Yoon and Lee, (2022) on military nurses found that only knowledge mediated this relationship, indicating that mediating role of motivation remains inconsistent, although motivation has been consistently shown to be directly associated with compliance with patient safety goals (Alhidayah *et al.*, 2020; Kim and Jang, 2024; Manalu *et al.*, 2024) .

The inconsistency in the mediating role suggests the possibility of contextual differences or the presence of other determinants influencing the relationship among the variables. According to Job Demands-Resources (JD-R) Theory, professional competence and work

environment, as resources, do not directly enhance performance, but are mediated by motivation (Bakker *et al.*, 2023). Similarly, Self-Determination Theory (SDT) explains that autonomy, relatedness, and competence shaped by the work environment contribute to nurses' motivation (Padauleng *et al.*, 2020; Koivisto *et al.*, 2021). Based on these perspectives, further research is needed to integrate both individual-level factors (professional competence) and organizational-level factors (work environment) simultaneously, while considering nurses' motivation as a mediator. Therefore, this study aims to analyse the relationship between professional competence and work environment on patient safety management activities through nurses' motivation as a mediating variable.

Materials & Methods

Design, Setting, and Sample

This study employed a quantitative correlational design with a cross-sectional approach. The research was conducted across three hospitals in Malang Raya, East Java. The study population consisted of all staff nurses working in inpatient units. The sample size was determined using Slovin's formula, yielding a minimum of 195 nurses from a population of 381, which was adjusted by 10% to anticipate non-responses, resulting in a minimum target sample size of 215. Proportional quota sampling was used to select participants based on hospital representation. Data collection resulted in 225 valid responses questionnaires, which were included in the analysis.

Research Instrument

Demographic Characteristics

A demographic questionnaire was used to obtain information on nurses' characteristics, including age, gender, education level, years of experience, and clinical career level.

Professional Competence

The professional competence as an independent variable was measured using the short version of the Nurse Professional Competence (NPC) Scale by Nilsson *et al.* (2018) and validated in the Arabic version by Grande *et al.*, (2023). This instrument consists of 21 items encompassing three dimensions: direct nursing care, holistic value-based care, and professional care pedagogics. Each item is rated on a 4- point Likert scale (1 = very low to 4 = very high), with total score ranging from 21–84, where higher scores indicate a higher level of professional competence. The original study reported a Cronbach's α = 0.981, while in this study, the instrument was culturally adapted into Indonesian, and all items were found to be valid with Pearson's correlations coefficients (r = 0.601 - 0.848) and a Cronbach's α = 0.966.

Work Environment

The nursing work environment as an independent variable was measured using the short form of the Practice Environment Scale of the Nursing Work Index (PES-NWI), the PES-5 which was developed by Lake *et al.* (2024). This instrument consists of 28 items covering five subscales: staffing and resource adequacy; collegial nurse–physician relationships; nurse manager ability, leadership, and support; nursing foundations for quality of care; and nurse participation in hospital affairs. Each item is rated on a 4-point Likert scale (1 = strongly disagree to 4 = strongly agree). Total scores range from 28 to 112, with higher scores indicating a more positive perception of the work environment. The original study reported a Cronbach's α = 0.81, whereas in this study, the instrument was culturally adapted into Indonesian, with Pearson's correlation coefficients (r = 0.410 - 0.869), and the Cronbach's α = 0.951.

Motivation

Motivation as a mediating variable was measured using the Safety Motivation Tool by Vinodkumar and Bhasi (2010), which was adapted into five positive statements relevant to patient safety by Subramaniam *et al.*, (2023) to represent the individual responsibility dimension. Responses were rated on 4-point Likert scale (1 = strongly disagree to 4 = strongly agree), with total score ranging from 5 to 20; with higher scores indicating higher levels of safety motivation. The original version reported a Cronbach's $\alpha = 0.72$, whereas in this study, the instrument was culturally adapted into Indonesian, with Pearson's correlation coefficients ($r = 0.826 - 0.909$), and the Cronbach's $\alpha = 0.921$.

