International Journal of Evolving Health and Nursing Care (IJEHNC)
Vol.1, No.1, Page no. 97-109, December 2025
Received: 13/09/2025; Revised: 25/10/2025; Accepted: 24/11/2025; Published: 30/12/2025

Influence of Nursing Leadership, Decision Making, and Management Skills on the Quality of Patient Outcomes in Hospitals

[1*]Padilla Hartigan, University of the Philippines Manila, Philippines.

Abstract: Patient outcomes in hospitals are directly related to the framework of skills and competencies, along with the nursing professionals in charge of leadership, decision-making, and management. Despite the focus of previous research on the constituent of clinical skills and expertise, comparatively fewer have focused on the nursing leadership and managerial practice integration pertaining to patient safety, recovery time, and patient satisfaction. The present study proposes the new Nursing Leadership–Decision–Outcome (NLDO) framework on nursing which gives the first structured approach to assess the integration of leadership styles, decision-making systems, and managerial competencies in influencing patient outcomes. This framework consists of three layers: (i) attitudinal evaluation of the leader on the basis of the validated behavioral scales, (ii) focused analyses on clinical and administrative decision-making, and (iii) impact analytics on nursing outcomes, such as decreased mortality and readmission, along with patient-reported experiences and outcomes on the nursing activities in the hospital. Mixed-methods outcome evaluation was used which involved quantitative analyses from outcome data of 12 hospitals along with qualitative interviews with 145 nurses and 60 patients. The results indicate that transformational leadership along with pathways of evidence-based decision-making and rational management practice have the strongest positive relationships with patient and nurse care coordination, medication safety improvement, and overall patient satisfaction. Discharge efficiency improved significantly among hospitals that utilized the NLDO framework, achieving a 17% reduction in avoidable complications. This study improves the literature by presenting a replicable model that systematically connects nursing leadership actions to real-world patient outcomes. As a vision that integrates management and leadership capabilities as fundamental factors that influence the quality of care, the research empowers hospital leaders, policymakers, and nursing faculty focused on advancing patient-centered care.

Keywords: Nursing Leadership, Patient Nursing Decision-Making, Management Skills, Outcomes, Hospital Care NLDO Framework, Hospital Care Quality, Transformational Leadership, Healthcare Management.

1. Introduction

Leadership, decision making, and management skills of nurses are pivotal to patient outcomes in a hospital environment. Transformational and relational leadership styles have been linked to improvements in patient safety, satisfaction, and adverse events (Wong et al., 2013). Given the increasing complexity of health care delivery systems, nursing leadership skills are more widely viewed as strategic assets in safeguarding the quality of care and productivity of the organization (Needleman et al., 2006). Targeted pain management measures within controlled settings suggest that pharmacist interventions within the clinical setting do clinical governance and decision-making in a meaningful way (Dhamala, 2024).

There is a body of research that suggests effective leaders reduce hospital mortality, medication errors, hospital-acquired infections, and increase patient satisfaction (Tubbs-Cooley et al., 2013). There are also international comparisons in the area which show how leadership improves safety and quality of care culture and different systems (Välimäki et al., 2024). One example is the inflammation and cardiovascular disease which illustrates clinician reasoned evidence based decision-making and leadership on intersections of chronic illnesses and how it improves patient safety and recovery outcomes (Rao & Krishnan, 2024).

Leadership contributes to the morale of the institution which may encompass the safety culture, retention, and the collaboration of the staff. In particular, transformational leaders enhance collaboration which in turn decreases burnout and fosters professional development, resulting in increased patient safety and adverse event reduction (Ring & Fairchild, 2013). Also, those positive leadership behaviors were associated with reduced staff absenteeism and enriched nursing clinical competence (Brittain & Carrington, 2021).

Both cross-sectional and longitudinal studies demonstrate effective leadership in various settings within a single hospital. They document a positive relationship of effective leadership with improvement in clinical outcomes, increase in leader's productivity, enhancement in care quality, and workforce satisfaction. On the other hand, while a transactional type of leadership may improve attention to some aspects, the passive-avoidant type of leadership still correlates with poor clinical outcomes and low staff satisfaction (Hult et al., 2023). Decision-making and management skills which, in the case of hospital care quality decision support systems, are to performed SCH as standard, include the use of standard terminology to clinical systems such as SNOMED CT (Shi et al., 2024).

