Journal of Health Innovation and Environmental Education
Vol. 3, No. 1, June 2026, pp. 106~113
ISSN: 3062-9632, DOI: 10.37251/jhiee.v3i1.2979

Determinants of Nurses' Clinical Performance in Implementing Nursing Care Standards within Inpatient Services: A Practice-Based Perspective at Kota Tinggi Hospital

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Article Info

Article history:

Received Jan 7, 2026
Revised Feb 16, 2026
Accepted Marc 4, 2026
Online First Marc 20, 2026

Keywords:

Clinical Performance
Inpatient Services
Leadership
Nursing Assisting
Nursing Care Standards

ABSTRACT

Purpose of the study: This study aimed to analyze the determinants of nurses' clinical performance in implementing nursing care standards within inpatient services at Kota Tinggi Hospital, Johor.

Methodology: A quantitative analytical study with a cross-sectional design was conducted involving 98 nurses selected through total sampling. Data were collected using structured questionnaires and observation checklists. Statistical analysis included univariate, bivariate (Chi-square), and multivariate (logistic regression) analyses.

Main Findings: The findings revealed that knowledge (p=0.001), motivation (p=0.002), leadership (p=0.000), and compensation (p=0.003) were significantly associated with clinical performance. Leadership was identified as the most dominant factor (OR=3.86). A majority of nurses (64.3%) demonstrated high clinical performance, although a notable proportion (35.7%) showed lower performance.

Novelty/Originality of this study: This study provides a practice-based and integrative analysis of multiple determinants influencing nurses' clinical performance in inpatient settings, emphasizing the role of leadership in bridging the gap between nursing standards and real clinical implementation.

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1. INTRODUCTION

The delivery of high-quality healthcare services remains a fundamental priority in modern health systems, emphasizing safety, effectiveness, and equity in patient care. Hospitals, as primary healthcare institutions, are expected to ensure that clinical services meet established standards and respond to the growing complexity of patient needs [1]-[3]. Within this context, nursing services play a pivotal role, particularly in inpatient settings where continuous and comprehensive care is required [4]-[6]. The quality of nursing care is therefore a critical determinant of overall healthcare performance [4]-[7].

Nurses constitute the largest proportion of healthcare professionals and have the most frequent and sustained contact with patients [8], [9]. Their clinical performance directly influences patient outcomes, satisfaction, and safety [10]-[12]. In inpatient services, nurses are responsible for implementing standardized nursing care, which integrates assessment, diagnosis, planning, intervention, and evaluation [13]-[15]. This structured approach reflects not only technical competence but also the application of holistic care principles,

aligning with the scope of nursing assisting practices that emphasize patient-centered and continuous care delivery [16]-[18].

Despite the availability of established nursing care standards, their implementation in clinical practice often varies [19], [20]. In many hospital settings, inconsistencies in adherence to these standards can be observed, particularly in routine inpatient care [21], [22]. Such variability indicates that clinical performance is not solely determined by the existence of guidelines but is influenced by multiple underlying factors that shape how nurses deliver care in real-world practice environments [23]-[25].

Theoretically, nurses' clinical performance is influenced by a combination of individual, organizational, and environmental factors [26]-[28]. Individual factors may include knowledge, clinical competence, and motivation, while organizational factors encompass leadership, supervision, workload, and resource availability. Additionally, external influences such as institutional policies and healthcare system demands may further affect nursing practice. These multidimensional determinants interact to shape nurses' behavior in implementing care standards, particularly in high-demand inpatient units.

Previous studies have identified significant relationships between factors such as motivation, leadership, and knowledge with nursing performance. For instance, higher motivation levels have been associated with better adherence to care standards, while supportive leadership has been shown to enhance staff performance and engagement. Similarly, adequate knowledge and training contribute to more effective implementation of clinical procedures. However, many of these studies have predominantly focused on primary healthcare settings or have examined factors in isolation rather than within an integrated clinical practice framework.

This reveals a critical research gap. There is still limited empirical evidence that explores how multiple determinants collectively influence nurses' clinical performance specifically in inpatient hospital settings, particularly from a practice-based perspective [29]. Moreover, few studies explicitly link these determinants to the real implementation of nursing care standards within the daily workflow of nursing assisting practices. This gap highlights the need for a more contextualized and comprehensive analysis that reflects actual clinical conditions.