Patient Safety Management Activities

Patient safety management activities variables were measured using the Safety Care Activity Scale developed by Yang,(2021). The original instrument consisted of 44 items across eight dimensions, but it was adapted to context of this study to include 27 items representing five main dimensions: patient identification, medication, management of infection, management of falls, and data security. Responses were rated on a 4-point Likert scale (1 = strongly disagree to 4 = strongly agree). The original version reported Cronbach's $\alpha = 0.88 - 0.95$. In this study, the instrument was culturally adapted into Indonesian. One item ($r < 0.361$) was considered invalid and removed due to thematic redundancy, resulting in 26 valid items. After the removal, validity testing showed $r = 0.656 - 0.936$, and the Cronbach's $\alpha = 0.985$. The total questionnaire score after adjustment ranged from 26 to 104, with higher scores indicating better patient safety management activities.

Data analysis

Data were analysed using descriptive and inferential statistics. Descriptive analysis was employed to describe the characteristics of respondents and the distribution of each variable, presented in the form of frequencies and percentages. Inferential analysis was conducted using Structural Equation Modelling-Partial Least Squares (SEM-PLS) with SmartPLS version 4.0 software to examine both direct and indirect relationships among variables, including the mediating effect of motivation. Model evaluation was performed through the assessment of the outer model (convergent and discriminant validity, as well as construct reliability) and the inner model (coefficient of determination/R^2, path coefficient, bootstrapping, and effect size). Statistical significance was determined using t-value ≥ 1.96 and p-value ≤ 0.05 (Hair *et al.*, 2021).

Results

Descriptive analysis

Table 1 shows that the majority of respondents in this study were female (80%), within the young adult aged (24 and 44 years old) (80%), and had more than 15 years of experiences (33.8%). Most respondents held a Diploma in Nursing (54.7%) and were at the clinical career level III (36%).

Table 1. Frequency Distribution of Respondents' Characteristics (n=225)

Respondent Characteristics	Frequency	Percentage
Gender		
• Male	45	20.0
• Female	180	80.0
Age		
• Young adult (24–44 years old)	180	80.0
• Middle adult (45–59 years old)	45	20.0
Years of Experience		
• 1 - 5 years	52	23.1
• 5 - 10 years	59	26.2
• 10–15 years	38	16.9
• > 15 years	76	33.8
Education Level		
• Diploma in Nursing	123	54.7
• Registered Nurse	102	45.3
Clinical Career Level		
• Level I	55	24.4
• Level II	76	33.8
• Level III	81	36.0
• Level IV	13	5.8

Table 2 shows that the mean score for professional competence (95% CI: 65.42 - 67.27) was categorized as high, the work environment (95% CI: 82.69 - 84.85) was categorized as moderate–good, motivation (95% CI: 17.09 - 17.68) categorized as high, and patient safety management activities (95% CI: 88.16 - 91.07) was categorized as good.

Table 2. Description of Variables

Variable	Minimum Value	Maximum Value	95% CI
Professional Competence (PC)	47.00	84.00	65.42 – 67.27
Work Environment (WE)	65.00	112.00	82.69 – 84.85
Motivation (M)	13.00	20.00	17.09 – 17.68
Patient Safety Management Activities (PSMA)	68.00	104.00	88.16 – 91.07

Inferential analysis

Figure 1 shows the structural model of the study, including the path coefficients and R^2 values for motivation and patient safety management activities. The model illustrates both direct and mediating effects among the study variables.