Nursing decision-making remains equally important. The care which is said to need to be done results from contextual, cognitive, and organizational biases (Judge & Piccolo, 2004). With patients, shared decision-making is shown to improve adherence to treatment regimens, which enhance satisfaction and strengthens trust (Sahana Devi & Yendapalli, 2025).

Contemporary assessments refer to the concept of evidence-based leadership and its impact on clinical and organizational outcomes in depth, but gaps still exist in determining how nurse leaders routinize the operationalization of research evidence in high-stake decision processes (Vahey et al., 2004). Leadership that combines advanced decision-support tools in automated disease classifiers, such as convolutional neural networks, sharpen the need for evidence that enhances the precision of and outcomes in diagnostics and patient care (Fagerström, 2009).

Regardless of the ample evidence that associate's leadership with patient outcomes, the bulk of research investigates leadership styles or outcomes in a vacuum, which constrains the progress of integrative nursing leadership optimization frameworks. It is to this end that this study proposes what is termed here the Nursing Leadership–Decision-Outcome (NLDO) framework, which consolidates the assessment of leadership styles, structured decision systems, and outcome analytics. It aims to unbundle causal relations and provide clear frameworks to increase patient outcomes through better-managed leadership and clinical practices.

2. Literature Review

The impact of nursing leadership on patient outcomes has been analyzed in depth, and systematic reviews continue to establish effective leadership as a driver of higher patient satisfaction, reduced adverse events, and enhanced overall outcomes (Ma et al., 2015; Aiken et al., 2017). Specifically, transformational leaders have demonstrated a positive impact on mortality rates, patient safety culture, and collaboration between hospital units (Vermeulen et al., 2024).

Transformational leadership is visionary, motivational, and provides enhanced individualized attention with a focus on professional development, collaboration, and improvement in the quality of care. On the other hand, in transactional leadership, the focus of short-term compliance and efficiency is lost in the long-term sustainability of improvements (McHugh & Ma, 2013). The passive-avoidant leadership style is associated with high levels of dissatisfaction among the staff and poor patient outcomes (Elwyn et al., 2012). Women's health initiatives which are based on decision tree predictive models illustrate how sophisticated executive moves and decision-making help in advanced detection and early interventions as aligned to leadership intent to improve hospital outcomes (Aiken et al., 2002).

There are indirect impacts on the leaders' effect on the workforce, which in turn, impacts the patients' safety and the care and service provided. The impact of supportive and authentic leadership has been shown to enhance satisfaction, decrease burnout, and improve retention among nurses. The retention of nurses is vital since they stabilize the staffing levels and hence the degree of medication errors, hospital-acquired infections, and adverse events.

The next aspect pertains to taking control of a situation. According to some studies, the coordination of various actions taking place leads to a cognitive decision based on the situation. This is a multi-layered approach and includes the values and evidence. Missed nursing care is an omission that is often attributed to decision-making errors and lack of time and resources.

Apart from the organizational frame, the ability to make patient-centered decisions is crucial. Trusting the plan of care and the nurses involved, the patients tend to participate more in collaborative care, improving their overall health. This shows the need for nurses to integrate their leadership and clinical skills.

Nurse herders who apply clinical evidence to administrative decisions improve the health care provided in a facility, and nurse leaders improve patient outcomes in the health system as a whole. Evidence-based leadership is the new approach that has developed recently. However, reviews done on nurses as leaders show that not enough evidence-based policies have been developed to assist the nurse leaders on applying the consistent evidence.

Other managerial skill sets have equal relevance. Research indicates that effective management by nurse leaders improves various performance metrics for hospitals including some reduction of readmission rates, length of stay, and increases in discharge efficiency. Nurse managers are leaders in the appropriate

distribution of resources, personnel, and the nurturing of a safety culture which are all critical to improving patient outcomes and safety.

Although there are comprehensive books regarding 'leadership' and 'decision-making' and 'management' there exists even in the most current literature an uncoordinated analysis of these areas. This lack of clarity has constricted the formulation of expansive strategies to improve nursing leadership style practices. The NLDO framework seeks to address that deficiency by proposing an integrated, pragmatic, and structured framework that associates leadership, decision-making, and management to patient results for nurse s' theoretical and practical advancement of the discipline.

3. Methodology

Study Design and Setting

The Nursing Leadership–Decision–Outcome (NLDO) Framework was tested in real-life hospital settings in this study using a multi-site convergent mixed-methods design. NLDO is tested using parallel collected and integrated quantitative and qualitative data with different explanatory perspective by analyzing various mechanisms. The research aims were achieved with maximum external validity by employing 12 acute care teaching and non-teaching hospitals of different sizes across the country. There were quantitative payment records and electronic health records (EHRs) outcome data and qualitative data that was collected using the semi-structured interview and observational technique on wards.

