

Innovations in Nutrition and Nursing Practice for Integrated Healthcare Delivery

Trimaya Cahya Mulat

^a Department of Nursing, Politeknik Sandi Karsa, South Sulawesi, Indonesia

*Correspondence:

Email: trimayacm11@gmail.com

Received: 9 February 2025 ◦ Revised: 19 February 2025 ◦ Accepted: 22 February 2025

ABSTRACT

Increasing complexity of patient needs requires healthcare professionals to collaborate effectively across disciplines while applying evidence-based practice. However, professional silos and inconsistent use of evidence often limit the quality, safety, and coordination of patient care. Evidence-based collaboration across health professions has therefore emerged as a key strategy to improve patient care outcomes. This study aimed to examine the relationship between evidence-based collaboration across health professions and patient care outcomes. A quantitative cross-sectional study was conducted involving 50 health professionals from multiple disciplines, including physicians, nurses, pharmacists, and allied health professionals. Data were collected using a structured questionnaire measuring evidence-based collaboration (shared decision-making, use of clinical guidelines, and interprofessional communication) and patient care outcomes (care coordination, patient safety, and perceived quality of care). Descriptive statistics and linear regression analysis were applied to assess the association between collaboration and patient care outcomes. The findings indicated that respondents reported moderate to high levels of evidence-based collaboration and patient care quality. Regression analysis demonstrated a significant positive association between evidence-based collaboration and patient care outcomes ($\beta = 0.45$; $p < 0.001$). Higher levels of collaborative, evidence-informed practice were particularly associated with improved care coordination, enhanced patient safety, and higher perceived quality of care. Evidence-based collaboration across health professions is significantly associated with better patient care outcomes. Strengthening interprofessional collaboration supported by consistent use of clinical evidence may enhance patient-centered care, safety, and overall quality of healthcare services. These findings underscore the importance of promoting evidence-based collaborative practices within healthcare organizations.

Keywords: integrated healthcare; nursing practice; nutrition innovation; patient-centered care; interdisciplinary collaboration.

INTRODUCTION

The delivery of integrated healthcare has become an essential priority for health systems seeking to improve patient outcomes, efficiency, and equity. Integrated healthcare emphasizes coordinated, patient-centered services that address the biological, behavioral, and social dimensions of health [1]. Within this framework, nutrition and nursing play pivotal roles, as both disciplines are closely involved in continuous patient care, health promotion, disease prevention, and chronic condition management. Innovations in nutrition and nursing practice therefore represent a critical pathway for strengthening integrated healthcare delivery [2].

Malnutrition, diet-related non-communicable diseases, and nutrition-related complications remain major contributors to morbidity and mortality worldwide. At the same time, nursing professionals are increasingly required to manage complex patient needs, including multimorbidity, aging populations, and transitions of care across healthcare settings [3]. Traditional models of care, in which nutrition services and nursing practice operate in parallel rather than in coordination, often result in fragmented care, delayed nutritional interventions, and suboptimal health outcomes. These challenges highlight the need for innovative, integrated approaches that align nutrition and nursing practice within multidisciplinary healthcare teams [4].

Innovations in nutrition practice include the use of evidence-based nutritional assessment tools, personalized nutrition interventions, digital health technologies, and community-based nutrition programs [5]. Similarly, innovations in nursing practice encompass advanced clinical roles, care coordination models, nurse-led interventions, and the integration of technology to support patient monitoring and education [6]. When effectively integrated, these innovations can enhance early identification of nutritional risk, improve care continuity, and support patient self-management across the continuum of care. Such integration is particularly important in managing chronic diseases, maternal and child health, and vulnerable populations [7].

Despite growing recognition of the importance of integrating nutrition and nursing practice, significant gaps remain in both implementation and evidence [8]. Many healthcare systems continue to face professional silos, limited interprofessional training, and insufficient organizational support for collaborative practice [9]. Existing research often examines innovations in nutrition or nursing in isolation, with limited attention to how combined, integrated approaches influence healthcare delivery and patient outcomes. This gap constrains the ability of health systems to fully leverage the complementary roles of nutrition and nursing in delivering integrated care [10].