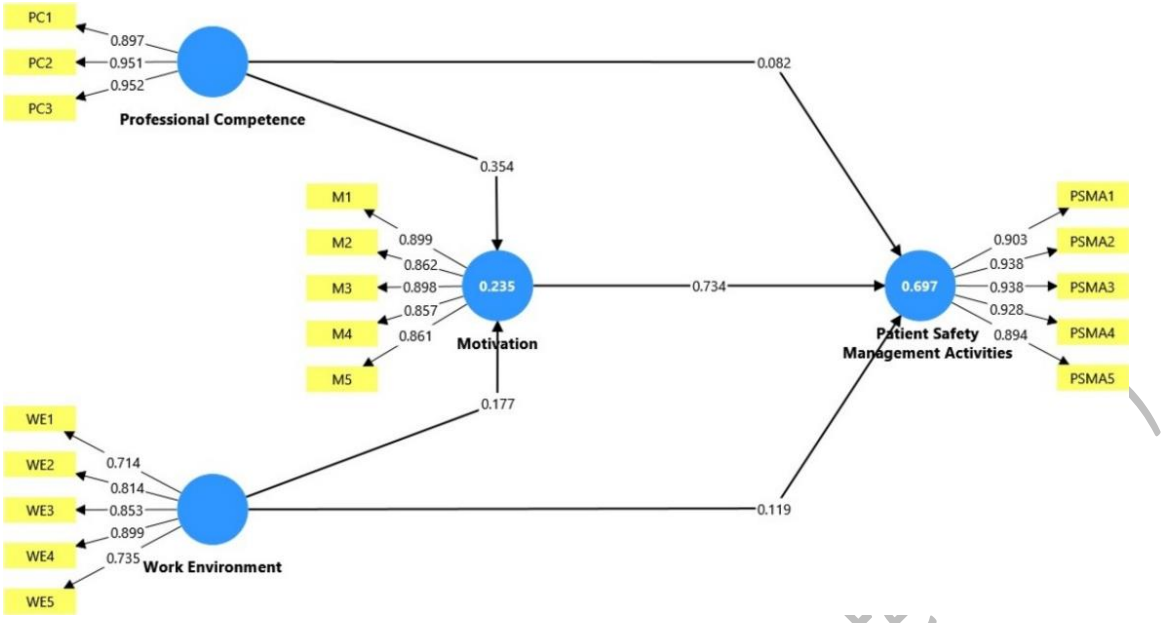

Figure 1. Structural Equation Model of the Study Variables

Table 3 presents the results of the outer model analysis, indicating that all constructs meet the criteria for convergent validity and reliability. The Average Variance Extracted (AVE) values for all constructs are above 0.50 (0.650 - 0.872), Composite Reliability (CR) values exceeded 0.70 (0.902 - 0.965), and Cronbach's α values were greater than 0.70 (0.866 - 0.955).

Table 3. Outer Model Results

Construct	AVE	Composite Reliability	Cronbach's α	Interpretation
Professional Competence (PC)	0.872	0.953	0.927	Valid & reliable
Work Environment (WE)	0.650	0.902	0.866	Valid & reliable
Motivation (M)	0.767	0.943	0.924	Valid & reliable
Patient Safety Management Activities (PSMA)	0.847	0.965	0.955	Valid & reliable

The results of the inner model analysis (Table 4) show that the R^2 value for the motivation variable is 0.235, indicating that professional competence and work environment explained 23.5% of the variance in nurses' motivation. The R^2 value for patient safety implementation was 0.697, suggesting that motivation, professional competence, and work

environment collectively explained 69.7% of the variance in patient safety management activities. The Q-square predictive relevance value was of 0.769 (>0.35) indicating that the research model has a high predictive ability for endogenous variables (Hair *et al.*, 2021).

Table 4. Inner Model Results

Endogenous Variables	R^2	Interpretation
Motivation (M)	0.235	Weak–moderate predictive power
Patient Safety Management Activities (PSMA)	0.697	Substantial predictive power
Q^2 (Predictive relevance)	**0.769**	**High predictive relevance**

Table 5 indicate that all direct effects between variables were statistically significant ($p < 0.05$). Professional competence had a positive and significant effect on motivation ($\beta = 0.354$, $t = 4.342$, $p < 0.001$) and patient safety management activities ($\beta = 0.082$, $t = 1.732$, $p = 0.042$). The work environment also had a positive and significant effect on motivation ($\beta = 0.177$, $t = 2.560$, $p = 0.005$) and on patient safety management activities ($\beta = 0.119$, $t = 2.953$, $p = 0.002$). Furthermore, motivation shows the strongest positive effect on patient safety management activities ($\beta = 0.734$, $t = 16.728$, $p < 0.001$).

For the indirect effects, both professional competence and work environment significantly influenced patient safety management activities through motivation, with path coefficients of $\beta = 0.260$ ($t = 4.381$, $p < 0.001$) and $\beta = 0.130$ ($t = 2.477$, $p = 0.007$), respectively. These findings indicate that motivation serves as a mediating variable in the relationship between the two independent variables and patient safety management activities.

