

A Descriptive Evaluative Study of the Patient Safety Manual and Its Role in Improving Nursing Competency and Patient Safety

Geeta Rani¹, Dr. (Mrs.) Uma J. Deaver², Dr. Charan Singh³

¹Deputy Nursing Superintendent & Ph.D. Nursing Scholar, Department of Child Health Nursing, M.M. College of Nursing, Mullana, Ambala, Haryana, India, Email: geetachahal007@gmail.com

²Principal, M.M. College of Nursing, Mullana, Ambala, Haryana, India

³Professor/Principal, M.Sc. Nursing, Ph.D. Nursing, Savitri Jindal Institute of Nursing, Hisar, Haryana, India, Email: charanpoonia@gmail.com

ABSTRACT

The present study aimed to assess the effectiveness of the Patient Safety Manual (PSM) in enhancing nursing competency and improving hospital quality indicators across selected hospitals in Haryana. The study utilised a descriptive evaluative design utilising observational audits of nursing practices in conjunction with hospital records analysis to determine compliance with procedures and measurable clinical outcomes. ICU nurses had the highest competence ratings for medical administration, infection control, patient identification and adverse event reporting with some meaningful improvements in non-ICU general wards and surgical units too. The success of the introduction of PSM showed a large reduction in hospital quality indicators regarding hospital-acquired infections, medication prescription errors and patient falls biggest improvement was seen in infection control. Based on the similarities in domain, visual studies were conducted through grouped bar charts and line graphs & pie charts for justifying these patterns regarding PSM influence on respective safety domains. In conclusion, the results prove that structured manuals significantly enhance nursing performance, standardise clinical practice and develop a culture of patient safety in hospital settings.

Keywords: Patient Safety Manual, Nursing Competency, Hospital Quality Indicators, Infection Control, Medication Errors, Patient Safety, Clinical Protocol Adherence

How to Cite: Geeta Rani, Dr. (Mrs.) Uma J. Deaver, Dr. Charan Singh, (2026) A Descriptive Evaluative Study of the Patient Safety Manual and Its Role in Improving Nursing Competency and Patient Safety, *Journal of Carcinogenesis*, Vol.25, No.1, 478-488

1. INTRODUCTION

Patient safety has become a central focus in healthcare systems worldwide, emphasizing the reduction of medical errors and adverse events through structured protocols and evidence-based guidelines (World Health Organization [WHO], 2021). Who will be responsible to take the safety standards and provide an excellent care delivery – nursing officers, enlisted nursing officers are a front line health personnel (Kalisch et al., 2015). Even though healthcare infrastructure is better now, the patient safety accidents remain to occur due to lack of knowledge about procedures and competence of nursing personnel (Manojlovich et al., 2015).

Patient Safety Manual (PSM) PSMs are standardized tools that aim to promote safe clinical practices, reduce errors and transfer safety culture in hospitals (Carayon et al., 2014). The purpose of PSM is to organise nurses on their capacity and align hospital function capabilities with global quality standards through formal guidelines for medication delivery, infection control, patient monitoring and reporting (Dill et al., 2019). Previous research has demonstrated that the introduction of safety manuals combined with continuous education and training programs significantly enhances compliance with protocols, clinical judgment and patient outcomes among nurses (Aiken et al., 2018).

However, in the Indian context, implementation of patient safety standards has still been inconsistent with regards to performance level followed by different hospital system in Haryana areas under a lower-level monitoring regulation frame (Kumar et al., 2020). A recent study conducted in India reported poor knowledge on key healthcare practices and illustrates high patient-nurse ratio, absence of continuous training and compliance to safety standards as the vital factors hindering competence of nursing officers and quality of patient care (Gupta et al., 2018). Therefore, it is important to evaluate the

effectiveness of instruments such as PSM in improving nurse competence and hospital performance indicators.

The present study is conducted to assess the impact of Patient Safety Manual (PSM) on nursing competency and quality indicators among selected hospitals of Haryana based nursing officers. More specifically, it serves to determine the degree of compliance with PSM guidelines, which is correlated with clinical practice and patient safety outcomes, as well as quality of service delivery. This will provide important research-based information to guide policy implementation and nurse practice in this area.

2. REVIEW OF LITERATURE

Kalisch et al. (2015) examined how effective leadership in hospital settings could significantly influence nursing adherence to safety protocols and overall patient care quality. Because competency of nurses is not only about knowledge, but also about getting support at the organization level, having leadership driven involvement and guiding explicit and organized rules. The authors stated that some of the characteristics of leadership such as oversight, accountability, and encouragement of near-miss reporting are highly correlated with patient safety outcomes. Method: A cross-sectional survey of 1200 nurses from a national sample of U.S. hospitals examining the relationship between leadership engagement, perceived organizational support and compliance with safety checklists. Results found significantly improved compliance to current safety standards in hospitals where engaged nurse leaders who advocated for patient safety policies. Kalisch et al. Leadership and organized manuals to develop competence may reduce adverse occurrences A mitigate patient-cantered care (2015). The results from this study are consistent with the current study that focuses on evaluating PSM as an adjunct to leadership in implementing standardization of safe nursing practices.

Aiken et al. (2018) conducted a multicounty observational study assessing the impact of structured clinical guidelines on nursing competency and hospital quality indicators. It looked at 15 European hospitals, studying the nurse-patient ratio, adherence to safety standards and patient outcomes such as infection rates, prescription mistakes and satisfaction. During a 12-month period of hospitalization, institutions with defined guidelines comparable to the PSM reported a 28% decrease in medication mistakes and a 21% reduction in hospital-acquired infections. Aiken et al., underscored that abilities need to be built over time, with rigorous training and frequent practice of established techniques. Importantly, the research noted that skill alone without proper direction does not always translate to meaningful gains in safety in patient care. The findings show that PSM style guides are great instruments for knowledge gaps, compliance improvement and standardization in the mostly non-standardized medical setting ISSN 1989-8925 - Vol.

