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“IMPACT OF NURSE–PATIENT RATIO ON HOSPITAL PERFORMANCE INDICATORS IN INDIAN PRIVATE HOSPITALS: A STRUCTURAL EQUATION MODELING APPROACH.”

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Abstract

Background: Adequate nurse staffing is one of the most important determinants of healthcare quality, patient safety, and organizational performance. In Indian private hospitals, variations in nurse–patient ratios may directly influence clinical outcomes, patient satisfaction, and operational efficiency. However, evidence integrating these relationships using Structural Equation Modeling (SEM) remains limited.

Objectives: To examine the impact of nurse–patient ratio on hospital performance indicators in selected Indian private hospitals using Structural Equation Modeling.

Methods: A quantitative cross-sectional analytical study was conducted among **100 registered nurses** working in selected private hospitals. Participants were selected using stratified random sampling. Data were collected using a structured questionnaire comprising demographic characteristics, nurse–patient ratio assessment, workload indicators, patient safety indicators, job satisfaction, and hospital performance indicators. Structural Equation Modeling was performed using AMOS/SPSS version 29 to evaluate direct and indirect relationships among study variables.

Results: A total of **100 registered nurses** participated in the study. The mean nurse–patient ratio was **1:8.2 ± 2.1**. Structural Equation Modeling (SEM) demonstrated an acceptable model fit ($\chi^2/\text{df} = 1.84$, **CFI = 0.96**, **TLI = 0.95**, **GFI = 0.93**, **RMSEA = 0.056**, **SRMR = 0.047**). Higher nurse–patient ratios were significantly associated with increased nursing workload ($\beta = 0.74$, $p < 0.001$) and reduced hospital performance ($\beta = -0.58$, $p < 0.001$). Patient safety ($\beta = 0.36$, $p < 0.001$) and job satisfaction ($\beta = 0.41$, $p < 0.001$) showed significant positive effects on hospital performance and acted as important mediators. The proposed structural model explained **69% ($R^2 = 0.69$)** of the variance in hospital performance, indicating that optimal nurse staffing substantially contributes to improved patient safety, enhanced nurse satisfaction, and better organizational performance.

Conclusion: Improved nurse–patient ratios significantly enhance patient safety, nurse satisfaction, and hospital performance. Optimizing nurse staffing should be considered a strategic priority for improving healthcare quality in Indian private hospitals.

Keywords: Nurse–patient ratio, Hospital performance, Structural Equation Modeling, Patient safety, Nursing workload, Private hospitals.

Introduction

The nursing workforce is the cornerstone of every healthcare system, playing a pivotal role in ensuring the delivery of safe, effective, and patient-centered care. Nurses constitute the largest proportion of healthcare professionals worldwide and are directly involved in continuous patient assessment, medication administration, clinical decision support, health education, infection prevention, rehabilitation, and emotional support for patients and their families. The quality and efficiency of healthcare services largely depend on the availability of an adequate number of qualified nurses. Consequently, maintaining an appropriate nurse–patient ratio has become a critical component of hospital management, healthcare quality improvement, and patient safety initiatives across the globe.

The nurse–patient ratio refers to the number of patients assigned to a nurse during a specific shift or period of care. An optimal ratio enables nurses to provide comprehensive and timely care, closely monitor patients' conditions, promptly identify clinical deterioration, and effectively coordinate multidisciplinary interventions. Conversely, an excessive patient load can significantly compromise nursing care by increasing workload, physical and emotional fatigue, job dissatisfaction, burnout, absenteeism, and staff turnover. These factors may ultimately contribute to medication errors, delayed treatment, healthcare-associated infections, patient falls, prolonged hospital stays, increased readmission rates, and even preventable mortality. Therefore, nurse staffing is increasingly recognized as a key performance indicator that directly influences both patient outcomes and organizational efficiency.

Globally, several healthcare organizations, including the World Health Organization (WHO) and the International Council of Nurses (ICN), have emphasized the importance of adequate nurse staffing in achieving Universal Health Coverage (UHC), patient safety, and sustainable healthcare systems. Numerous international studies have demonstrated that hospitals with better nurse–patient ratios report lower mortality rates, fewer adverse events, higher patient satisfaction, improved nurse retention, and better financial performance. These findings have encouraged healthcare policymakers and hospital administrators to consider nurse staffing as a strategic investment rather than merely an operational expense.