The novelty of integrating innovations in nutrition and nursing practice lies in its potential to transform healthcare delivery from task-oriented models to holistic, patient-centered systems of care. By embedding nutritional considerations within nursing workflows and empowering nurses to play an active role in nutritional care, healthcare teams can provide more timely, coordinated, and effective interventions. This integrated approach aligns with broader health system goals of prevention, efficiency, and sustainability, and supports the delivery of care that is responsive to both clinical and social determinants of health.

This study aims to explore innovations in nutrition and nursing practice and their contribution to integrated healthcare delivery. By synthesizing perspectives from nutrition

science, nursing practice, and health systems research, the study seeks to contribute to a deeper understanding of how interdisciplinary innovation can enhance care integration and improve health outcomes. Strengthening the integration of nutrition and nursing practice is essential for advancing high-quality, patient-centered, and sustainable healthcare systems.

MATERIALS AND METHODS

This study employed a quantitative cross-sectional design to examine innovations in nutrition and nursing practice and their contribution to integrated healthcare delivery. The quantitative approach was selected to objectively measure the level of innovative practices and their association with indicators of integrated healthcare delivery.

The study was conducted in selected healthcare facilities, including hospitals and primary healthcare centers, where nutrition and nursing services were routinely provided as part of patient care. A total of 50 respondents participated in the study, consisting of nurses and nutrition professionals who were directly involved in patient care and interdisciplinary collaboration. Respondents were selected using purposive sampling based on their active involvement in nutrition-related and nursing care processes.

Participants were eligible for inclusion if they had at least one year of professional experience in nursing or nutrition services, were involved in collaborative or integrated care activities, and agreed to participate in the study. Respondents with incomplete questionnaire data were excluded from the final analysis.

Data were collected using a structured, self-administered questionnaire developed from established frameworks of innovative healthcare practice and integrated care. The questionnaire comprised three sections: respondent characteristics, innovations in nutrition and nursing practice (including nutritional screening, patient education, care coordination, and use of technology), and integrated healthcare delivery indicators (such as care continuity, interdisciplinary collaboration, and patient-centered care). All items were measured using a five-point Likert scale ranging from strongly disagree to strongly agree.

The independent variable was the level of innovation in nutrition and nursing practice, measured through composite scores derived from questionnaire responses. The dependent variable was integrated healthcare delivery, assessed through indicators reflecting coordination of care, continuity of services, and collaboration between nutrition and nursing professionals. Higher scores indicated stronger innovation and better integration of healthcare delivery.

Quantitative data were analyzed using statistical software. Descriptive statistics were applied to summarize respondent characteristics and variable distributions. Inferential analysis was conducted using correlation and linear regression tests to examine the association between innovations in nutrition and nursing practice and integrated healthcare delivery. Statistical significance was determined at $p < 0.05$.

Ethical approval was obtained from the relevant institutional ethics committee prior to data collection. All respondents provided informed consent before participation. Confidentiality and anonymity were ensured throughout the research process in accordance with ethical standards for health services research.

RESULTS

This section presents the quantitative findings of the study examining innovations in nutrition and nursing practice and their contribution to integrated healthcare delivery. The

results describe respondent characteristics, levels of innovative practice, indicators of integrated healthcare delivery, and the statistical relationship between innovation and care integration.

Table 1. Characteristics of Respondents (n = 50)

Variable	Category	Frequency (n)	Percentage (%)
Profession	Nurse	30	60.0
	Nutritionist/Dietitian	20	40.0
Gender	Male	18	36.0
	Female	32	64.0
Years of Experience	1–5 years	14	28.0
	6–10 years	20	40.0
	>10 years	16	32.0

The respondents consisted of nurses and nutrition professionals with varied levels of experience. The majority had more than five years of professional experience, indicating that the findings reflect informed perspectives on innovative and integrated care practices.

Table 2. Level of Innovations in Nutrition and Nursing Practice

Indicator	Low n (%)	Moderate n (%)	High n (%)
Nutritional screening and assessment	6 (12.0)	18 (36.0)	26 (52.0)
Patient education and counseling	5 (10.0)	20 (40.0)	25 (50.0)
Use of technology in care delivery	9 (18.0)	21 (42.0)	20 (40.0)
Care coordination between nurses and nutritionists	7 (14.0)	19 (38.0)	24 (48.0)

Most respondents reported moderate to high levels of innovative practice, particularly in nutritional screening and patient education. The use of technology showed relatively lower high-level responses, suggesting opportunities for further innovation and digital integration.