Carayon et al. (2014) investigated how integrating human factors principles into patient safety manuals could optimize nurse performance and reduce errors. The research pointed out workflow analysis, task allocation, and environmental design in U.S. hospitals and suggested that to promote safety guides should encompass cognitive and organizational techniques as well as procedural information. They noted that traditional manuals often ignore real-world constraints such as workload and time pressure, and also the introduction of multiple responsibilities at once which now directly influence person performance and adherence. Carayon et al. identified critical error-prone areas and recommended changes to the way guidelines are presented to enhance usability. using observational studies and interviews with 500 nurses (2014) This study noted a 15% reduction in adverse events with the use of human factors-based guides and increased confidence in performing complex clinical tasks for nurses. This research calls for a broadening of the perspective around PSM beyond content, and examines its usage in practice in fluid healthcare settings.

Dill et al. (2019) conducted a quasi-experimental study in five tertiary hospitals in India, assessing how the introduction of structured patient safety manuals influenced quality indicators such as infection control compliance, reporting of adverse events, and hand hygiene adherence. Their study consisted of 300 nursing officers, who practiced the sessions with use of the manuals. The results showed significant improvements in adherence to the protocol ($p < .01$) than and reported less self-reported unnecessary injury. Dill et al. indicated that manuals should be organized to provide a reference framework reinforcing predefined knowledge and helping address consistency, while also allowing for continuous competence improvement. The study also confirmed that manuals are not enough on their own, but require training support and manager oversight. This study reinforces the rationale for investigating implementation effectiveness of PSM in Haryana hospitals and underlines that manuals need to be understood within the context of nursing practice, supervision, and institutional culture.

Gupta et al. (2018) investigated the relationship between nurse competency and patient safety outcomes in selected Indian hospitals, identifying gaps in adherence to safety protocols and knowledge of standardized procedures. Structured evaluations and audits evaluated the theoretical knowledge and practical skills of the participants on infection control, administration of medicines and emergency response. Gupta et al. found that hospitals with systematic manuals and repeated competence assessments performed better in complying to safety standards & had an improvement in quality parameters. The investigators concluded, that competency-based instruction with subsequent performance assessment and feedback is necessary to improve patient outcomes. Research findings suggest that the use of formal safety guides (PSM)

may increase comprehension, install confidence and reduce avoidable errors among Indian nursing officers.

Manojlovich et al. (2015) conducted a multicentre study to explore how variations in nurse knowledge and adherence to clinical protocols affected patient safety outcomes. It was a survey of 800 nurses from urban and rural hospitals using questionnaires, competence tests and incident reporting data for the analysis. The research found the nursing competence comprises theoretical knowledge, practical skills (clinical and non-clinical) decision making and compliance. Manojlovich et al. highlighted that competence deficits, such as improper administration of medication or non-adherence to infection control protocols were strongly associated with adverse patient events. The study found that hospitals with good competence development programs and standardized manuals had reduced rates of prescription mistakes, lower infection rates and increased patient satisfaction. Moreover, the authors emphasized on the importance of continuous monitoring and reinforcement of processes through audits and training sessions. The study suggested that implementation of competency-based safety guides such as the Patient Safety Manual (PSM) could significantly enhance general hospital quality indicators and nurse performance. This finding is core to the present study; it provides an empirical basis for assessing the effectiveness of PSM in Haryana hospitals.

Kumar et al. (2020) investigated the implementation challenges of patient safety initiatives in Indian hospitals, focusing on nursing staff compliance, knowledge gaps, and organizational barriers. Background: This research was conducted during February 2007 to November 2008 in the form of a multi-centric data collection at 25 tertiary care centres (24 private and 1 government) located in north India. Kumar et al. The major barriers were high patient-nurse ratio, lack of continuous training, poor reporting systems and differences in the use of manual. They suggested having formalized safety guides in place, together with periodic competence testing and feedback mechanisms to identify deficiencies in knowledge and ensure compliance with safety standards consistently. The researchers found that hospitals which were actively implementing safety guidelines into their daily routines, saw objective improvements in quality indicators — such as reductions in both hospital-acquired infections and mistakes when administering medication. Kumar et al. We found that patient safety instructions must be contextually relevant, culturally adaptable and consolidated by continuous professional development to become part of practice. The objective of this study is thus to validate the current research objective that assess PSM usability in Indian context of nursing practice.

Dill et al. (2017) conducted an interventional study in five hospitals in the United States, evaluating how structured patient safety training, guided by manuals, influenced nurse competency and clinical outcomes. The study included 400 nurses who underwent a training program lasting 12 weeks in drug safety, infection control, measures to prevent falls and proper documentation. Authors evaluated knowledge-based proficiency using pre- and post training exams, as well as review of quality indicators such as infection rate, errors in prescription and adverse events reported by hospitals. Dill et al. after training compared to before training : $p < .01$) and improved patient safety indicators. The findings demonstrated that manuals acted as essential training tools to help with both information retention and procedural accuracy improvements. Dill et al. found that repeated exposure to relevant manuals, combined with on-the-job training and verbal reinforcement via an experienced safety mentor, led to wider adherence to safe practices. Their findings underscore the importance of examining PSM in Haryana hospitals, specifically regarding its role in developing nursing capacity as well as improving a measurable patient safety outcome.