The novelty of this study lies in its integrative and practice-oriented approach. Unlike previous research that tends to examine isolated variables, this study analyzes multiple determinants simultaneously within the context of inpatient care delivery. Furthermore, it emphasizes the practical dimension of nursing assisting by focusing on how nurses translate standards into real clinical actions. By situating the study in a district-level hospital, this research also contributes to understanding nursing performance in settings that are often underrepresented in the literature.

Kota Tinggi Hospital, Johor, as a district hospital providing inpatient services to a diverse population, presents a relevant context for examining these issues. The increasing demand for quality healthcare services necessitates continuous evaluation and improvement of nursing performance. Understanding the determinants that influence nurses' clinical performance in implementing nursing care standards is therefore essential. This study is urgently needed to generate evidence-based insights that can inform strategies to strengthen nursing practice, enhance service quality, and ultimately improve patient outcomes in inpatient care settings.

2. RESEARCH METHOD

2.1 Study Design

This study employed a quantitative approach using an analytical cross-sectional design to examine the determinants of nurses' clinical performance in implementing nursing care standards within inpatient services. The cross-sectional design was selected as it allows for the simultaneous measurement of independent variables and the outcome variable within a specific timeframe, thereby enabling the identification of associations among variables in real clinical settings [30]-[32]. This design is particularly suitable for capturing the practice-based dynamics of nursing performance in hospital environments.

The study was conducted at Kota Tinggi Hospital, Johor, a district-level healthcare facility that provides comprehensive inpatient services to the surrounding population. The hospital setting represents a typical clinical environment where nurses are actively engaged in delivering continuous and standardized nursing care. The target population consisted of all registered nurses working in inpatient units, including medical, surgical, and other specialized wards. These nurses are directly responsible for implementing nursing care standards, making them relevant subjects for assessing clinical performance in practice-based contexts.

2.2 Sample Size and Sampling Technique

The sample size was determined using a total sampling approach, considering the relatively manageable number of nurses in the inpatient units. All eligible nurses who met the inclusion criteria were invited to participate in the study. Inclusion criteria included: (1) registered nurses actively working in inpatient units, (2)

having at least six months of work experience, and (3) willingness to participate. Nurses on leave or in administrative positions were excluded.

The use of total sampling ensures comprehensive representation of the study population and minimizes sampling bias, thereby strengthening the internal validity of the findings. The study variables consisted of one dependent variable and several independent variables. The dependent variable was nurses' clinical performance in implementing nursing care standards. The independent variables included knowledge, motivation, leadership, and compensation system [33]. To provide a clear overview of the variables and their operational definitions, the following table is presented:

Table 1. Operational Definition of Research Variables

Variable	Definition	Measurement Scale	Indicator
Clinical Performance	The ability of nurses to implement standardized nursing care in inpatient settings	Ordinal	Assessment, diagnosis, planning, implementation, evaluation
Knowledge	Nurses' understanding of nursing care standards	Ordinal	Score from knowledge questionnaire
Motivation	Internal and external drive influencing nurses' work behavior	Ordinal	Work enthusiasm, responsibility, commitment
Leadership	Perceived leadership style of nurse managers	Ordinal	Supervision, communication, decision-making
Compensation	Rewards received for work performance	Ordinal	Salary, incentives, recognition

The table above outlines how each variable is conceptualized and measured, ensuring clarity and consistency in data collection and analysis.

2.3 Research Instruments

Data were collected using a structured questionnaire developed based on relevant literature and standardized nursing care guidelines. The instrument consisted of five sections: demographic data, knowledge, motivation, leadership, compensation, and clinical performance. Clinical performance was measured using an observation-based checklist aligned with nursing care standards, covering key components such as assessment, diagnosis, planning, implementation, and evaluation. Meanwhile, independent variables were measured using Likert-scale questionnaires, ranging from strongly disagree (1) to strongly agree (5).