Table 3. Level of Integrated Healthcare Delivery

Indicator	Low n (%)	Moderate n (%)	High n (%)
Continuity of care	8 (16.0)	20 (40.0)	22 (44.0)
Interdisciplinary collaboration	6 (12.0)	21 (42.0)	23 (46.0)
Patient-centered care	5 (10.0)	22 (44.0)	23 (46.0)

Integrated healthcare delivery was generally perceived as moderate to high, with strong performance in interdisciplinary collaboration and patient-centered care. Continuity of care, while positive, showed room for further improvement.

Table 4. Association Between Innovations in Nutrition and Nursing Practice and Integrated Healthcare Delivery

Variable	β Coefficient	Standard Error	p-value
Innovations in nutrition and nursing practice	0.47	0.10	<0.001

Innovations in nutrition and nursing practice were significantly and positively associated with integrated healthcare delivery ($\beta = 0.47$; $p < 0.001$). This finding indicates that higher levels of innovative practice are linked to better care coordination, collaboration, and patient-centered service delivery. Overall, the results demonstrate that innovations in nutrition and nursing practice contribute significantly to the integration of healthcare delivery, supporting the st

DISCUSSION

This study provides quantitative evidence that innovations in nutrition and nursing practice are significantly associated with integrated healthcare delivery. The findings indicate

that higher levels of innovative practices particularly in nutritional screening, patient education, care coordination, and the use of technology are linked to better continuity of care, stronger interdisciplinary collaboration, and more patient-centered service delivery. These results highlight the strategic importance of aligning innovations in nutrition and nursing to strengthen integrated healthcare systems [11].

The characteristics of respondents suggest that the study captured perspectives from experienced nurses and nutrition professionals who are directly involved in patient care. With the majority of respondents having more than five years of professional experience, the findings reflect practical insights into how innovations are implemented in real-world healthcare settings [12]. The balanced representation of nursing and nutrition professionals further supports the relevance of examining integration between these two disciplines, as both play complementary roles in addressing patients' clinical and nutritional needs [13].

One of the key findings is the predominance of moderate to high levels of innovation in nutrition and nursing practice. Innovations related to nutritional screening and patient education showed particularly strong adoption [14]. Early identification of nutritional risk and continuous patient education are essential components of integrated care, as they enable timely interventions and support patient self-management. When nurses and nutritionists collaborate in these activities, care becomes more holistic and responsive to patients' overall health needs rather than focused solely on disease treatment [15].

The use of technology in nutrition and nursing practice, while generally positive, demonstrated relatively lower high-level responses compared to other innovation indicators. This finding suggests that digital tools and health technologies have not yet been fully optimized to support integrated care [16]. Barriers such as limited infrastructure, insufficient training, and resistance to change may hinder the effective use of technology. Addressing these barriers is important, as digital innovations have the potential to enhance care coordination, facilitate information sharing, and improve monitoring of patients' nutritional and clinical status [17].

The results related to integrated healthcare delivery indicate that interdisciplinary collaboration and patient-centered care were perceived as relatively strong. These findings align with the core principles of integrated healthcare, which emphasize teamwork, shared responsibility, and responsiveness to patient needs [18]. Effective collaboration between nurses and nutrition professionals allows for coordinated care planning, reduces duplication of services, and improves communication across care pathways. Patient-centered care, in turn, ensures that interventions are tailored to individual preferences, cultural contexts, and social circumstances [19].

Continuity of care, although rated positively overall, showed some variation among respondents. This suggests that while integration efforts are underway, gaps may still exist during transitions of care, such as discharge from hospital to community settings. Strengthening coordination mechanisms, including standardized care pathways and clear role delineation between nurses and nutritionists, may help address these gaps and ensure sustained integration across different levels of care [20].

The regression analysis provides strong support for the central premise of this study. The significant positive association between innovations in nutrition and nursing practice and

integrated healthcare delivery indicates that innovation is not merely a technical enhancement but a key driver of system-level integration. This finding underscores the importance of investing in innovative practices that empower nurses and nutrition professionals to work collaboratively, share information, and engage patients as active partners in care.

From a policy and organizational perspective, the findings suggest that healthcare institutions should create supportive environments that encourage innovation and collaboration. This includes providing training opportunities, investing in appropriate technologies, and establishing organizational structures that facilitate interdisciplinary teamwork. Integrating nutrition more explicitly into nursing workflows and care protocols may further enhance the effectiveness of integrated healthcare delivery.