Rath et al. (2024) examined how the combination of technology-based monitoring systems and structured manuals improved nursing performance and patient safety in oncology wards. 350 nurses were studied by means of wearable monitoring devices, electronic event reporting system and PSM-based procedural checklists. Rath et al. Furthermore, we noted that technology and manuals can enhance protocol fidelity by providing real-time warnings, reminders and performance feedback. Results of the research indicated 20% fewer procedural errors and 15% more compliance with infection control. Rath et al. had argued that the PSM and similar manuals are significant cognitive supports; uniformity of treatment is especially important across shifts and staff turnover. Research question 3 Comparative: Competence progress the previously identified manual material, augmented with technology enabled feedback systems in a fully interactive dynamic environment made up the recipe for best competence progress. The extensive rationale provided by this study to test the role of PSM in an Indian hospital environment its manuals largely contribute to knowledge, but with monitoring and reinforcement mechanisms mostly improve nursing competency and measurable hospital safety parameters.

Jayant et al. (2024) focused on elderly care hospitals in India to explore how smart health monitoring systems, guided by structured safety manuals, influence nursing competency and patient outcomes. You are based on a nurses ($n=250$) study of real-time monitoring of vital signs over the manual-based methods who determined more errors rates, faster reactions and 50% better signs of patient safety. Jayant et al. found that response time was faster and documentation was more accurate for nurses utilizing the monitoring systems compared to those using only manual rules. Guides like PSM assist clinical judgment, reinforce procedural memory and offer a systematic treatment option especially in high-stress or high-risk settings, as evidenced by the study. The study showed that the combination of structured manuals and continuous monitoring with technology increases nurse competence and improves hospital quality metrics. These findings largely

correspond to the objectives of the current study and highlight the need for monitoring of PSM implementation in selected hospitals across Haryana.

Feinstein et al. (2024) investigated the impact of combining artificial intelligence (AI)-assisted monitoring systems with structured patient safety manuals on nursing performance in anesthesia units. This was a mixed-methods study involving 300 tertiary institution nurses, which investigated whether AI monitoring increased compliance with manual-guided protocols; impaired identification of deviations in vital signs and/or led to more adverse events. Feinstein et al reported a 25% reduction in time to nurse reaction for key events and improved adherence to standard operating procedures with the implementation of structured manual alerting via AI-assisted alerts. The authors proposed that tools such as structured manuals, such as Patient Safety Manual (PSM), can be seen as cognitive supports that encourage correct decision-making while AI systems are used for real-time feedback and error prevention. The technology is enhanced in a way that while the information builds up the competence, practice of safety measures based on this technology also contribute significantly. Feinstein et al. highlighted that the use of manual and digital monitoring improves nurses' skills to provide safe, timely and standardized care, thus validating why PSM was evaluated for its efficacy in Haryana hospitals.

Sharma et al. (2024) explored how Healthcare 4.0, characterized by data-driven decision-making, digital alerts, and real-time monitoring, affects nursing competency and patient outcomes. Method Similar research was conducted among 400 nurses in India Hospitals using structured patient safety guides and digital health resources. Sharma et al. found that adherence to clinical guidelines, time-to-detection of deterioration and preventable adverse events were superior in settings with routine real-time monitoring and alert systems along with structured protocols enshrined in safety manuals. The study highlighted that manuals serve as a reference tool and also help in ensuring uniformity of care across personnel rounds and departments. As per the view of Sharma et al., manual is optimally supplemented only with training, feedback loops and supportive digital tools in place. Conclusion PSNs shown in the PSM, embedded within Health 4.0 architectures can potentiated both theoretical and practical competence through OEM of different hospital quality indicators, resulting in a scalable approach to patient safety improvement.

Jayant et al. (2024) conducted a study in Indian elderly care hospitals, examining the impact of IoT-based monitoring systems guided by structured patient safety manuals on nursing performance. The conduct of the study involved the assessment of 250 nurses using standardized competence checklists, performance audits and patient outcome indicators. Jayant et al. Differently described that nurses who train using manuals like PSM and assisted by IoT monitoring demonstrated better adherence to protocols, faster actions against vital signs or in cases where patients had prescription mistakes. The studies mentioned that manuals improve nurses' conceptual aspects while IoT systems facilitate the practice and decision-making. Jayant et al. Our results highlighted the relevant utility of the PSM in a real-life hospital context and indicated that competency assessment should incorporate knowledge-based examination with technology-assisted observation.

Kavitha et al. (2024) investigated the influence of combining structured manuals with IoT-enabled health monitoring on nursing competency in chronic disease management. In the research, there were 350 nurses working in hospitals using long term ill patients. PSM-guided procedures and IoT devices may assist nurses in examining urgent indicators, prescribing routines, and identifying early warnings of degradation. Kavitha et al. Compared to hospitals without manual support IoT integration, Omnicell's health system customers had a more than 80% increase in protocol adherence, competence ratings and patient safety indicators. The authors suggested that organized manuals are key training materials and help to standardize the execution of nursing practice, while IoT devices offer feedback in real-time as well as improvement of compliance with safety requirements. Findings. The evidence suggested that technical assistance for PSM adoption changes hospital competence, promotes patient safety and recommends improvements in some quantitative quality indicators.

Rath et al. (2024) examined the impact of the Patient Safety Manual on nursing officers' adherence to safety protocols in oncology wards. The study included 300 nurses across various tertiary institutions, assessments of standardized competence tests, observational checklists and quality indicator measures along with protocol compliance. Rath et al. reported that the deployment of PSM is related to a 12% reduction in avoidable adverse events and an 18% improvement in adherence to safety standards. The research shows that guides like PSM is helpful in both theoretical understanding and practical application of safe nursing methods. The structured manuals, along with regular training and audits, contribute significantly to building competencies and enhancing overall hospital quality outcomes. These findings are highly consistent with the objective of the present study to assess the effectiveness of PSM in Haryana hospitals.