Table 5. Direct Effect and Indirect Effect Results

Relationship	β	t-value	p-value	Interpretation
Professional Competence → Motivation	0.354	4.342	0.000	Positive and significant
Work Environment → Motivation	0.177	2.560	0.005	Positive and significant
Professional Competence → Patient Safety Management Activities	0.082	1.732	0.042	Positive and significant
Work Environment → Patient Safety Management Activities	0.119	2.953	0.002	Positive and significant
Motivation → Patient Safety Management Activities	0.734	16.728	0.000	Positive and significant
Professional Competence → Motivation → Patient Safety Management Activities	0.260	4.381	0.00	Positive and significant
Work Environment → Motivation → Patient Safety Management Activities	0.130	2.477	0.007	Positive and significant

Table 6 shows that the indirect path between professional competence and work environment on patient safety management activities through motivation were significant ($p < 0.05$), while the direct paths also remained significant. These findings indicate that motivation partially mediates the effects of professional competence and work environment on patient safety management activities.

Table 6. Mediation Analysis Results

Relationship	p-value direct effect	p-value indirect effect	Interpretation
Professional Competence → Motivation → Patient Safety Management Activities	0.042	0.000	Partial Mediation
Work Environment → Motivation → Patient Safety Management Activities	0.002	0.007	Partial Mediation

Discussion

This study demonstrated that professional competence and work environment significantly influence nurses' motivation and patient safety management activities, both directly and indirectly through motivation. Among these relationships, motivation showed the strongest direct effect on patient safety management activities. The findings that motivation is positively related to patient safety practices is consistent with Saleh *et al.* (2022) and Subramaniam *et al.* (2023). High motivation encourages nurses to adhere more closely to procedures and to be more proactive in ensuring patient safety. Safety motivation reflects an

internal commitment to safe practices (Alhidayah *et al.*, 2020; Kim and Jang, 2024), aligning with SDT, which emphasizes that autonomous motivation strengthens professional responsibility in the workplace. However, Yoon and Lee (2022) found no significant association between motivation and patient safety incidents reporting, likely due to the hierarchical structure of the military healthcare. In contrast, the current study suggests that motivation operates as an internalized individual commitment rather than an external obligation.

The SDT also explains the findings that professional competence and work environment has a positive and significant relationship with the motivation. According to SDT (Ryan and Deci, 2020), the fulfilment of basic psychological needs (competence, autonomy, and relatedness) forms the foundation of intrinsic motivation. High levels of competence can enhance self-confidence, autonomy, and professional engagement, thereby strengthening intrinsic motivation in nursing practice (Ahlstedt *et al.*, 2020). In addition, a supportive nursing work environment enhances psychological empowerment and reduce stress (Saleh *et al.,* 2022), thereby fulfilling the basic psychological needs outlined in the SDT (Ryan and Deci, 2020). Therefore, strengthening professional competence and creating a supportive work environment should be prioritized as strategic interventions to foster nurses' motivation.

The findings further revealed that professional competence and work environment not only foster nurses' motivation but also contribute to their engagement in patient safety management activities. Previous study have shown that integrating clinical competence, humanistic values, and educational functions, as components of professional competence, enhance nurses' awareness and compliance with patient safety (Park *et al.*, 2024), while competence in appropriate assessment, intervention, and evaluation supports the delivery of high-quality care (Halabi *et al.*, 2021; Kukkonen *et al.*, 2025). The finding also reinforces the evidence that the work environment serves as a fundamental foundation for shaping nurses'

safety behaviors within healthcare facilities. Adequate staffing and organizational support, as components of work environment, have been shown to reduce burnout and enhance compliance with safety practices (Putra *et al.,* 2021; El-Sayed *et al.*, 2024). Therefore, nurses should actively participate in regular competence development, while healthcare organizations need to provide adequate learning support and facilities related to patient safety.

Furthermore, the mediating role of motivation between professional competence and work environment highlights nurses' internal drive serves as a key mechanism transforming individual and organizational resources into safe clinical practices. Within the framework of JD-R Theory (Bakker *et al.,* 2023), professional competence functions as an individual resource that enhances motivation and work engagement (Jakobsson *et al.,* 2023; Yamada *et al.*, 2023). Within the JD-R framework, the work environment functions as an organizational resource that supports autonomy, open communication, and supportive leadership, all of which strengthen nurses' motivation to engage in safety practices (Seo and Lee, 2022; Subramaniam *et al.*, 2023). A positive work environment enhances intrinsic motivation and helps balance job-related stress (Jakobsson *et al.,* 2023; Wang *et al.*, 2024). It is also consistent with SDT, which emphasizes that autonomy support and social relatedness foster autonomous motivation (Ryan and Deci, 2020). However, the application of JD-R Theory may not always fully align with certain nursing contexts, such as intensive care unit (ICU), where the influence of individual resources, such as the clinical expertise, self-efficacy, and resilience on motivation and performance has been found to be not significant (Oetelaar *et al.,* 2021; Gou *et al.*, 2024). Therefore, professional competence, as a form of personal resources, may represent a more relevant factor in enhancing motivation and performance within the context of general inpatient care, where job demands are not as high as in ICU.