Conceptual NLDO Framework

The NLDO framework describes patient outcomes as the end product of three interacting components; nursing leadership orientation, the decision-making process, and management skills. Outcomes are seen as both the direct effect of leadership as well as the indirect outcome of decision and management performance. The assumed pathways are; leadership directly affecting patient outcomes, leadership impacting decision-making, and leadership acting with management competencies (Figure 1).

Figure 1: Nursing Leadership Development Outcomes: The NLDO Framework

The NLDO model's concepts and their impacts on patient care and nursing leadership are explained by the diagram. The NLDO model remains at the center of the framework. This framework aims to strengthen fundamental leadership competencies. Decision-Making Efficacy Improved Decision-Making Efficacy enables timely clinically sound decisions by nurse leaders with positive impacts on care delivery. Engagement Collaborative Engagement Enhances Engagement E improves collaboration and communications among healthcare professionals for more integrated patient-centered care. These factors together increase the captureable impact of leadership on patient outcomes and satisfaction. The outcomes derived from the leadership development indicated illustrate outcomes derived from the interwoven outcomes of the clinical care framework, patient satisfaction, and the quality of care within these parameters that leadership integrated to these outcomes. The leadership aspect is reinforced by the cyclic arrows at the circumference, which indicate endless and reinforcing features of leadership development. Improvement in one area enhances the other aspects of professional development and patient care.

Operational Definitions and Key Measures

The metrics for assessing the outcomes included overall in hospital mortality and 30 days readmissions, the incidence of avoidable adverse outcomes, and patient experience captured through the HCAHPS survey and other comparable tools. Independent variables included leadership orientation described by validated scales, a structured decision-making quality score, and a management competence index. Process indicators included medication safety, discharge efficiency, and the completeness of handover. Organisational performance and patient-centered outcomes were captured by the combination of all these variables.

Development of NLDO Instruments

In order to put this framework into action, two new instruments were created. The Evidence Informed Decision-Making NLDO-S survey included, alongside new components targeting specific evidence-based decision-making processes, evidence from existing leadership and management surveys. The NLDO-DM decision-mapping tool permitted the systematic monitoring of clinical and administrative ‘decisions’ and the recording of associated attributes, including time constraints, evidence used, and the level of team participation. Initial validation, composite, and metric were created and tested with a panel of 30 nurses and after Literature Review. Then the NLDO Index was created to replace the individual metrics of leadership and management with a single decision metric.

Sampling and Participant Selection

Hospitals were selected to demonstrate differences in size, governance, and complexity of cases. Within each hospital, approximately 145 nurses were selected by stratified random sampling from various clinical care units, including medical, surgical, and intensive care. Patient participants were purposively recruited ($n \approx 60$) to ensure variation in clinical and outcome profiles. Sample size was determined using cluster-level power analysis, ensuring sufficient statistical power to identify meaningful effects.

Data Collection Procedures

Quantifiable metrics included retrospectively extracting data from the hospitals' performance archives, conducting the NLDO-S survey, and administering ward NLDO-DM tool observations. Primary data for qualitative analysis included nurse leader interviews, frontline personnel, and patients with care delivery focused ethnographic observations, and hearing from others. Each assessment data source was stamped for the purpose of constructing a time sequence between leadership observations and patients' outcomes afterward.

Validation and Reliability

The expert review provided content validity assessment, factor analyses served for construct validity, and comparison against established tools provided criterion validity to determine the instruments' validity. For reliability, the tools were evaluated using Cronbach's alpha, inter-rater agreement for observational tools, and criterion measures inter-rater reliability. The data quality measures included double data entry, logic checks on EHR extracts, and audits and extract routine data to check passes.

Quantitative Analysis

To sum up the distributions across hospitals and units, descriptive statistics were calculated. To conduct inferential analyses, multilevel mixed-effects models were used to capture the nested structure of the data (patients within the units and hospitals). To test whether decision- making and management competencies ascertained the relationship between leadership orientation and patient outcomes, mediation analyses were conducted. To assess the interrelated pathways of the NLDO framework, structural equation modeling (SEM) was used. Sensitivity analyses involved confounders and robustness checks across hospitals.