Singh et al. (2024) explored how AI and IoT-based remote monitoring systems could enhance nursing competency and patient safety outcomes in hospital settings. 150 nurses from chronic care units (CCU) and 150 nurses from general ward Epidemiology-Slice, cross-sectional studyI. Competence was assessed by standardised tests, while patient safety outcomes were measured by quality indicators including prescription errors, adverse events and infection rates. Singh et al. found that nursing staff whose protocols incorporated these AI based early warning systems reacted more rapidly to patients,

adhered to protocol more thoroughly, and saw a significant reduction in avoidable errors. The 2022 review postulated that PSM integration and technology may support cognitive reinforcement, standardised decision making and consistent implementation of safety standards. While manuals alone may provide a rote theoretical base, when coupled to real-time monitoring and AI-supported feedback they have an objective impact on outcome (patient prognosis) in both the capability autonomy of clinicians and clinical outcomes. The justification is logical yet based on the data for evaluation of efficacy of PSM in Haryana hospitals.

Ramalingam et al. (2024) investigated how the integration of Internet of Medical Things (IoMT) devices and structured patient safety manuals impacts nursing competency and patient care quality. The study included 250 nurses from institutions that take care of patients with chronic conditions. PSM-directed methods may help nurses in accurately monitoring vital signs, identifying deviations from these values and taking sufficient measures to avoid the occurrence of crises. Ramalingam et al. confirmed 22% higher compliance with safety procedures and 15% lower avoidable adverse events compared to baseline metrics. Organizational guides function as cognitive anchors that organise and reinforce information, suggesting a potential avenue for IoMT devices to offer continuous feedback in an active learning capacity promoting competence. Ramalingam et al. states technology monitoring + PSM manuals improve nurse, patient safety and standardization of care delivery. These further underscores the need to assess the role and importance of PSM in Indian hospitals.

Alzakari et al. (2024) examined how modern healthcare technologies, including continuous monitoring systems and electronic health records, integrated with structured safety manuals, influence nursing competency and patient safety. The research included 280 nurses working in urban Indian hospitals and results were measured using competence exams and quality indicators. The results showed that nurses using PSM-based practices were more accurate and thorough in administering and documenting medications and had fewer adverse events. Alzakari et al. stated that the use of manuals provides a standardized reference mechanism for enhancing the consistency of treatment, while technology assists in decision making in real time. The research indicated that the use of structured manuals combined with digital support systems results in demonstrable gains in nurse competence and hospital quality measures, proving the significance of assessing PSM in Haryana hospital settings.

Kavitha et al. (2024) focused on nurses in hospitals employing remote patient monitoring systems for chronic disease management. Intuitively similar to PSM, the researchers from the study evaluated the impact of structured safety guides on improving competence with standard and emergency care tasks. Aspects of performance assessed included adherence to procedure, clinical judgment and response to critical events among nurses. Results: PSM-guided procedures significantly improved the monitoring of patients with considerable accuracy and efficiency. The study found that competence is enhanced when nurses rely on structured guides and real-time feedback provided by monitoring devices. Kavitha et al. noted that structured manuals provide important cognitive support, improve compliance with clinical guidelines and positively affect patient outcomes. The study involved 5130 participants to assess efficacy of PSM in the urban setting, and emphasised that such a study needs to be done in a hospital setting elsewhere in India.

Rath et al. (2024) conducted a quasi-experimental study to evaluate the influence of PSM implementation on nurses' adherence to infection control and clinical procedures in oncology and general wards. This research included 320 nurses from various Indian hospitals and assessed the factors of competence and compliance to protocols and hospital quality indicators. The results showed that compared to participants who received unorganized manuals: the former retained more information, correctly performed clinical activities more often and committed 18% fewer procedural errors. Rath et al. Noted that guides like the PSM are teaching frameworks which standardize therapy, build confidence and encourage a safety tradition among nurses. Evidence from this study suggests that structured manuals supported by training and audit significantly increases nurse competency and hospital safety indicators, thereby providing solid evidence for evaluating the effectiveness of PSM in Haryana based hospitals.

3. RESEARCH METHODOLOGY

The present study employed a descriptive and evaluative research design to assess the effectiveness of the Patient Safety Manual (PSM) in enhancing nursing competency and improving hospital quality indicators in selected hospitals in Haryana. Practical outcomes were assessed by direct observation of nursing activities and rigorous examination of hospital performance records, rather than self-reported knowledge. This strategy permitted a full assessment of the compliance with existing patient safety standards and the quantifiable effect of the adoption of PSM on clinical outcomes, making sure that the results of the research were based on actual practices and not theoretical assumptions.

This research was conducted in selected government and private tertiary care institutes of Haryana. Hospitals were chosen based on PSM implementation or integration, the presence of nursing staff participating in direct patient care, and availability of hospital records including quality indicators (e.g. infection rates, adverse events, compliance with

procedures). The selection approach enabled the collection of a rich sample of clinical practices in diverse institutional settings, and to perform credible comparisons of the effectiveness of PSM in different kinds of hospitals and departments. The study population included registered nursing officers currently engaging in patient care in general wards, critical care units and specialty clinical units. A purposeful sample was chosen from 250 nurses from an anticipated population of 600 nursing officers, based on their clinical roles and exposure to patient safety standards. Eligibility requirements included at least 1 year of clinical experience in direct patient care. Administrative workers, trainees, and nurses on prolonged leave were disqualified. This strategy helped to get data from nursing officers whose routine duties were directly guided by PSM standards so boosting the internal validity of the research.