Prior to data collection, the research instrument underwent validity and reliability testing to ensure accuracy and consistency. Content validity was established through expert judgment involving nursing academics and clinical practitioners [34], [35]. Construct validity was tested using Pearson correlation analysis, where items with a correlation coefficient greater than the critical value were considered valid.

Reliability testing was conducted using Cronbach's alpha coefficient. A value of ≥ 0.70 was considered acceptable, indicating that the instrument had good internal consistency. The results of validity and reliability testing are summarized in the following table:

Table 2. Results of Validity and Reliability Testing

Variable	Number of Items	Valid Items	Cronbach's Alpha
Knowledge	10	10	0.82
Motivation	12	11	0.85
Leadership	10	10	0.80
Compensation	8	8	0.80
Clinical Performance	15	15	0.81

The results indicate that all variables met the required standards for validity and reliability, ensuring the robustness of the measurement tools used in this study.

2.4 Data Collection Procedure

Data collection was carried out after obtaining ethical approval and permission from the hospital management. Respondents were informed about the purpose of the study and provided informed consent prior to participation. Questionnaires were distributed directly to the nurses during their shifts, and observations of clinical performance were conducted using a standardized checklist to ensure objectivity.

2.5 Data Analysis

Data analysis was performed using statistical software. The analysis consisted of three stages: univariate, bivariate, and multivariate analysis. Univariate analysis was conducted to describe the characteristics of respondents and the distribution of each variable using frequencies, percentages, means, and standard deviations. Bivariate analysis was used to examine the relationship between independent variables and clinical performance. The Chi-square test was applied for categorical variables, with a significance level set at $p < 0.05$. To identify the most influential determinants of nurses' clinical performance, multivariate analysis was conducted using logistic regression. Variables with p-values less than 0.25 in bivariate analysis were included in the regression model. The results were presented in terms of odds ratios (OR) with 95% confidence intervals, allowing for the interpretation of the strength and direction of associations.

2.6 Ethical Considerations

This study adhered to ethical principles, including respect for autonomy, confidentiality, and voluntary participation. Ethical clearance was obtained from the relevant institutional review board. Participants' identities were kept confidential, and data were used solely for research purposes.

3. RESULTS AND DISCUSSION

This study involved nurses working in inpatient units at Kota Tinggi Hospital. A total of 98 respondents met the inclusion criteria and participated in the study. The demographic characteristics of respondents are presented to provide context for interpreting the findings.

Table 3. Demographic Characteristics of Respondents

Characteristics	Category	Frequency (n)	Percentage (%)
Age	< 30 years	34	34.7
	≥ 30 years	64	65.3
Gender	Male	22	22.4
	Female	76	77.6
Education	Diploma	58	59.2
	Bachelor	40	40.8
Work Experience	< 5 years	29	29.6
	≥ 5 years	69	70.4

The table indicates that the majority of respondents were aged 30 years or older (65.3%), predominantly female (77.6%), and had more than five years of work experience (70.4%). This suggests that most participants had sufficient clinical exposure to perform nursing care in inpatient settings. Univariate analysis was conducted to describe the distribution of independent variables (Knowledge, motivation, leadership, compensation) and the dependent variable (Clinical performance).

Table 4. Distribution of Study Variables

Variable	Category	Frequency (n)	Percentage (%)
Knowledge	Good	61	62.2
	Poor	37	37.8
Motivation	High	58	59.2
	Low	40	40.8
Leadership	Good	54	55.1
	Poor	44	44.9
Compensation	Adequate	49	50.0
	Inadequate	49	50.0
Clinical Performance	High	63	64.3
	Low	35	35.7

Findings show that most nurses demonstrated good knowledge (62.2%) and high clinical performance (64.3%). However, perceptions of compensation were evenly distributed, indicating potential variability in satisfaction related to rewards. Bivariate analysis was conducted to examine the relationship between each independent variable and nurses' clinical performance using the Chi-square test.