The study has several limitations that should be acknowledged. The analysis did not include a comparison across hospitals, which may limit the understanding of how

organizational characteristics influence practices. Future research should include comparative analyses across different hospital types to explore contextual variations in resource availability. In addition, studies could extend this model by integrating job demands as variable to better capture the influence of highly demanding work environment.

Conclusion

This study highlights that motivation serves as a key psychological mechanism linking individual resources and job resources to nurses' performance in maintaining patient safety. The integration of JD-R Theory and SDT provides a comprehensive explanation of how professional competence and work environment address nurses' basic psychological needs and foster intrinsic motivation. Therefore, strengthening professional competence through continuous learning, such as coaching, mentoring, critical reflection, and career development programs, along with fostering a supportive work environment, should be prioritized to maintain nurses' motivation and patient safety management activities. Future research is recommended to examine this model by comparing different hospital contexts and incorporating job demands to better capture the influence of highly demanding work environments across various healthcare settings.

Ethical Considerations

Compliance with ethical guidelines

This study received ethical approval from three institutional ethics committees: (1) the Health Research Ethics Committee, Faculty of Health Sciences, Universitas Brawijaya (Approval No. 184/UN10.F17.10.4/TU/2025); (2) the Ethics Committee of Radjiman Wediodiningrat Hospital (Approval No. TK.02.04/D.XXXXVII.3.6/11252/2025); and (3) the Ethics Committee of Kanjuruhan General Hospital (Approval No. 072.1/EA.KEPK-

032/35.07.302.101/2025). All participants were provided with information about the study and gave written informed consent before participation.

Acknowledgement

The authors would like to thanks the Department of Nursing, Faculty of Health Science, Universitas Brawijaya, Malang, Indonesia, for the academic support provided during the preparation of this original research article. Special appreciation is also extended to colleagues who offered constructive feedback.

Authors' contributions

Author 1 contributed to the study design, data collection, data analysis, and manuscript drafting. Author 2 supervised the research, contributed to data interpretation, and provided methodological guidance. Author 3 contributed to data interpretation and critically revised the manuscript. All authors approved the final version and agreed to be accountable for the work.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interests

All authors declare that they have no conflicts of interest related to this work.

References

Ahlstedt, C. *et al.* (2020) 'Flourishing at work: Nurses' motivation through daily communication – An ethnographic approach', *Nursing and Health Sciences*, 22(4), pp. 1169–1176. Available at: https://doi.org/10.1111/nhs.12789.

Alhidayah, T., Susilaningsih, F.S. and Somantri, I. (2020) 'Factors Related with Nurse Compliance in the Implementation of Patient Safety Indicators at Hospital', *Jurnal Keperawatan Indonesia*, 23(3), pp. 170–183. Available at: https://doi.org/10.7454/jki.v23i3.975.

Almanhali, R., Al Sabei, S.D. and Matua Amandu, G. (2024) 'Nurses' attitudes towards patient safety and their relationship to adverse patient events in Oman', *Journal of Research in Nursing* [Preprint]. Available at: https://doi.org/10.1177/17449871241278860.

Arsani, S.H., Ahsan and Fevriasanty, F.I. (2023) 'Analysis Dimension of Healty Work Environment for Successful Patient Safety Incident Reporting: A Cross Sectional Study', *JMMR (Jurnal Medicoeticolegal dan Manajemen Rumah Sakit)*, 12(1), pp. 32–45. Available at: https://doi.org/10.18196/jmmr.v12i1.29.

Astarini, M.I.A. and Lilyana, M.. A. (2021) 'Internal and External Factors Related to The Implementation of Patient Safety Goals: A Literature Review', *Nurse and Holistic Care*, 1(No 3). Available at: https://doi.org/https://doi.org/10.33086/nhc.v1i3.2530.