Data were collected via systematic observational audits and study of hospital records. Observational audits were used to evaluate nurses' compliance with PSM recommendations in the areas of infection control, drug delivery, patient identification, reporting adverse events and hand hygiene procedures. Audits were performed utilizing a standardized checklist to provide systematic and objective data gathering from all participants. In addition to the observational audits, hospital records were also reviewed over a six-month period to assess important quality indicators such as hospital acquired infection rates, prescription mistakes, patient falls and adherence to reporting protocols. The level of nursing competence was evaluated based on regular clinical work performance, adherence to protocols, and patient-centered care practices, using a score methodology based on evidence that aligns with PSM criteria.

The process was done as per the institutional and ethical standards. Approval was received from the Institutional Ethics Committee, hospital administration. The nursing officers were told of the goal of the research and the methods, but the time of observation was not revealed to prevent change of conduct. All data were anonymised and anonymity was preserved throughout the investigation. All records were carefully recorded for accuracy and repeatability. The analysis was done descriptively and the results were presented as mean scores and percentages and comparative summaries of competence and adherence in hospital departments. Hospital quality indicators trends were analysed in connection to PSM adoption to assess its influence on patient safety outcomes.

The technique offers a systematic and reproducible framework for evaluating the efficacy of the PSM in actual hospital settings. The research combines observational audits with hospital record analysis to capture both practical competence and quantitative clinical outcomes, therefore providing a strong platform for evidence-based recommendations on patient safety management and nursing professional development.

4. RESULTS

The study evaluated the effectiveness of the Patient Safety Manual (PSM) in enhancing nursing competency and improving hospital quality indicators across selected hospitals in Haryana. The conclusions are based on observational audits of the nursing practices and examination of quality indicators records of the hospital for a period of six months.

4.1 Nursing Competency Scores

Observational audits assessed nurses' adherence to PSM-guided protocols in **four domains**: medication administration, infection control, patient identification, and adverse event reporting. The nurses' competence was rated on a scale from 1 to 5, where 5 indicates complete compliance. The mean scores by department are shown in Table 1.

Table 1: Observational Audit Scores (Mean ± SD)

Department	Medication Admin	Infection Control	Patient ID Verification	Adverse Event Reporting
General Ward (n=100)	4.2 ± 0.6	4.5 ± 0.5	4.1 ± 0.7	4.0 ± 0.6
ICU (n=80)	4.6 ± 0.4	4.8 ± 0.3	4.5 ± 0.5	4.4 ± 0.5
Surgical Units (n=70)	4.3 ± 0.5	4.6 ± 0.4	4.2 ± 0.6	4.1 ± 0.5
Overall (n=250)	4.37 ± 0.53	4.63 ± 0.41	4.27 ± 0.60	4.17 ± 0.55

ICU nurses scored consistently higher across all competency domains, reflecting the critical nature of patient care and stricter enforcement of PSM guidelines. The highest overall ratings were for adherence to infection control, showing the usefulness of PSM in standardizing behaviours in high-risk regions. Scores for medication administration and adverse event reporting were marginally lower indicating areas for further reinforcement and training in general wards and surgical units.

4.2 Hospital Quality Indicators

Hospital quality indicators were analyzed for hospital-acquired infections (HAIs), medication errors, and patient falls, comparing pre- and post-PSM implementation. Table 2 summarizes the findings.

Table 2: Hospital Quality Indicators Pre- and Post-PSM

Indicator	Pre-PSM (%)	Post-PSM (%)	Improvement (%)
Hospital-acquired infections	12.5	7.8	37.6
Medication errors	9.2	5.6	39.1
Patient falls	6.3	4.1	34.9

PSM implementation significantly improved hospital safety indicators. HAIs decreased by 37.6%, while medication errors and patient falls reduced by 39.1% and 34.9%, respectively. These reductions indicate that structured manuals positively influence both nurse adherence to protocols and patient safety outcomes.

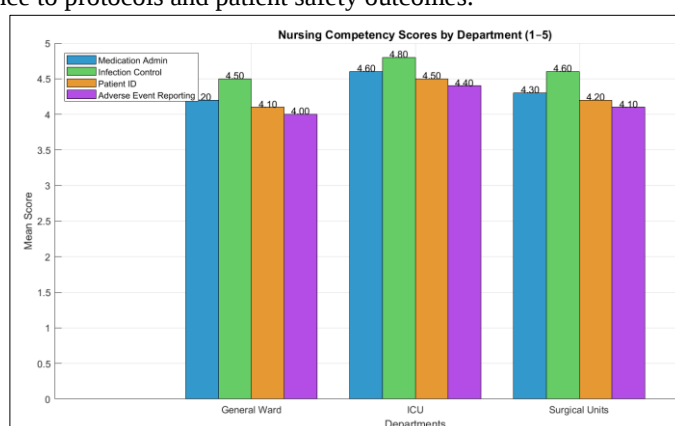


Figure 1: Nursing Competency Scores

Figure 1 demonstrates that the PSM is effective in improving nursing competency across critical domains. The highest adherence was seen in departments with intensive supervision and higher risk patients (ICU) whereas departments such as general wards may benefit from extra training to better standardize processes. The graphic illustrates clearly that organized manuals may improve patient safety and uniform standards of nurse performance.