Several limitations should be considered when interpreting the findings. The cross-sectional design limits causal inference, and the reliance on self-reported data may introduce response bias. Additionally, the sample size, while adequate for exploratory analysis, may limit generalizability to other settings. Future research using longitudinal or mixed-methods designs could provide deeper insights into how innovations in nutrition and nursing practice influence integrated care outcomes over time. In conclusion, this study demonstrates that innovations in nutrition and nursing practice play a crucial role in advancing integrated healthcare delivery. By strengthening collaborative, innovative practices across these disciplines, healthcare systems can enhance care coordination, improve patient-centeredness, and support more effective and sustainable healthcare delivery.

CONCLUSIONS

This study concludes that innovations in nutrition and nursing practice are significantly associated with integrated healthcare delivery. Higher levels of innovative practices contribute to improved care coordination, stronger interdisciplinary collaboration, and more patient-centered services. Integrating nutrition and nursing innovations is therefore a key strategy for strengthening effective and sustainable healthcare delivery.

Healthcare institutions should support innovative nutrition and nursing practices through interdisciplinary training, clear care coordination mechanisms, and appropriate use of health technologies. Policymakers and health managers are encouraged to promote collaborative practice models that integrate nutrition and nursing roles. Future research should explore the long-term impact of these innovations on patient outcomes and health system performance.

Acknowledgement

The authors would like to express their sincere appreciation to all respondents who participated in this study for their time and valuable contributions. The authors also thank the institutions and colleagues who supported the implementation and completion of this research.