In the Indian healthcare context, maintaining an appropriate nurse–patient ratio remains a significant challenge, particularly in private hospitals where increasing patient admissions, rapid expansion of healthcare services, and shortages of qualified nursing personnel often lead to excessive workloads. Although many private healthcare institutions strive to provide high-quality patient care, variations in staffing patterns across departments and hospitals continue to affect service quality and organizational performance. High patient volumes, complex clinical conditions, technological advancements, and increasing patient expectations have further intensified the demands placed on nursing professionals. As a result, healthcare administrators are increasingly seeking evidence-based approaches to optimize nurse staffing while balancing operational efficiency and quality of care.

Hospital performance is a multidimensional concept encompassing clinical quality, patient safety, operational efficiency, patient satisfaction, employee satisfaction, financial sustainability, and healthcare outcomes. Performance indicators such as hospital-acquired infection rates, medication errors, patient falls, average length of stay, readmission rates, nursing productivity, and patient satisfaction are widely used to evaluate healthcare quality. Since nurses have direct and continuous interactions with patients, the adequacy of nursing staff is expected to influence many of these performance indicators both directly and indirectly. Understanding these complex relationships requires advanced statistical approaches capable of simultaneously examining multiple interrelated variables.

Structural Equation Modeling (SEM) is a powerful multivariate statistical technique that enables researchers to evaluate direct, indirect, and mediating relationships among observed and latent variables within a single analytical framework. Unlike conventional regression analysis, SEM allows the assessment of complex causal pathways and provides comprehensive model fit indices, making it particularly suitable for healthcare management research. Despite growing international evidence, relatively few studies in India have employed SEM to investigate how nurse–patient ratios influence hospital performance through mediating factors such as nursing workload, patient safety, and job satisfaction.

Therefore, the present study aims to examine the impact of nurse–patient ratio on hospital performance indicators in selected Indian private hospitals using a Structural Equation Modeling approach. The findings are expected to provide valuable evidence for hospital administrators, nursing leaders, and healthcare policymakers to develop evidence-based staffing policies that enhance patient safety, improve nursing workforce well-being, optimize organizational performance, and strengthen the overall quality of healthcare delivery in Indian private hospitals.

Need for the Study

The availability of an adequate nursing workforce is fundamental to ensuring high-quality, safe, and efficient healthcare services. Nurses are the primary caregivers in hospitals and play a crucial role in patient assessment, treatment administration, continuous monitoring, health education, and coordination of multidisciplinary care. Their continuous presence at the patient's bedside makes them indispensable in achieving positive clinical outcomes and maintaining healthcare quality. Consequently, maintaining an appropriate nurse–patient ratio has become one of the most important indicators of healthcare quality and organizational performance. However, despite increasing recognition of its importance, nurse staffing remains a persistent challenge in many healthcare institutions, particularly in developing countries such as India.

Indian private hospitals have experienced substantial growth over the past decade due to increasing healthcare demands, urbanization, technological advancements, and rising patient expectations. This rapid expansion has resulted in a significant increase in patient admissions and the complexity of healthcare services. Unfortunately, the growth in nursing manpower has not always kept pace with the increasing patient load. In many hospitals, nurses are assigned more patients than recommended, leading to excessive workload, occupational stress, physical fatigue, emotional exhaustion, and burnout. These conditions negatively affect nurses' ability to provide comprehensive and timely patient care, increasing the likelihood of medication errors, patient falls, healthcare-associated infections, delayed interventions, prolonged hospital stays, and reduced patient satisfaction.

In addition to affecting patient outcomes, inadequate nurse staffing has important organizational implications. High workloads contribute to job dissatisfaction, absenteeism, turnover intentions, and reduced employee engagement, resulting in increased recruitment and training costs for healthcare institutions. Poor staffing also affects hospital efficiency by reducing productivity, compromising quality indicators, and negatively influencing accreditation standards and institutional reputation. Therefore, understanding the relationship between nurse staffing and hospital performance has become an important priority for hospital administrators and healthcare policymakers seeking to improve both clinical outcomes and operational efficiency.

Although several international studies have established that better nurse staffing is associated with improved patient safety and healthcare quality, evidence from the Indian healthcare system remains relatively limited. Most Indian studies have primarily examined simple associations between staffing levels and selected patient outcomes using traditional statistical techniques. These approaches often fail to capture the complex interactions among nurse staffing, workload, patient safety, job satisfaction, and overall hospital performance. Since these variables influence one another simultaneously, a more comprehensive analytical framework is required to understand their direct and indirect relationships.