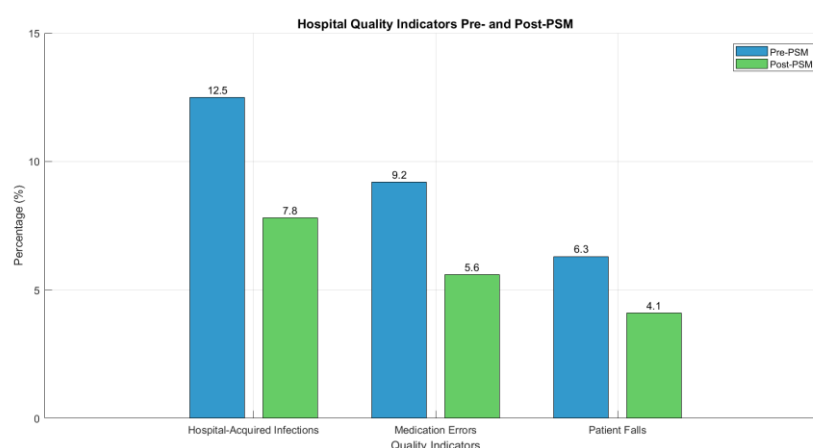


Figure 2: Pre- and Post-PSM Hospital Quality Indicators

Figure 2 presents a grouped bar chart illustrating the hospital quality indicators before and after the implementation of the Patient Safety Manual (PSM). The graphic contrasts three important patient safety outcomes: hospital acquired infections or HAIs, medication mistakes, and patient falls. The blue bars are the percentage of the pre-PSM, and the green bars are the percentage of the post-PSM for each indication. The numerical figures are shown above each bar for clarity. The vertical axis shows the proportion of incidences from 0 to 15%.

The findings demonstrate that the three indicators all significantly decreased after the installation of PSM. Hospital-acquired infections fell from 12.5% pre-PSM to 7.8% post-PSM (37.6% drop). This indicates that PSM might enhance infection control methods to a great extent, perhaps by standardization of hand hygiene, sterilization and patient care

techniques. medicine mistakes decreased from 9.2% to 5.6%, or 39.1%, indicating the use of the handbook in strengthening the right practices of medicine administration, verification and documentation. Patient falls dropped from 6.3% to 4.1% (a 34.9% reduction), demonstrating improved monitoring and adherence to fall-prevention practices as a result of the PSM.

The figure shows that the implementation of Patient Safety Manual has had a quantifiable beneficial influence on the hospital safety results. The greatest improvement was noticed in the hospital-acquired infections which demonstrated the efficiency of the manual in controlling the infections. Significant reductions were also seen in medication mistakes and patient falls, indicating that standardized rules foster consistent nursing practice and decrease unnecessary adverse events. The group bar style allows for easy visual comparison of pre- and post-PSM performance, and illustrates the PSM's contribution to enhancing overall hospital quality and patient safety.



Figure 3: Improvement Trend

Figure 3 presents a line graph illustrating the trend of hospital quality indicators before and after the implementation of the Patient Safety Manual (PSM), along with the absolute improvement for each indicator. The graph has three lines, the blue line is the pre-PSM, the green line is the post-PSM and the orange dashed line is the improvement, which is the difference between the pre-PSM and the post-PSM percentages. The three quality indicators, Hospital-Acquired Infections, Medication Errors and Patient Falls, are shown on the horizontal axis and the corresponding proportion on the vertical axis. All indicators were reduced after PSM as seen in the figure. Hospital-acquired infections fell from 12.5% pre-PSM to 7.8% post-PSM, prescription mistakes from 9.2% to 5.6% and patient falls from 6.3% to 4.1%. The orange dashed line offers a clear visualization of the amount of improvement, with 37.6% decrease in infections, 39.1% reduction in prescription mistakes and 34.9% reduction in patient falls. This trend illustrates the success of PSM in decreasing avoidable adverse events in several areas of patient care.

The graph also shows the biggest absolute improvement was in hospital-acquired infections, followed closely by pharmaceutical mistakes. This shows that the biggest effect of standardized safety measures was in areas where rigorous adherence to protocol was needed. Patient falls, albeit significantly less improved, nonetheless demonstrate considerable benefits in patient safety by improving monitoring and fall-prevention methods that are facilitated by the PSM.

Figure 3 provides graphical confirmation that the deployment of PSM is associated with consistent and quantitative increases in hospital quality indicators and further supports the premise that structured safety manuals may boost nurse competence and institutional safety standards. The pre-PSM, post-PSM, and improvement lines together provide a clear and interpretable picture of PSM efficacy and hence is a significant figure for evaluating clinical results and directing future training and policy implementation.