Bakker, A.B., Demerouti, E. and Sanz-Vergel, A. (2023) 'Job Demands–Resources Theory: Ten Years Later', *Annual Review of Organizational Psychology and Organizational Behavior*, 10(1), pp. 25–53. Available at: https://doi.org/10.1146/annurev-orgpsych-120920-053933.

Bjerkan, J., Valderaune, V. and Olsen, R.M. (2021) 'Patient Safety Through Nursing Documentation: Barriers Identified by Healthcare Professionals and Students', *Frontiers in Computer Science*, 3(June), pp. 1–11. Available at: https://doi.org/10.3389/fcomp.2021.624555.

Cho, H. and Steege, L.M. (2021) 'Nurse Fatigue and Nurse, Patient Safety, and Organizational Outcomes: A Systematic Review', *Western Journal of Nursing Research*, 43(12), pp. 1157–1168. Available at: https://doi.org/10.1177/0193945921990892.

Dhamanti, I. *et al.* (2024) *Report: Insiden Keselamatan Pasien di Indonesia Tahun 2021*. Surabaya: Center Of Excellence For Patient Safety And Quality.

El-Gazar, H.E., Abdelhafez, S. and Zoromba, M.A. (2022) 'Effects of the areas of worklife on job embeddedness: a national cross-sectional study among Egyptian nurses', *BMC Nursing*, 21(1), pp. 1–9. Available at: https://doi.org/10.1186/s12912-022-01107-6.

El-Sayed, A.A.I. *et al.* (2024) 'The moderating role of just culture between nursing practice environment and oncology nurses' silent behaviors toward patient safety: A multicentered study', *European Journal of Oncology Nursing*, 69(January), p. 102516. Available at: https://doi.org/10.1016/j.ejon.2024.102516.

Fan, S. *et al.* (2024) 'The role of the nursing work environment, head nurse leadership and presenteeism in job embeddedness among new nurses: a cross-sectional multicentre study', *BMC Nursing*, 23(1), pp. 1–11. Available at: https://doi.org/10.1186/s12912-024-01823-1.

Gou, J. *et al.* (2024) 'Effects of job demands , job resources , personal resources on night-shift alertness of ICU shift nurses : a cross - sectional survey study based on the job demands-resources model', *BMC Nursing* [Preprint]. Available at: https://doi.org/10.1186/s12912-024-

02313-0.

Grande, R.A.N. *et al.* (2023) 'Psychometric testing of the nurse professional competence scale Arabic version: An exploratory and confirmatory factor analyses', *Nurse Education in Practice*, 70(June), p. 103679. Available at: https://doi.org/10.1016/j.nepr.2023.103679.

Hair, J.F. *et al.* (2021) *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*. Available at: https://doi.org/10.1007/978-3-030-80519-7_5.

Halabi, J.O., Nilsson, J. and Lepp, M. (2021) 'Professional Competence Among Registered Nurses Working in Hospitals in Saudi Arabia and Their Experiences of Quality of Nursing Care and Patient Safety', *Journal of Transcultural Nursing*, 32(4), pp. 425–433. Available at: https://doi.org/10.1177/1043659621992845.

Hamid, S.B.S.A., Ismail, A. and Sulong, S. (2024) 'Assesment of Patient Safety Attitude Among Doctors and Nurses at Public Specialist Hospital in Malaysia', *medRxiv : the preprint server for health sciences* [Preprint]. Available at: https://doi.org/10.1101/2024.08.17.24311962.

Hennus, M.P. *et al.* (2021) 'Supervision, Interprofessional Collaboration, and Patient Safety in Intensive Care Units during the COVID-19 Pandemic', *ATS Scholar*, 2(3), pp. 397–414. Available at: https://doi.org/10.34197/ats-scholar.2020-0165OC.

Jakobsson, J. *et al.* (2023) 'Work conditions influencing professional development of specialist nurses in surgical care explored using the Job Resources theory : A qualitative study', (February), pp. 2610–2621. Available at: https://doi.org/10.1111/jan.15618.

Janes, G. *et al.* (2021) 'The Association between Health Care Staff Engagement and Patient Safety Outcomes: A Systematic Review and Meta-Analysis', *Journal of Patient Safety*, 17(3), pp. 207–216. Available at: https://doi.org/10.1097/PTS.0000000000000807.

Jeong, S. and Jeong, S.H. (2022) 'Patient Safety Management Activities of Korean Nurses: A Meta-Analytic Path Analysis', 52(4), pp. 363–377. Available at: https://doi.org/https://doi.org/10.4040/jkan.22022.