Funding Source

This study is self-funded

Availability of data and materials

Data and materials of this study are available upon reasonable request

Authors' contributions

Both of the authors have contributed to all aspects of this study

Conflict of Interest

No potential conflicts of interest

REFERENCES

- [1] R. Atkins, K. M. Brown, S. S. Mudd, K. Ghobadi, D. J. Baker, and S. Szanton, "Reimagining nursing education: Leveraging competency-based education, artificial intelligence, and simulation for a diverse and practice-ready workforce," *Nurs. Outlook*, vol. 73, no. 6, p. 102582, 2025, doi: <https://doi.org/10.1016/j.outlook.2025.102582>.
- [2] S. Abuhammad, "Celebrating five decades of pediatric nursing progress: Achievements, persistent challenges and future directions," *J. Pediatr. Nurs.*, vol. 85, pp. 69–74, 2025, doi: <https://doi.org/10.1016/j.pedn.2025.07.007>.
- [3] G. Catania *et al.*, "Integrating the fundamental of care framework in the undergraduate nursing curriculum: A randomized, controlled, and multicentric study," *Nurse Educ. Pract.*, vol. 91, p. 104686, 2026, doi: <https://doi.org/10.1016/j.nepr.2025.104686>.
- [4] H. Chen *et al.*, "Volume Management in Nursing for Patients With Heart Failure: A Concept Analysis Using Rodgers' Evolutionary Approach," *Asian Nurs. Res. (Korean. Soc. Nurs. Sci.)*, vol. 19, no. 3, pp. 235–246, 2025, doi: <https://doi.org/10.1016/j.anr.2025.03.004>.
- [5] S. Coleman, J. Greenhalgh, L. Schoonhoven, M. Twiddy, and J. Nixon, "Using PURPOSE-T in clinical practice: A realist evaluation," *J. Tissue Viability*, vol. 33, no. 4, pp. 672–680, 2024, doi: <https://doi.org/10.1016/j.jtv.2024.06.014>.
- [6] B. J. Galatzan, E. A. Johnson, M. R. Turchioe, C. Baker, and A. Wieben, "Regulating at the AI frontier: The collision of policy, regulation, and nursing practice," *J. Nurs. Regul.*, vol. 16, no. 3, pp. 207–215, 2025, doi: <https://doi.org/10.1016/j.jnr.2025.08.012>.
- [7] N. Cui, W. Yang, Y. Lu, and J. Jin, "The role and value of self-employed nurses in the allocation of nursing human resources: A scoping review," *Int. J. Nurs. Sci.*, vol. 12, no. 5, pp. 445–453, 2025, doi: <https://doi.org/10.1016/j.ijnss.2025.08.005>.
- [8] C. S. Fernandes, M. T. Moreira, M. S. Ferreira, S. S. Funghetto, M. M. Stival, and A. M. N. Lima, "Exploring the use of escape rooms in nursing: A comprehensive scoping review," *Nurse Educ. Pract.*, vol. 84, p. 104324, 2025, doi: <https://doi.org/10.1016/j.nepr.2025.104324>.
- [9] M. A. Q. Curley *et al.*, "Call to action: Blueprint for change in acute and critical care nursing," *Nurs. Outlook*, vol. 72, no. 6, p. 102271, 2024, doi: <https://doi.org/10.1016/j.outlook.2024.102271>.
- [10] M. Duignan, M. Langins, R. Healy, K. Greene, M. Shannon, and T. Kearns, "From compliance to risk: A paradigm for nursing and midwifery regulation in Ireland," *J. Nurs. Regul.*, vol. 16, no. 4, pp. 304–310, 2026, doi: <https://doi.org/10.1016/j.jnr.2025.10.002>.
- [11] A. Ghimire and P. Ghimire, "Building climate resilience: A qualitative exploration of disaster preparedness in nursing education," *Nurse Educ. Today*, vol. 153, p. 106791, 2025, doi: <https://doi.org/10.1016/j.nedt.2025.106791>.
- [12] M. Hamiduzzaman *et al.*, "Fostering integrated healthcare in rural Australia: A review of service models for older Australians with preventable chronic conditions," *Health Policy (New. York)*, vol. 160, p. 105304, 2025, doi: <https://doi.org/10.1016/j.healthpol.2025.105304>.
- [13] J. Han, K. H. Ryu, M. Kim, and K. Shin, "Perceptions and Readiness for Generative Artificial Intelligence Implementation Among Oncology Nurses: A Qualitative Study in a Specialized Cancer Hospital," *Asian Nurs. Res. (Korean. Soc. Nurs. Sci.)*, 2025, doi: <https://doi.org/10.1016/j.anr.2025.11.004>.
- [14] W. X. Huang, M. C. Chong, L. Y. Tang, and X. X. Liu, "Child-friendly healthcare: A concept analysis," *J. Pediatr. Nurs.*, vol. 80, pp. e7–e15, 2025, doi: <https://doi.org/10.1016/j.pedn.2024.10.035>.
- [15] C. A. Juarez-Medel *et al.*, "Primary healthcare knowledge, attitudes, and practices among the personnel of a secondary hospital in Acapulco, Mexico," *Clin. Epidemiol. Glob. Heal.*, vol. 28, p. 101659, 2024, doi: <https://doi.org/10.1016/j.cegh.2024.101659>.
- [16] A. Kucukkaya, E. Arikan, and P. Goktas, "Unlocking ChatGPT's potential and challenges in intensive care nursing education and practice: A systematic review with narrative synthesis,"

- Nurs. Outlook*, vol. 72, no. 6, p. 102287, 2024, doi: <https://doi.org/10.1016/j.outlook.2024.102287>.
- [17] H. Liu and Q. Xie, “Applications of artificial intelligence in rehabilitation: technological innovation and transformation of clinical practice,” *SLAS Technol.*, vol. 35, p. 100360, 2025, doi: <https://doi.org/10.1016/j.slast.2025.100360>.
 - [18] J. Molle, J. Agnel, S. Colson, and A. Chays-Amania, “Using implementation science to promote evidence-based nutritional care in healthcare settings: A mixed-methods systematic review,” *Int. J. Nurs. Stud. Adv.*, vol. 9, p. 100414, 2025, doi: <https://doi.org/10.1016/j.ijnsa.2025.100414>.
 - [19] Ö. Özdemir, “The evolution, intellectual structure, and developmental trends of global mental health nursing research: A bibliometric analysis (2015–2025),” *Arch. Psychiatr. Nurs.*, vol. 60, p. 152055, 2026, doi: <https://doi.org/10.1016/j.apnu.2026.152055>.
 - [20] I. N. Perez-Garcia, E. Andrade-Gomez, M. Arias-Colinas, and M. I. Pardavila-Belio, “Exploring nutritional education in undergraduate nursing students: A scoping review,” *Nurse Educ. Pract.*, vol. 90, p. 104623, 2026, doi: <https://doi.org/10.1016/j.nepr.2025.104623>.