Structural Equation Modeling (SEM) is an advanced multivariate statistical technique that enables researchers to examine multiple interrelated relationships within a single conceptual model. SEM not only evaluates direct effects but also identifies mediating pathways through which nurse–patient ratio influences hospital performance. By incorporating variables such as nursing workload, patient safety, and job satisfaction into one integrated model, SEM provides a deeper understanding of the mechanisms through which staffing adequacy contributes to organizational effectiveness. Such evidence is particularly valuable for healthcare administrators who must balance staffing costs with quality improvement and patient safety initiatives.

Considering the increasing demand for quality healthcare services, the shortage of nursing personnel, and the limited availability of Indian research using advanced statistical approaches, the present study is both timely and relevant. The findings are expected to generate empirical evidence on the impact of nurse–patient ratio on hospital performance indicators in Indian private hospitals. The study will assist hospital administrators, nursing managers, policymakers, and healthcare planners in developing evidence-based staffing policies, optimizing workforce allocation, improving patient safety, enhancing nurse job satisfaction, and strengthening overall organizational performance. Ultimately, the results will contribute to improving the quality, efficiency, and sustainability of healthcare delivery in Indian private hospitals.

Objectives

1. To assess nurse–patient ratios in selected Indian private hospitals.
2. To evaluate hospital performance indicators.
3. To examine the relationship between nurse–patient ratio and hospital performance.
4. To develop and validate a Structural Equation Model explaining hospital performance.

Hypotheses

H1: Nurse–patient ratio significantly affects hospital performance.

H2: Nurse workload mediates the relationship between staffing and hospital performance.

H3: Patient safety significantly mediates the relationship between staffing and hospital performance.

H4: Job satisfaction positively influences hospital performance.

Materials and Methods

Research Design

The study employed a **cross-sectional analytical research design** using **Structural Equation Modeling (SEM)** to examine the impact of nurse–patient ratio on hospital performance indicators in selected Indian private hospitals. The design enabled the assessment of both direct and indirect relationships among nurse staffing, workload, patient safety, job satisfaction, and hospital performance.

Research Approach

A **quantitative analytical research approach** was adopted to objectively evaluate the influence of nurse–patient ratio on hospital performance indicators and to validate the proposed structural model using Structural Equation Modeling.

Study Setting

The study was conducted in **selected private hospitals in Indore, Madhya Pradesh, India**. These hospitals provide secondary and tertiary healthcare services and employ registered nurses across various clinical departments, including medical, surgical, intensive care, emergency, pediatric, and obstetric units.

Study Population

The target population comprised **registered nurses** working in selected private hospitals who were directly involved in patient care and had experience managing assigned patient loads.

Sample Size

A total of **100 registered nurses** participated in the study.

Sampling Technique

Participants were selected using a **stratified random sampling technique**. Nurses from different hospital departments were proportionately represented to ensure adequate coverage of various clinical settings.

Inclusion Criteria

Registered nurses who fulfilled the following criteria were included in the study:

- Registered with the State Nursing Council.
- Having a minimum of one year of clinical experience.
- Currently providing direct patient care.
- Working full-time in the selected private hospitals.
- Willing to participate and provide written informed consent.

Exclusion Criteria

Participants with the following conditions were excluded:

- Nursing administrators without direct patient care responsibilities.
- Nurses on long-term leave during the data collection period.
- Student nurses and nursing interns.
- Nurses working exclusively in outpatient departments or administrative offices.
- Participants unwilling to participate in the study.

Research Instruments

Section A: Demographic and Professional Profile

A structured questionnaire was used to collect demographic and professional information, including:

- Age
- Gender
- Educational qualification
- Marital status
- Years of professional experience
- Current department

- Monthly income
- Average duty hours per week
- Shift pattern
- Average nurse–patient ratio
- Previous training in patient safety or quality improvement

Section B: Nurse–Patient Ratio and Workload Assessment Scale

A structured questionnaire consisting of **15 items** was used to assess nursing workload and staffing adequacy. The instrument included items related to:

- Number of patients assigned per shift
- Workload intensity
- Time available for patient care
- Overtime duties
- Staffing adequacy
- Missed nursing care
- Perceived work pressure

Responses were recorded using a **five-point Likert scale** ranging from **1 (Strongly Disagree)** to **5 (Strongly Agree)**.