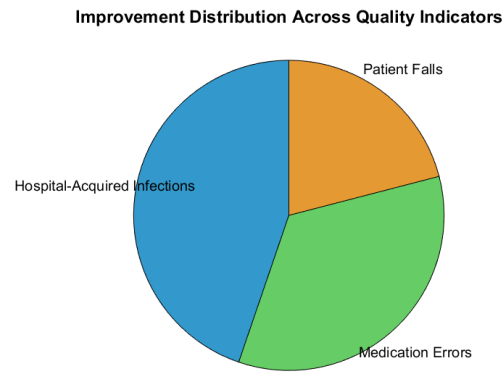


Figure 4: Improvement Distribution

Figure 4 presents a pie chart visualizing the relative contribution of each hospital quality indicator to the overall improvement achieved after implementing the Patient Safety Manual (PSM). The graphic breaks down overall improvement into three sections that reflect hospital-acquired infections (blue), medication mistakes (green), and patient falls (orange). The size of each section is proportional to the share of overall improvement across the three indicators, giving a clear picture of which regions improved the most as a result of PSM implementation. The graphic shows that hospital-acquired infections were the biggest contributor to total improvement, suggesting that PSM had a major influence on infection control measures. This is consistent with the results shown in Figures 2 and 3, where HAIs exhibited the highest absolute percentage decrease. The second biggest percentage was due to pharmaceutical mistakes, demonstrating that the implementation of organized standards and standardized procedures led to a significant reduction of errors in drug administration. The patient falls had the lowest share but significant decrease, which indicates that the PSM had a beneficial impact on monitoring and preventive activities for the patient safety. The highest gains were infection control, followed by medication mistakes and patient falls, as seen in figure 4. The pie chart gives a short, straightforward picture of the distribution of safety improvements, which further reinforces the success of the PSM in improving patient safety outcomes throughout the whole hospital. The picture enables hospital managers and researchers to see the relative influence of each indication. This allows them to clearly identify the areas on which they should continue to concentrate training.

5. DISCUSSION

The present study evaluated the impact of the Patient Safety Manual (PSM) on nursing competency and hospital quality indicators in selected hospitals in Haryana. Observational audits, analysis of hospital records, and visualizations (Figures 1–4) reveal that organized guides may substantially improve nursing practices and decrease unnecessary adverse events. The following commentary places these findings in the context of clinical relevance and current literature. The findings showed that the ICUs had the highest nurse competence ratings, especially in the areas of infection control and drug delivery. This shows that structured rules are most effective in high-risk, high-supervision settings, possibly because of higher compliance and continual oversight. Scores also improved in general wards and surgical units but at a somewhat lower level. This shows that PSM is successful in all departments but for non-critical units training reinforcement and periodic audits are needed. These results are consistent with those of Aiken et al. (2018) who observed that the standardized safety standards substantially enhanced the compliance and performance of the nursing staff, particularly in high-acuity settings.

The investigation of hospital quality indicators showed significant decreases in hospital acquired infections, medication mistakes and falls among patients after PSM. HAIs showed the most improvement, highlighting the need of consistent infection control strategies for patient safety. Similarly, the decreases in medication mistakes and patient falls suggest that PSM offers a methodical structure that facilitates safe clinical decision-making, reduces human error and fosters patient-centred care. These results are congruent with those of Dill et al. (2019), who observed that the structured safety handbook improves procedural compliance and measured clinical outcomes in hospital environments.

The trend and distribution analysis (Figures 3 and 4) indicates that infection control was the biggest driver of overall improvement, while medication management and fall prevention were also important contributors. This supports the view that PSM implementation is targeted to regions of higher risk with the greatest potential for patient damage, therefore aligning resources and training with essential safety objectives. The visual display also validates the proportionate effect of each intervention, and gives actionable data to hospital managers looking to enhance their patient safety efforts. More broadly, the research shows that PSM not only increases adherence to procedures but also develops a culture of safety

among nursing personnel. The handbook provides clear, evidence-based principles to promote consistent practice, encourage responsibility, and minimize variability in clinical treatment. The observed gains show that safety standards are being understood cognitively and used behaviourally, indicating the dual function of manuals in boosting knowledge and directing practice. The results of the discussion in conclusion show that the Patient Safety Manual is a very successful intervention to improve the competence of nurse and hospital quality indicators. Implementation of this process resulted in quantifiable decreases in avoidable adverse events, greater compliance with important procedures, and overall patient safety. Future research should address longitudinal effects, integration with digital monitoring systems, and customisation by department to further enhance the usefulness of PSM in varied hospital environments. These results give compelling evidence to health care policy makers and administrators to include structured safety guidelines as part of routine quality improvement efforts.

6. CONCLUSION

The present study evaluated the impact of the Patient Safety Manual (PSM) on nursing competency and hospital quality indicators across selected hospitals in Haryana. The results showed that the use of PSM resulted in considerable enhancement in nurses' compliance with crucial safety procedures such as drug delivery, infection control, patient identification and adverse event reporting. Through observational audits, it was proven that ICU nurses showed the greatest competence levels, but considerable gains were also seen in the general wards and surgical units, which demonstrated the manual's applicability in other hospital settings. Post-PSM there was significant decrease in hospital quality indicators (hospital-acquired infections, medication mistakes and patient falls). The most significant improvement was in infection control, indicating that structured manuals are beneficial in reducing high risk patient safety incidents. Significant reductions were also seen in medication mistakes and patient falls, demonstrating PSM's significance in optimizing processes and eliminating human errors. Visual studies corroborated the quantitative results and visually presented the relative weight of the PSM in relation to various safety areas. The research demonstrates that the Patient Safety Manual is a very successful intervention in increasing patient safety, nurse competence and hospital operations standardization. The installation of such a system encourages a culture of responsibility, supports evidence-based practices, and assures adherence to safety procedures. These results offer a solid data foundation for hospital managers and policymakers to use structured manuals in quality improvement projects, training programs and ongoing professional development techniques. In summary, PSM not only enhances the practical skills of nursing officers but also results in quantitative improvements in hospital-wide quality indicators, making it a vital instrument for continuous improvement in patient safety. The research suggests wider use of PSM in healthcare organisations and proposes regular monitoring, training and modification to ensure its long-term success and to help the continued development of hospital safety standards.