Kim, J.H. and Jang, H. (2024) 'Effects of Grit , Patient Safety Competence , and Patient Safety Culture on the Patient Safety Nursing Activities of Nurses in Comprehensive Nursing Service Wards', 17(3), pp. 62–75. Available at: https://doi.org/https://doi.org/10.34250/jkccn.2024.17.3.62.

Kim, M.S., Cho, Y.O. and Park, J. (2022) 'Combination Relationship between Features of Person-Centered Care and Patient Safety Activities of Nurses Working in Small–Medium-Sized Hospitals: A Cross-Sectional Study', *Nursing Reports*, 12(4), pp. 861–872. Available at: https://doi.org/10.3390/nursrep12040083.

Kim, N.Y. (2020) 'Novice and advanced beginner nurses' patient safety management activities: Mediating effects of informal learning', *Journal of Korean Academy of Nursing Administration*, 26(5), pp. 542–549. Available at: https://doi.org/10.11111/jkana.2020.26.5.542.

Kim, S.-H. and Kim, Y.-H. (2024) 'Influence of Awareness of Patient Participation Culture on Patient Safety Nursing Activities among Nurses in General Hospitals', *J Muscle Jt Health*, 31 No 3, pp. 179–188. Available at: https://doi.org/10.5953/JMJH.2024.31.3.179.

Koivisto, J.-M., Multisilta, J. and Haavisto, E. (2021) 'Surgical nurses' experiences with intrinsic work motivation: a focus on autonomy, competence and relatedness', *Hoitotiede*, 2021(2), pp. 102–111. Available at:

https://www.proquest.com/openview/75e1cc81f71ed6d89937ae070ee353cc/1?pq
origsite=gscholar&cbl=406341.

Kukkonen, P. *et al.* (2025) 'The professional competence of newly graduated nurses in the transition phase as assessed by nurse managers: a descriptive cross-sectional multi-national study', *Journal of Research in Nursing* [Preprint]. Available at: https://doi.org/10.1177/17449871241311543.

Lake, E.T. *et al.* (2024) 'Validation of a short form of the practice environment scale of the nursing work index: The PES-5', *Research in Nursing and Health*, 47(4), pp. 450–459. Available at: https://doi.org/10.1002/nur.22388.

Lee, Y. and Cho, E. (2022) 'Predictors of patient safety activities among registered nurses and nurse aides in long-term care facilities: cross-sectional study', *BMC Geriatrics*, 22(1), pp. 1–11. Available at: https://doi.org/10.1186/s12877-022-03234-w.

Manalu, C.H., Anindita, R. and Mustikawati, I.S. (2024) 'the Effect of Safety Management Commitment and Motivation on Compliance Implementing Patient Safety Goals Through a Culture of Patient Safety', *Jurnal Administrasi Rumah Sakit Indonesia*, 10(1). Available at: https://doi.org/10.7454/arsi.v10i1.7319.

Nilsson, J. *et al.* (2018) 'A short version of the nurse professional competence scale for measuring nurses' self-reported competence', *Nurse Education Today*, 71(March), pp. 233–239. Available at: https://doi.org/10.1016/j.nedt.2018.09.028.

Oetelaar, W.F.J.M. van den *et al.* (2021) 'Exploring the relation between modelled and perceived workload of nurses and related job demands , job resources and personal resources ; a longitudinal study', *PLOS ONE*, pp. 1–21. Available at: https://doi.org/10.1371/journal.pone.0246658.

Padauleng, A.W., Sidin, A.I. and Ansariadi (2020) 'The relationship between leadership style and nurse's work motivation with the implementation of patient safety culture in hospital, Bone regency', *Enfermería Clínica*, Volume 30,(October 2020,), pp. 161–164. Available at: https://doi.org/https://doi.org/10.1016/j.enfcli.2020.06.037.

Park, J.H. *et al.* (2024) 'Determinants of clinical nurses' patient safety competence: a systematic review protocol', *BMJ open*, 14(8), p. e080038. Available at: https://doi.org/10.1136/ bmjopen-2023-080038.

Putra, K.R. *et al.* (2021) 'The effect of caring work environment model on nurses' burnout in general hospitals', *International Journal of Public Health Science*, 10(3), pp. 537–543. Available at: https://doi.org/10.11591/ijphs.v10i3.20800.