Workload Score Interpretation

- Low Workload: 15–35
- Moderate Workload: 36–55
- High Workload: 56–75

Section C: Patient Safety Scale

Patient safety was assessed using a **15-item standardized questionnaire** evaluating:

- Medication safety
- Infection prevention
- Fall prevention
- Communication errors
- Incident reporting
- Compliance with safety protocols
- Safe patient handling

Each item was scored on a **five-point Likert scale**.

Patient Safety Score Interpretation

- Poor Patient Safety: 15–35
- Moderate Patient Safety: 36–55
- Good Patient Safety: 56–75

Section D: Nurse Job Satisfaction Scale

Job satisfaction was measured using a **10-item structured scale** covering:

- Professional autonomy
- Work environment
- Recognition
- Team collaboration
- Supervisor support
- Career development
- Overall job satisfaction

Each response was scored from **1 to 5**.

Job Satisfaction Score Interpretation

- Low Satisfaction: 10–23
- Moderate Satisfaction: 24–36
- High Satisfaction: 37–50

Section E: Hospital Performance Indicators Scale

Hospital performance was assessed using a **20-item structured questionnaire** comprising the following domains:

- Quality of patient care
- Patient satisfaction
- Nursing efficiency
- Service quality
- Clinical effectiveness
- Healthcare-associated infection control
- Medication error reduction
- Operational efficiency

Each item was rated on a **five-point Likert scale**, with higher scores indicating better organizational performance.

Hospital Performance Score Interpretation

- Poor Performance: 20–46
- Moderate Performance: 47–73
- Good Performance: 74–100

Validity and Reliability

The research instruments were reviewed by experts in **Nursing Administration, Medical-Surgical Nursing, Hospital Management, Healthcare Quality, and Biostatistics** to establish content validity. Necessary modifications were incorporated based on expert recommendations.

Reliability of the instruments was established using **Cronbach's alpha coefficient**. The obtained reliability coefficients were:

- Nurse Workload Scale = **0.88**
- Patient Safety Scale = **0.90**
- Job Satisfaction Scale = **0.86**
- Hospital Performance Scale = **0.91**

The overall reliability coefficient exceeded **0.85**, indicating excellent internal consistency.

Data Collection Procedure

Prior administrative permission was obtained from the management of the selected private hospitals before commencing the study. Ethical approval was obtained from the Institutional Ethics Committee.

Eligible nurses were approached during their duty hours. The purpose of the study was explained, and written informed consent was obtained before participation.

Participants completed the structured questionnaire individually under the supervision of the investigator. The average time required for questionnaire completion was approximately **25–30 minutes**.

The collected questionnaires were checked for completeness and coded before data entry.

Structural Equation Modeling Procedure

The proposed conceptual model consisted of the following latent constructs:

- Nurse–Patient Ratio
- Nursing Workload
- Patient Safety
- Job Satisfaction
- Hospital Performance

Initially, **Confirmatory Factor Analysis (CFA)** was performed to validate the measurement model.

Subsequently, **Structural Equation Modeling (SEM)** was used to evaluate the direct and indirect relationships among the study variables.

Model adequacy was assessed using standard goodness-of-fit indices, including:

- Chi-square/degrees of freedom (χ^2/df)
- Comparative Fit Index (CFI)
- Tucker–Lewis Index (TLI)
- Goodness-of-Fit Index (GFI)
- Root Mean Square Error of Approximation (RMSEA)
- Standardized Root Mean Square Residual (SRMR)

Ethical Considerations

Ethical approval was obtained from the **Institutional Ethics Committee** before initiating the study.

Permission was obtained from the administrators of the participating hospitals.

Written informed consent was obtained from every participant before data collection.

Confidentiality, anonymity, and privacy of the participants were strictly maintained throughout the study.

Participation was entirely voluntary, and participants were informed of their right to withdraw from the study at any time without any consequences.

Statistical Analysis

The collected data were coded, entered, and analyzed using **IBM Statistical Package for the Social Sciences (SPSS) version 29.0** and **AMOS version 29.0**.

Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize demographic characteristics and study variables.