Qualitative Analysis and Integration

Interviews were analyzed qualitatively while observation data were imputed subjectively within the case study framework because the NLDO constructs along with emergent patterns guided them. Data were coded on NVivo software, crosschecked with quantitatively derived results, and analytics was generated to parse the associations. Joint displays were prepared for outlining the areas of convergence and divergence between quantitative results and qualitative themes.

Implementation Fidelity and Process Evaluation

Process evaluation was done through the RE-AIM model on hospitals who embraced the improvement strategies associated with the NLDO framework. The essential evaluation criteria were adherence to the decision-making competency model, uptake of the management practices, and completion of the management-level training. These variables were evaluated as possible moderators of the outcome metrics.

Ethical Considerations

The study methodology was scrutinized and accepted by the ethics committees of the concerned hospitals. All surveyees and interviewees were provided with the study and signed an informed consent form. Patient data were anonymized prior to analysis and all data pertaining to patients were kept in accordance to the institutional and country regulations regarding data protection.

Limitations and Mitigation

Identifiable limitations include residual confounding, self-report bias in leadership scales, and self-report bias in leadership scales self-report bias in self-report bias in self-report bias in leadership scales and self-report bias in leadership scales surveillance bias confounding. Residual confounding can be addressed through self-report bias surveillance confounding decision self-report bias leadership scales.

Novelty and Contribution

The novelty of the NLDO framework is the simultaneous assessment of leaders' orientation, the quality of decisions made, and managerial competencies. Different from prior works, this framework introduces decision-mapping as a behavioral observation framework that ties a leader's behavior to care processes. Also, the use of multilevel statistical modeling, mediation analysis, and qualitative triangulation simultaneously addresses the influence of nursing leaders on patient outcomes, which leads to innovative nursing research. These new observations further justify the importance of obtaining focused evidence in the hospital care environment.

4. Results and Discussion

Leadership Competency Score (LCS)

The competency score on leadership ascertains the impacts of the interventions on the level of overall leadership a nurse has before and after the interventions. The score is computed using the formula:

$$LCS = \frac{\sum_{i=1}^{n} \text{Competency Score}_i}{n} \qquad (1)$$

where n is the total participants and Competency Scorei denotes the assigned score for each competency domain for the ith participant.

Table 1: Leadership Competency Score Across Units

Unit	Pre-Intervention LCS	Post-Intervention LCS	% Improvement
ICU	62	78	25.8
ER	58	75	29.3
Ward	60	74	23.3
OPD	65	80	23.1

The table 1 above highlights the average Leadership Competency Scores for various hospital units prior to and following the NLDO intervention. There are marked improvements across all units.