Ramsay, A. *et al.* (2025) 'Advocating for patient safety: Power dynamics in nurse advocacy practice in Australia—An integrative review', *Collegian*, 32(2), pp. 84–99. Available at: https://doi.org/10.1016/j.colegn.2025.01.003.

Ryan, R.M. and Deci, E.L. (2020) 'Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions', *Contemporary Educational Psychology*, 61(April), p. 101860. Available at: https://doi.org/10.1016/j.cedpsych.2020.101860.

Saleh, M.O., Eshah, N.F. and Rayan, A.H. (2022) 'Empowerment Predicting Nurses' Work Motivation and Occupational Mental Health', *SAGE Open Nursing*, 8. Available at: https://doi.org/10.1177/23779608221076811.

Seo, J.K. and Lee, S.E. (2022) 'Mediating roles of patient safety knowledge and motivation

in the relationship between safety climate and nurses' patient safety behaviors: a structural equation modeling analysis', *BMC Nursing*, 21(1), pp. 1–8. Available at: https://doi.org/10.1186/s12912-022-01123-6.

Singh, S. and Mahomed, O. (2023) 'Nature and type of patient-reported safety incidents at a tertiary hospital in South Africa during the COVID-19 period (2018-2021)- A retrospective review', *PLoS ONE*, 18(11 November), pp. 1–13. Available at: https://doi.org/10.1371/journal.pone.0293933.

Subramaniam, C. *et al.* (2023) 'The influence of safety leadership on nurses' safety behavior: The mediating role of safety knowledge and motivation', *Journal of Safety Research*, 84, pp. 117–128. Available at: https://doi.org/https://doi.org/10.1016/j.jsr.2022.10.013.

Taji, M., Putra, K.R. and Ismail, D.D.S.L. (2023) 'Strategies to improving patient safety in hospitals', *Healthcare in Low-resource Settings*, 11(s1). Available at: https://doi.org/10.4081/hls.2023.11181.

Vinodkumar, M.N. and Bhasi, M. (2010) 'Safety management practices and safety behaviour: Assessing the mediating role of safety knowledge and motivation', *Accident Analysis and Prevention*, 42(6), pp. 2082–2093. Available at: https://doi.org/10.1016/j.aap.2010.06.021.

Wang, X. *et al.* (2024) 'New nurses' practice environment, job stress, and patient safety attitudes: a cross-sectional study based on the job demands-resources model', *BMC Nursing*, 23(1), pp. 1–12. Available at: https://doi.org/10.1186/s12912-024-02135-0.

World Health Organization (2021) *Patient Safety Incident Reporting and Learning Systems Technical report and guidance*, *Global patient safety action plan 2021–2030*. Available at: https://www.who.int/teams/integrated-health-services/patient-safety/policy/global-patient-safety-action-plan.

World Health Organization (2024) *Global patient safety report 2024*. Geneva.

Yamada, M. *et al.* (2023) 'Do nurses ' career competencies act as mediators and predictors between job resources and work engagement in the job demands- resources theory ? A cross-sectional study', *Research S*, pp. 1–16. Available at: https://doi.org/https://doi.org/10.21203/rs.3.rs-3240886/v1.

Yang, Y.K. (2021) 'Development of a patient safety care activity scale for clinical nurses in Korea', *Archives of Public Health*, 79(1), pp. 1–13. Available at: https://doi.org/10.1186/s13690-021-00596-2.

Yoon, S. and Lee, T. (2022) 'Factors Influencing Military Nurses' Reporting of Patient Safety Events in South Korea: A Structural Equation Modeling Approach', *Asian Nursing Research*, 16(3), pp. 162–169. Available at: https://doi.org/https://doi.org/10.1016/j.anr.2022.05.006.

Zaitoun, R.A. (2024) 'Assessing nurses' professional competency: a cross-sectional study in Palestine', *BMC Nursing*, 23(1), pp. 1–12. Available at: https://doi.org/10.1186/s12912-024-02064-y.

Zaitoun, R.A., Said, N.B. and de Tantillo, L. (2023) 'Clinical nurse competence and its effect on patient safety culture: a systematic review', *BMC Nursing*, 22(1), pp. 1–10. Available at: https://doi.org/10.1186/s12912-023-01305-w.