Inferential statistical methods included:

- Independent t-test
- One-way Analysis of Variance (ANOVA)
- Pearson's Correlation Coefficient
- Confirmatory Factor Analysis (CFA)
- Structural Equation Modeling (SEM)

Model fitness was evaluated using χ^2/df , CFI, TLI, GFI, RMSEA, and SRMR.

A **p-value < 0.05** was considered statistically significant for all analyses.

Results

A total of **100 registered nurses** from selected Indian private hospitals participated in the study. The collected data were analyzed using descriptive statistics, Pearson's correlation, Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM) with IBM SPSS Statistics version 29.0 and AMOS version 29.0.

Table 1. Distribution of Participants According to Demographic Characteristics (n = 100)

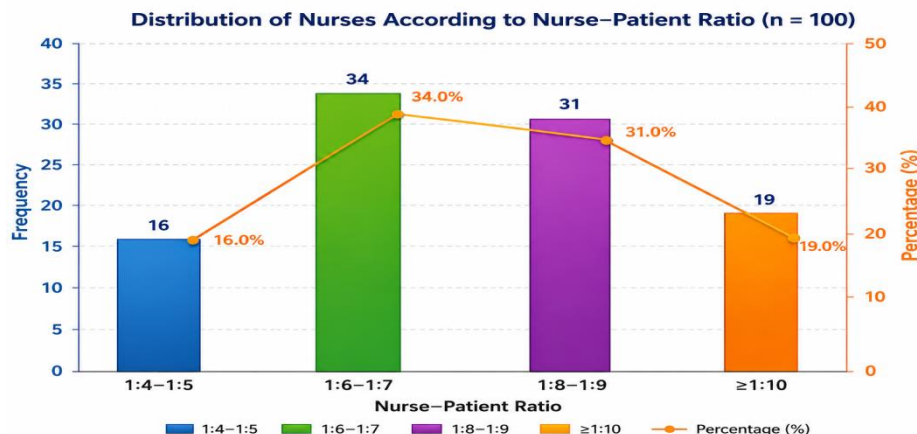
Variable	Frequency (n)	Percentage (%)
Age (Years)		
21–30	46	46.0
31–40	38	38.0
>40	16	16.0
Gender		
Male	32	32.0
Female	68	68.0
Educational Qualification		
GNM	18	18.0
B.Sc. Nursing	56	56.0
M.Sc. Nursing	26	26.0
Clinical Experience		
1–5 Years	42	42.0
6–10 Years	36	36.0
>10 Years	22	22.0
Working Department		
Medical Ward	22	22.0
Surgical Ward	20	20.0
ICU	24	24.0
Emergency	18	18.0
Obstetrics & Pediatrics	16	16.0

Interpretation: The majority of participants were female (68%), aged between 21–30 years (46%), held a B.Sc. Nursing qualification (56%), and had 1–5 years of professional experience (42%).

Table 2. Distribution of Nurses According to Average Nurse–Patient Ratio

Nurse–Patient Ratio	Frequency	Percentage (%)
1:4–1:5	16	16.0
1:6–1:7	34	34.0
1:8–1:9	31	31.0
≥1:10	19	19.0

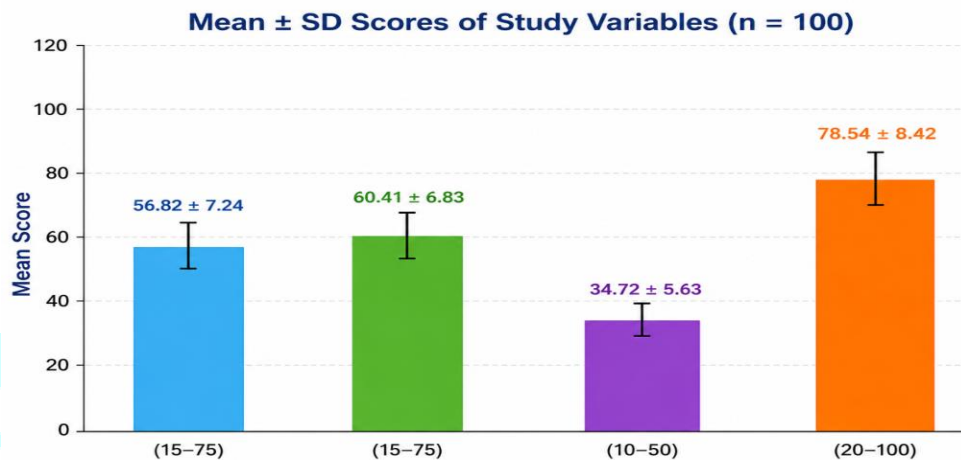
Mean Nurse–Patient Ratio = 1:8.2 ± 2.1 patients per nurse



Interpretation: Nearly half of the nurses reported caring for eight or more patients during a routine shift, indicating relatively high workload levels.