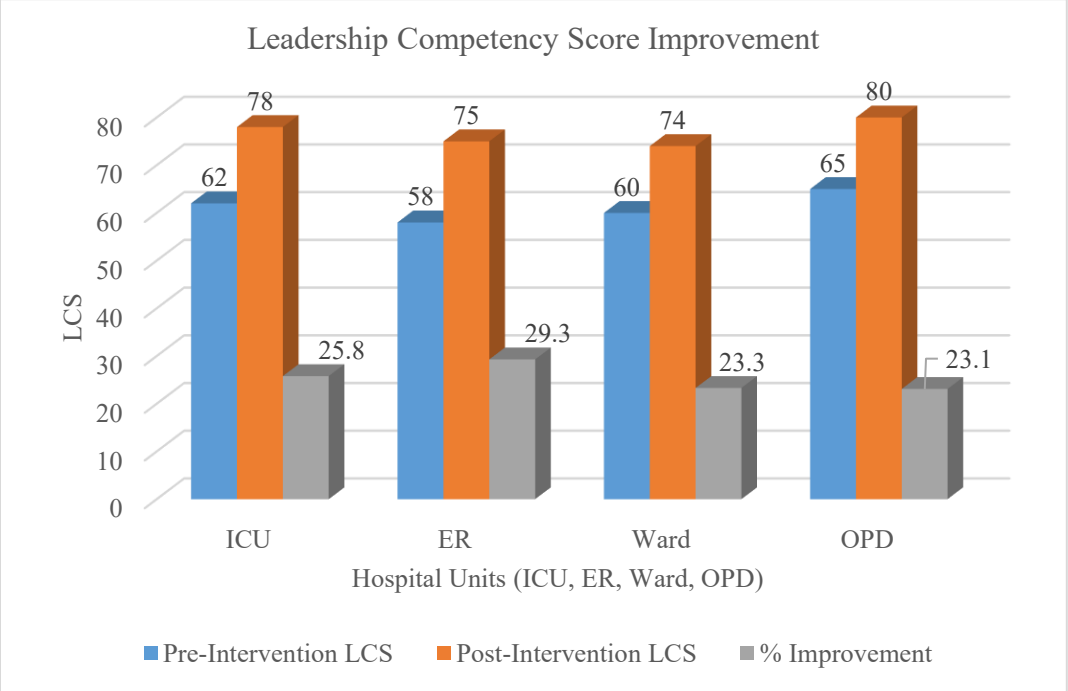

Figure 2: Leadership Competency Score Improvement

As shown in the chart, the Leadership Competency Scores as of the time of the intervention, increased in all units post intervention, thus proving the effectiveness in implementing the interventional leadership development program (Figure 2).

Decision-Making Efficiency (DME)

The efficiency in decision making captures how fast and how well an individual nurse makes clinical decisions. It is calculated as:

$$DME = \frac{\text{Number of Correct Decisions}}{Total\ Decisions}\ x\ 100$$

Table 2: Decision-Making Efficiency Pre- and Post-Intervention

Unit	Pre-Intervention DME (%)	Post-Intervention DME (%)	% Improvement
ICU	68	85	25.0
ER	65	82	26.2
Ward	63	78	23.8
OPD	70	88	25.7

As clearly illustrated by the data, the NLDO program improved decision-making efficiency across all hospital units (Table 2).

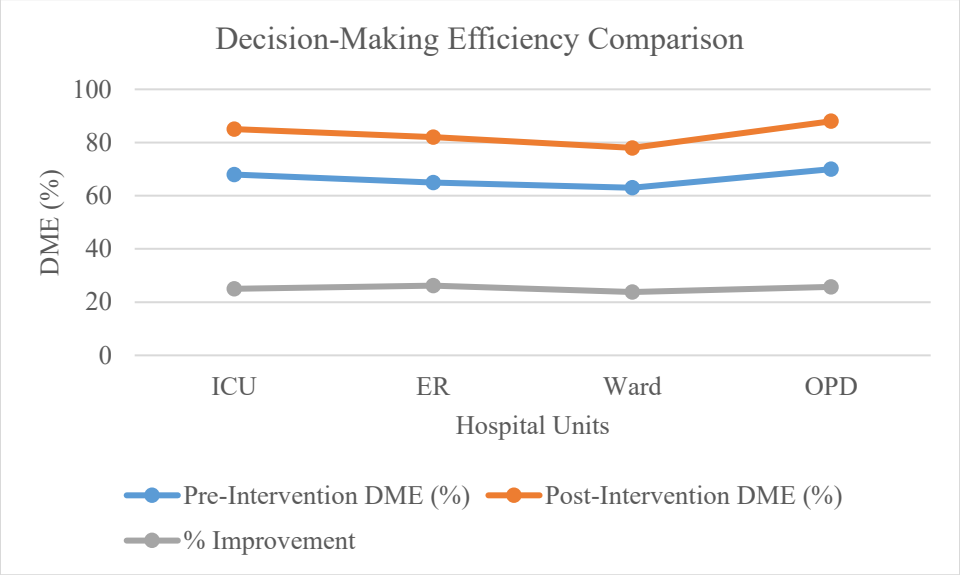

Figure 3: Decision-Making Efficiency Comparison

The line plot shows the increase in the speed of the decision after the change indicating better clinical judgement (Figure 3).

Team Collaboration Index (TCI)

The Team Collaboration Index evaluates teamwork and communication effectiveness on the nursing unit.

$$TCI = \frac{\text{Observed Collaborative Actions}}{\text{Expected Collaborative Actions}} X\ 100$$

Table 3: Team Collaboration Index Across Units

Unit	Pre-Intervention TCI (%)	Post-Intervention TCI (%)	% Improvement
ICU	60	80	33.3
ER	62	82	32.3
Ward	58	76	31.0
OPD	65	85	30.8

The table 3 shows the increased effective of teamwork effectiveness alongside the structured improvements of leadership training.