Table 5. Association Between Independent Variables and Clinical Performance

Variable	Category	High Performance n (%)	Low Performance n (%)	p-value
Knowledge	Good	48 (78.7)	13 (21.3)	0.001

Variable	Category	High Performance n (%)	Low Performance n (%)	p-value
	Poor	15 (40.5)	22 (59.5)	
Motivation	High	45 (77.6)	13 (22.4)	0.002
	Low	18 (45.0)	22 (55.0)	
Leadership	Good	43 (79.6)	11 (20.4)	0.000
	Poor	20 (45.5)	24 (54.5)	
Compensation	Adequate	38 (77.6)	11 (22.4)	0.003
	Inadequate	25 (51.0)	24 (49.0)	

Results indicate that all independent variables were significantly associated with clinical performance ($p < 0.05$). Nurses with good knowledge, high motivation, supportive leadership, and adequate compensation were more likely to demonstrate high clinical performance in implementing nursing care standards. To identify the most dominant factors influencing clinical performance, logistic regression analysis was conducted. Variables with $p < 0.25$ in bivariate analysis were included in the model.

Table 6. Logistic Regression Analysis of Determinants of Clinical Performance

Variable	B	Exp(B) (OR)	95% CI	p-value
Knowledge	1.12	3.06	1.45–6.44	0.003
Motivation	0.98	2.66	1.28–5.52	0.008
Leadership	1.35	3.86	1.72–8.67	0.001
Compensation	0.76	2.14	1.03–4.45	0.041

Multivariate analysis revealed that leadership was the most dominant factor influencing nurses' clinical performance (OR = 3.86), followed by knowledge (OR = 3.06), motivation (OR = 2.66), and compensation (OR = 2.14). This suggests that nurses working under effective leadership were nearly four times more likely to demonstrate high clinical performance. To provide a clearer visualization of the distribution of clinical performance among nurses, the following graph is presented:

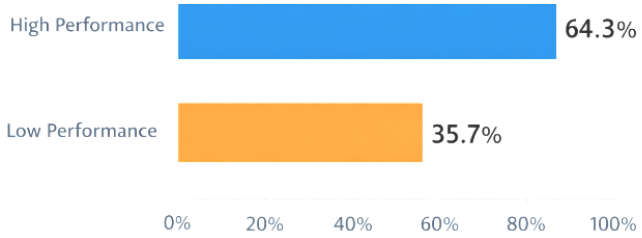

Figure 1. Distribution of Clinical Performance

The graph illustrates that the majority of nurses demonstrated high clinical performance, although a substantial proportion (35.7%) still showed low performance, indicating room for improvement. Study examined the determinants of nurses' clinical performance in implementing nursing care standards within inpatient services, with a particular emphasis on a practice-based nursing assisting perspective. The findings indicate that a majority of nurses demonstrated high clinical performance, yet a considerable proportion still exhibited suboptimal performance. This dual pattern reflects the ongoing challenge in ensuring consistent adherence to standardized nursing care in real-world clinical settings. In the context of nursing assisting, where nurses are expected to deliver continuous, patient-centered, and procedure-based care, variability in performance suggests that the translation of standards into practice is not uniformly achieved.

One of the key findings of this study is the significant association between knowledge and clinical performance. Nurses with higher levels of knowledge were more likely to demonstrate better implementation of nursing care standards. This result aligns with previous studies that emphasize knowledge as a foundational component of clinical competence. Adequate understanding of nursing processes enables nurses to perform systematic assessments, accurate diagnoses, and appropriate interventions. However, this study extends prior research by situating knowledge within a practice-based framework, highlighting that knowledge is not merely theoretical but must be operationalized in day-to-day nursing assisting activities. This reinforces the idea that continuous professional education is essential to bridge the gap between knowledge acquisition and clinical application.

Motivation was also found to be significantly related to clinical performance. Nurses with higher motivation levels showed better adherence to care standards, reflecting greater engagement and responsibility in patient care. This finding is consistent with earlier research demonstrating that intrinsic and extrinsic motivation influences work behavior and productivity. From a nursing assisting perspective, motivation plays a crucial role

in sustaining the quality of repetitive and routine clinical tasks, such as monitoring, documentation, and patient support. The novelty in this study lies in emphasizing motivation as a driver of consistency in care delivery, rather than merely a general predictor of job performance. It suggests that motivated nurses are more likely to maintain adherence to standards even under demanding inpatient conditions.