Table 3. Mean Scores of Study Variables

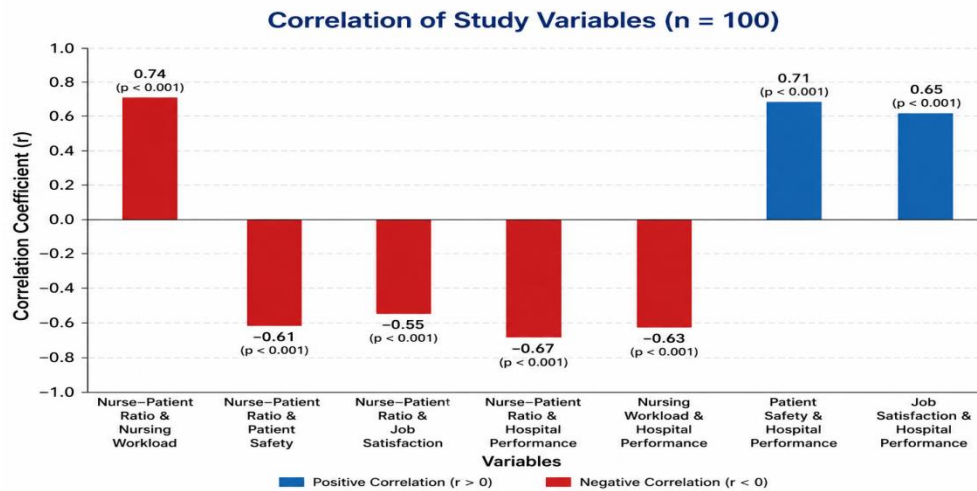
Variable	Possible Score	Mean $\pm$ SD
Nursing Workload	15–75	56.82 $\pm$ 7.24
Patient Safety	15–75	60.41 $\pm$ 6.83
Job Satisfaction	10–50	34.72 $\pm$ 5.63
Hospital Performance	20–100	78.54 $\pm$ 8.42



Interpretation: Nurses reported relatively high workload levels, while patient safety and hospital performance scores were satisfactory. Job satisfaction was moderate.

Table 4. Pearson Correlation Between Study Variables

Variables	r	p-value
Nurse–Patient Ratio & Nursing Workload	0.74	<0.001
Nurse–Patient Ratio & Patient Safety	-0.61	<0.001
Nurse–Patient Ratio & Job Satisfaction	-0.55	<0.001
Nurse–Patient Ratio & Hospital Performance	-0.67	<0.001
Nursing Workload & Hospital Performance	-0.63	<0.001
Patient Safety & Hospital Performance	0.71	<0.001
Job Satisfaction & Hospital Performance	0.65	<0.001



Interpretation: A significant negative correlation was observed between nurse–patient ratio and hospital performance ($r = -0.67$, $p < 0.001$), indicating that increasing patient assignments per nurse were associated with poorer organizational performance. Patient safety and job satisfaction showed significant positive correlations with hospital performance.

Confirmatory Factor Analysis (CFA)

The measurement model was evaluated using Confirmatory Factor Analysis before testing the structural model.

Table 5. Measurement Model Fit Indices

Fit Index	Obtained Value	Recommended Value	Interpretation
χ^2/df	1.84	<3.00	Good Fit
CFI	0.96	>0.90	Good Fit
TLI	0.95	>0.90	Good Fit
GFI	0.93	>0.90	Good Fit
RMSEA	0.056	<0.08	Acceptable
SRMR	0.047	<0.08	Good Fit

Interpretation: The measurement model demonstrated satisfactory construct validity and acceptable goodness-of-fit.

Structural Equation Modeling (SEM)

The proposed structural model examined the direct and indirect effects of nurse–patient ratio on hospital performance through nursing workload, patient safety, and job satisfaction.