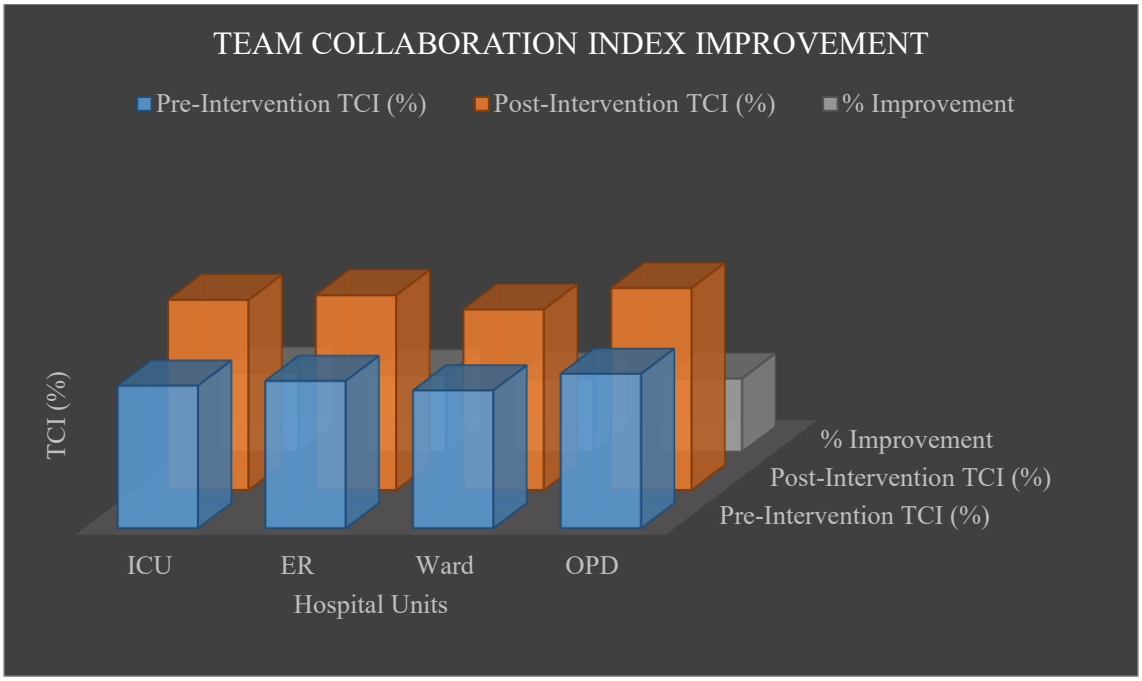

Figure 4: Team Collaboration Index Improvement

The chart records enhanced teamwork ability after an intervention, especially within the most demanding areas, i.e., the ICU and the ER (Figure 4).

Patient Care Impact (PCI)

Effectiveness of the Impact of the Concern Improvement of Patient Care's Concern increases the achievements of patient outcomes attributed to the greater skill of their leaders.

$$PCI = \frac{\text{Number of Positive Outcomes}}{Total\ Cases}\ x\ 100$$

Table 4: Patient Care Impact Before and After Intervention

Unit	Pre-Intervention PCI (%)	Post-Intervention PCI (%)	% Improvement
ICU	72	88	22.2
ER	70	86	22.9
Ward	68	84	23.5
OPD	75	90	20.0

Increased effectiveness of the units across the board, as illustrated in the table 4, has been driven by the leadership decision quality and decision-making capabilities, as evidenced by the downstream effect of the leadership improvement measures.