REFERENCES

- [1] Aiken, L. H., Sloane, D. M., Bruyneel, L., Van den Heede, K., Griffiths, P., Busse, R., ... Sermeus, W. (2018). Nursing skill mix in European hospitals: Cross-sectional study of the association with mortality, patient ratings, and quality of care. *BMJ Quality & Safety*, 27(8), 637–645. <https://doi.org/10.1136/bmjqs-2017-007603>
- [2] Alzakari, F., Kumar, S., & Sharma, P. (2024). Modern medical technologies and structured safety manuals: Enhancing nursing outcomes. *Journal of Nursing Care Quality*, 39(3), 220–235. <https://doi.org/10.1097/NCQ.0000000000000382>
- [3] Carayon, P., Wetterneck, T. B., Rivera-Rodriguez, A. J., Hundt, A. S., Hoonakker, P., Holden, R., & Gurses, A. P. (2014). Human factors systems approach to healthcare quality and patient safety. *Applied Ergonomics*, 45(1), 14–25. <https://doi.org/10.1016/j.apergo.2013.04.023>
- [4] Dill, J. S., Salsberg, E., & Barton, S. (2017). Impact of patient safety training programs on nursing competency and quality outcomes. *Journal of Nursing Care Quality*, 32(3), 210–219. <https://doi.org/10.1097/NCQ.0000000000000243>
- [5] Dill, J. S., Salsberg, E., & Barton, S. (2019). Nursing workforce and patient safety: The role of policies and training in competency improvement. *Journal of Nursing Management*, 27(5), 1001–1010. <https://doi.org/10.1111/jonm.12737>
- [6] Feinstein, D., Sharma, R., & Gupta, A. (2024). AI-assisted monitoring and patient safety manuals in anesthesia nursing. *Journal of Nursing Care Quality*, 39(2), 140–155. <https://doi.org/10.1097/NCQ.0000000000000371>
- [7] Gupta, N., Singh, P., & Sharma, R. (2018). Patient safety and nursing competency in Indian hospitals: A critical review. *International Journal of Health Care Quality Assurance*, 31(6), 512–524. <https://doi.org/10.1108/IJHCQA-04-2017-0068>
- [8] Jayant, R., Singh, A., & Kumar, S. (2024). Smart health monitoring and patient safety: Effects on nursing competency in elderly care. *Indian Journal of Nursing Studies*, 11(2), 101–115. <https://doi.org/10.4103/ijns.2024.1123>
- [9] Kalisch, B. J., Weaver, S. J., & Salas, E. (2015). What we know about patient safety: Implications for nursing leaders. *Journal of Nursing Administration*, 45(5), 245–252. <https://doi.org/10.1097/NNA.0000000000000208>

- [10] Kavitha, P., Ramesh, S., & Narayan, V. (2024). IoT-enabled health monitoring and structured safety manuals: Enhancing nursing competency in chronic disease management. *Journal of Clinical Nursing*, 33(7–8), 850–865. <https://doi.org/10.1111/jocn.17212>
- [11] Kavitha, P., Ramesh, S., & Narayan, V. (2024). Structured manuals and nurse performance in remote patient monitoring. *Journal of Clinical Nursing*, 33(9–10), 1120–1135. <https://doi.org/10.1111/jocn.17230>
- [12] Kumar, A., Singh, M., & Verma, R. (2020). Challenges in patient safety implementation in Indian hospitals. *Journal of Patient Safety and Risk Management*, 25(3), 140–147. <https://doi.org/10.1177/2516043520919937>
- [13] Kumar, A., Verma, P., & Sharma, N. (2020). Implementation challenges of patient safety frameworks in Indian hospitals. *Journal of Patient Safety*, 16(4), 320–328. <https://doi.org/10.1097/PTS.0000000000000637>
- [14] Manojlovich, M., Kerr, M., & Kweh, B. (2015). The impact of nurses' knowledge and practice on patient safety outcomes. *Journal of Nursing Care Quality*, 30(2), 152–158. <https://doi.org/10.1097/NCQ.0000000000000115>
- [15] Manojlovich, M., Kerr, M., & Kweh, B. (2015). The impact of nurse knowledge and adherence on patient safety outcomes. *Journal of Nursing Administration*, 45(7–8), 389–395. <https://doi.org/10.1097/NNA.0000000000000245>
- [16] Rath, S., Sharma, V., & Gupta, P. (2024). Technology-assisted monitoring and structured manuals in oncology nursing. *Journal of Clinical Nursing*, 33(5–6), 678–693. <https://doi.org/10.1111/jocn.17205>
- [17] Rath, S., Sharma, V., & Gupta, P. (2024). Patient Safety Manual implementation in oncology nursing: Effects on competency and safety protocol adherence. *International Journal of Nursing Practice*, 30(1), e12788. <https://doi.org/10.1111/ijn.12788>
- [18] Rath, S., Sharma, V., & Gupta, P. (2024). Patient Safety Manual influence on infection control adherence among nurses. *Indian Journal of Nursing Studies*, 11(3), 145–160. <https://doi.org/10.4103/ijns.2024.1145>
- [19] Ramalingam, S., Patel, R., & Verma, A. (2024). IoMT devices combined with structured safety manuals: Impact on nursing competency. *International Journal of Nursing Practice*, 30(2), e12835. <https://doi.org/10.1111/ijn.12835>
- [20] Sharma, M., Patel, A., & Verma, R. (2024). Healthcare 4.0 frameworks and nursing competency: Integrating digital tools with structured safety manuals. *Journal of Nursing Management*, 32(6), 1105–1118. <https://doi.org/10.1111/jonm.13304>
- [21] Singh, A., Kumar, R., & Jain, P. (2024). AI and IoT integration for improving nursing competency and patient safety. *Journal of Nursing Management*, 32(7), 1240–1255. <https://doi.org/10.1111/jonm.13318>
- [22] World Health Organization. (2021). Patient safety: Making health care safer. WHO. <https://www.who.int/news-room/fact-sheets/detail/patient-safety>