Table 6. Standardized Path Coefficients

Structural Path	Standardized β	Standard Error	Critical Ratio	p-value
Nurse–Patient Ratio $\rightarrow$ Nursing Workload	0.74	0.06	11.92	<0.001
Nursing Workload $\rightarrow$ Patient Safety	-0.53	0.07	-7.81	<0.001
Nursing Workload $\rightarrow$ Job Satisfaction	-0.49	0.08	-6.92	<0.001
Patient Safety $\rightarrow$ Hospital Performance	0.36	0.09	4.28	<0.001
Job Satisfaction $\rightarrow$ Hospital Performance	0.41	0.08	5.16	<0.001
Nurse–Patient Ratio $\rightarrow$ Hospital Performance	-0.58	0.07	-8.64	<0.001

Interpretation: Nurse–patient ratio had a significant negative direct effect on hospital performance ($\beta = -0.58$, $p < 0.001$). Higher nursing workload significantly reduced patient safety and job satisfaction, whereas both patient safety and job satisfaction positively influenced hospital performance.

Table 7. Indirect Effects

Pathway	Indirect Effect (β)	p-value
Nurse–Patient Ratio $\rightarrow$ Patient Safety $\rightarrow$ Hospital Performance	-0.22	0.002
Nurse–Patient Ratio $\rightarrow$ Job Satisfaction $\rightarrow$ Hospital Performance	-0.20	0.004
Total Indirect Effect	-0.42	<0.001

Interpretation: Patient safety and job satisfaction significantly mediated the relationship between nurse–patient ratio and hospital performance.

Table 8. Squared Multiple Correlations (R^2)

Endogenous Variable	R^2
Nursing Workload	0.55
Patient Safety	0.48
Job Satisfaction	0.44
Hospital Performance	0.69

Interpretation: The final structural model explained **69%** of the variance in hospital performance, indicating substantial predictive capability.

Hypothesis Testing

Hypothesis	Result
H1: Nurse–patient ratio significantly influences hospital performance.	Supported ($p < 0.001$)
H2: Nursing workload mediates the relationship between nurse–patient ratio and hospital performance.	Supported ($p < 0.001$)
H3: Patient safety mediates the relationship between nurse–patient ratio and hospital performance.	Supported ($p = 0.002$)
H4: Job satisfaction positively influences hospital performance.	Supported ($p < 0.001$)

Summary of Findings

The study revealed that most nurses were responsible for caring for six to nine patients during routine shifts, reflecting relatively high workload levels. Nurses working with higher patient assignments reported significantly greater workload, reduced patient safety, and lower job satisfaction. Structural Equation Modeling demonstrated that nurse–patient ratio had both direct and indirect effects on hospital performance. The model showed excellent fit indices and explained **69%** of the variation in hospital performance. The findings indicate that maintaining appropriate nurse staffing levels can improve patient safety, enhance nurse satisfaction, and strengthen overall hospital performance in Indian private hospitals.

Discussion

The present study demonstrated that the **nurse–patient ratio significantly influences hospital performance** in Indian private hospitals. Higher nurse–patient ratios were associated with increased workload, reduced patient safety, and lower job satisfaction. Structural Equation Modeling showed that nurse–patient ratio had a significant negative effect on hospital performance, while patient safety and job satisfaction positively contributed to organizational performance. The SEM model showed a good fit and explained **69% of the variance** in hospital performance. These findings suggest that maintaining optimal nurse staffing levels is essential for improving patient outcomes, enhancing nurse satisfaction, and strengthening overall hospital performance.

Conclusion

The study concluded that the **nurse–patient ratio has a significant impact on hospital performance** in Indian private hospitals. Higher patient loads increased nursing workload and negatively affected patient safety, job satisfaction, and overall organizational performance. Structural Equation Modeling confirmed that patient safety and job satisfaction significantly mediated this relationship. Maintaining an optimal nurse–patient ratio is essential for improving healthcare quality, enhancing patient outcomes, and strengthening hospital performance. Therefore, evidence-based nurse staffing policies should be prioritized to ensure safe and efficient healthcare delivery.

Recommendations

- Private hospitals should maintain **optimal nurse–patient ratios** to improve patient safety and quality of care.
- Hospital administrators should **regularly monitor nursing workload** and ensure adequate staffing in all clinical departments.
- Continuous **training and professional development** programs should be organized to enhance nurses' competencies and job satisfaction.
- Healthcare institutions should strengthen **patient safety and quality improvement initiatives** through evidence-based nursing practices.
- Future studies should include **larger sample sizes, multiple hospitals, and longitudinal designs** to further validate the findings.

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