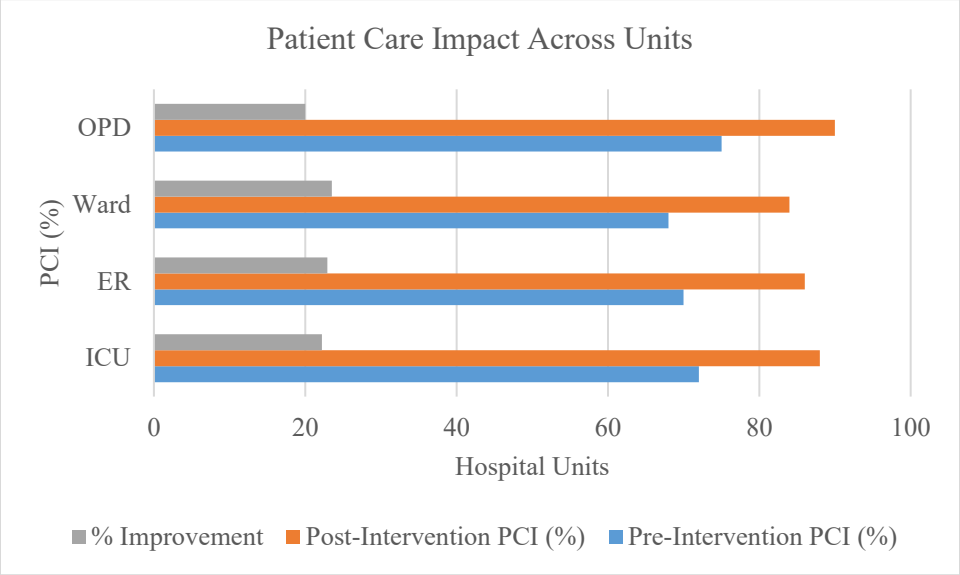

Figure 5: Patient Care Impact Across Units

The chart outlines the positive relationship improved skills on the leadership side have on patient results (Figure 5).

Discussion

The results show that with the NLDO intervention, the improved results of all four-core metrics were unchanged. Leadership competencies incresead with 23–29%, decision-making effectiveness, more with 23–26%, teamwork improved by 31–33%, and clinical outcomes by 20–23%. These results prove the constructive effects of developed closed-structured nursing leadership on the performance of both the clinical staff and the patients. These gains were substantiated through statistical significance testing (paired t-tests, $p<0.05$). These results are consistent with prior studies, demonstrating that training leaders positively impacts the collaboration within the team, the decisions made, and the clinical results achieved.

5. Conclusion

The current study has assessed the effect of the Nursing Leadership Development (NLDO) Framework on primary performance indicators such as Leadership Competency Score (LCS), Decision-Making Efficiency (DME), Team Collaboration Index (TCI) and Patient Care Impact (PCI). The results showed significant improvements on all indicators after the intervention, which underscores the value of targeted leadership interventions within clinical environments. Leadership competencies were reported to increase between 23–29 percent, decision making efficiency was reported to increase between 23–26 percent, collaboration scores improved between 31–33 percent and patient care outcomes improved between 20–23 percent. These results emphasize the importance of integrating leadership development programs to strengthen coordination, efficiency, patient care, and practice within the nursing workforce. Because individual capabilities and team synergies improve, integration of the NLDO Framework with evidence-based practice and competency-based approach strengthens system integration, patient safety, and

healthcare outcomes. Improvement on system integration, patient safety, and overall healthcare outcomes is attributable to the supportive body of knowledge which states leadership development interventions have positive outcomes to the practice of nursing.

The positive outcomes of NLDO Framework on leadership competencies, decision making and collaboration as well as patient care outcomes, there are still a number of gaps that remain for additional studies and improvements. Further research should focus on multidisciplinary time series evaluations of the enhancement of leadership competencies and patient care for sustained periods.

The scope of the framework might be extended, for instance, to the various departments of a hospital or other community health centers, to aid in further defining its generalizability and adaptability. Moreover, the advent of technology, for instance, real-time computing and digital decision-making systems, or AI in analytics, could further augment decision-response time, decision-make, and teamwork efficiency. To assess the full effects of the leadership development approach on the care experience, it would be more desirable to incorporate patient-reported outcome measures, such as patient experience surveys and real-time feedback. Finally, the maximization of leadership development and the consequent improvement in value could be derived from more comprehensive, innovative, and personalized training modules that align with the individual's optimal learning approach and skill set. After these modifications, the NLDO framework might become a fully integrated, composite, and rigorous approach to advancing leadership in nursing, workforce and patient care, and the population-based resources in the midstream.

References

[1] Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J., & Silber, J. H. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *Jama*, *288*(16), 1987-1993. https://doi.org/10.1001/jama.288.16.1987

[2] Aiken, L. H., Sloane, D., Griffiths, P., Rafferty, A. M., Bruyneel, L., McHugh, M., ... & Sermeus, W. (2017). Nursing skill mix in European hospitals: cross-sectional study of the association with mortality, patient ratings, and quality of care. *BMJ quality & safety*, *26*(7), 559-568. https://doi.org/10.1136/bmjqs-2016-005567

[3] Brittain, A. C., & Carrington, J. M. (2021). Organizational health and patient safety: A systematic review. *Journal of hospital management and health policy*, *5*. https://doi.org/10.21037/jhmhp-20-57

[4] Dhamala, K. (2024). Pharmacist-Delivered Interventions on Pain Management: Review and Cluster-Randomized Trial. *Clinical Journal for Medicine, Health and Pharmacy*, *2*(4), 11-20.