Leadership emerged as the most dominant determinant of clinical performance in this study. Nurses who perceived leadership as supportive and effective were significantly more likely to perform at a higher level. This finding corroborates previous studies that identify leadership as a critical factor in shaping staff performance. Effective leadership fosters a positive work environment, facilitates communication, and ensures proper supervision. In the context of nursing assisting, leadership directly influences how care standards are interpreted, implemented, and monitored in clinical practice. The strong effect of leadership observed in this study highlights its central role in bridging the gap between policy and practice. The novelty of this finding lies in demonstrating that leadership is not only an organizational factor but also a practical enabler of bedside care quality.

Compensation was another factor found to significantly influence clinical performance. Nurses who perceived their compensation as adequate were more likely to demonstrate better performance. This aligns with motivational theories that link rewards to job satisfaction and productivity. However, compared to other variables, the effect of compensation was relatively lower, suggesting that while financial and non-financial rewards are important, they may not be the primary drivers of clinical behavior in nursing practice [36], [37]. Within nursing assisting, this finding implies that although incentives can enhance motivation, they must be complemented by supportive leadership and adequate knowledge to achieve optimal performance outcomes.

Findings of this study also reveal a critical research gap addressed by this work. While previous studies have often examined individual factors such as motivation, leadership, or knowledge separately, this study provides a more integrated analysis of multiple determinants within a single model. Furthermore, most prior research has focused on primary care or general organizational performance, whereas this study specifically examines inpatient services, where the complexity and intensity of nursing care are significantly higher [38]. By adopting a practice-based perspective, this study contributes to a more nuanced understanding of how various factors interact to influence clinical performance in real nursing assisting contexts.

From a practical standpoint, the implications of this study are highly relevant for hospital management and nursing practice. The identification of leadership as the most dominant factor suggests that strengthening managerial capacity, particularly among nurse supervisors, should be a priority. Training programs focusing on clinical leadership, supervision, and communication skills may enhance nurses' performance in implementing care standards. Additionally, efforts to improve nurses' knowledge through continuous education and training should be emphasized. Enhancing motivation through supportive work environments and fair compensation systems can further reinforce these efforts. In the context of nursing assisting, these strategies are essential to ensure that care delivery is consistent, standardized, and aligned with patient needs.

Despite its contributions, this study has several limitations that should be acknowledged. First, the cross-sectional design limits the ability to establish causal relationships between variables. The findings only indicate associations at a single point in time. Second, the use of self-reported questionnaires may introduce response bias, particularly in assessing variables such as motivation and perception of leadership. Third, the study was conducted in a single district hospital, which may limit the generalizability of the findings to other healthcare settings with different organizational structures or patient populations. Future research is recommended to use longitudinal designs, incorporate objective performance measures, and expand the study to multiple hospitals to enhance the robustness and applicability of the findings [39], [40].

4. CONCLUSION

This study aimed to identify the determinants of nurses' clinical performance in implementing nursing care standards within inpatient services from a practice-based perspective. The findings demonstrate that knowledge, motivation, leadership, and compensation are significantly associated with nurses' clinical performance, with leadership emerging as the most dominant factor. These results indicate that effective leadership plays a crucial role in facilitating the translation of nursing care standards into consistent clinical practice, particularly within the context of nursing assisting where continuous and patient-centered care is essential. Furthermore, the study highlights that while most nurses demonstrated high clinical performance, a substantial proportion still exhibited lower performance, indicating gaps in the consistent application of care standards. This suggests that improving clinical performance requires not only strengthening individual competencies but also enhancing organizational support systems that influence daily nursing practice. It is recommended that hospital management prioritize leadership development programs, continuous professional education, and supportive work environments to improve nurses' clinical performance. Future research should adopt longitudinal and multi-center approaches to further explore causal relationships and enhance the generalizability of findings.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to the management and nursing staff of Kota Tinggi Hospital, Johor, for their support and participation in this study. Appreciation is also extended to all individuals who contributed to the completion of this research.

USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors confirm that noartificial intelligence (AI)-assisted technologies were utilized in the preparation, analysis, or writing of this manuscript. All stages of the research process, including data collection, data interpretation, and the development of the manuscript, were conducted solely by the authors without any support from AI-based tools.

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