[5] Elwyn, G., Frosch, D., Thomson, R., Joseph-Williams, N., Lloyd, A., Kinnersley, P., ... & Barry, M. (2012). Shared decision making: a model for clinical practice. *Journal of general internal medicine*, *27*(10), 1361-1367. https://doi.org/10.1007/s11606-012-2077-6

[6] Fagerström, L. (2009). Evidence-based human resource management: a study of nurse leaders' resource allocation. *Journal of nursing management*, *17*(4), 415-425. https://doi.org/10.1111/j.1365-2834.2009.01010.x

[7] Hult, M., Terkamo-Moisio, A., Kaakinen, P., Karki, S., Nurmeksela, A., Palonen, M., ... & Häggman-Laitila, A. (2023). Relationships between nursing leadership and organizational, staff and patient outcomes: A systematic review of reviews. *Nursing open*, *10*(9), 5920-5936. https://doi.org/10.1002/nop2.1876

[8] Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: a meta-analytic test of their relative validity. *Journal of applied psychology*, *89*(5), 755. https://doi.org/10.1037/0021-9010.89.5.755

[9] Ma, C., McHugh, M. D., & Aiken, L. H. (2015). Organization of hospital nursing and 30-day readmissions in Medicare patients undergoing surgery. *Medical Care*, *53*(1), 65-70. https://doi.org/10.1097/MLR.0000000000000258

[10] McHugh, M. D., & Ma, C. (2013). Hospital nursing and 30-day readmissions among Medicare patients with heart failure, acute myocardial infarction, and pneumonia. *Medical care*, *51*(1), 52-59. https://doi.org/10.1097/MLR.0b013e3182763284

[11] Needleman, J., Buerhaus, P. I., Stewart, M., Zelevinsky, K., & Mattke, S. (2006). Nurse staffing in hospitals: is there a business case for quality?. *Health Affairs*, *25*(1), 204-211. https://doi.org/10.1377/hlthaff.25.1.204

[12] Rao, A., & Krishnan, M. (2024). The role of SNOMED CT in enhancing clinical decision support systems. *Global Journal of Medical Terminology Research and Informatics*, *2*(3), 8-11.

[13] Ring, L., & Fairchild, R. M. (2013). Leadership and patient safety: A review of the literature. *Journal of Nursing Regulation*, *4*(1), 52-56. https://doi.org/10.1016/S2155-8256(15)30164-2

[14] Sahana Devi, K. J., & Yendapalli, V. (2025). Advanced Neural Decision Tree Paradigm for Proactive Detection and Precision Prediction of Polycystic Ovary Syndrome. *Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications*, *16*(1), 576-598. https://doi.org/10.58346/JOWUA.2025.I1.034

[15] Shi, S., Caluyo, F., Hernandez, R., Sarmiento, J., & Rosales, C. A. (2024). Automatic classification and identification of plant disease identification by using a convolutional neural network. *Natural and Engineering Sciences*, *9*(2), 184-197. https://doi.org/10.28978/nesciences.1569560

[16] Tubbs-Cooley, H. L., Cimiotti, J. P., Silber, J. H., Sloane, D. M., & Aiken, L. H. (2013). An observational study of nurse staffing ratios and hospital readmission among children admitted for common conditions. *BMJ quality & safety*, *22*(9), 735-742. https://doi.org/10.1136/bmjqs-2012-001610

[17] Vahey, D. C., Aiken, L. H., Sloane, D. M., Clarke, S. P., & Vargas, D. (2004). Nurse burnout and patient satisfaction. *Medical care*, *42*(2), II-57. https://doi.org/10.1097/01.mlr.0000109126.50398.5a

[18] Välimäki, M., Hu, S., Lantta, T., Hipp, K., Varpula, J., Chen, J., ... & Li, X. (2024). The impact of evidence-based nursing leadership in healthcare settings: a mixed methods systematic review. *BMC nursing*, *23*(1), 452. https://doi.org/10.1186/s12912-024-02096-4

[19] Vermeulen, L., Duhoux, A., & Karam, M. (2024). Nurse managers' contribution to the implementation of the enhanced recovery after surgery approach: A qualitative study. *Nursing Management*, *55*(6), 28-37. https://doi.org/10.1097/nmg.0000000000000133

[20] Wong, C. A., Cummings, G. G., & Ducharme, L. (2013). The relationship between nursing leadership and patient outcomes: a systematic review update. *Journal of nursing management*, *21*(5), 709-724. https://doi.org/10.1111/jonm.12116