

Innovation in interprofessional collaboration programs for nutrition management: A Scoping review

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Abstract

Background: Nutrition management plays a critical role in healthcare, particularly in addressing chronic diseases, malnutrition, and enhancing patients' quality of life. The complexity of nutritional problems necessitates synergistic interprofessional collaboration (IPC) involving physicians, nurses, dietitians, pharmacists, and other healthcare professionals to deliver integrated and patient-centered care. **Objective:** This scoping review aims to identify, map, and analyze innovations in interprofessional collaboration programs related to nutrition management, and to provide a conceptual framework for future development of health policy and clinical practice. **Methods:** The review followed Arksey and O'Malley's methodological framework and PRISMA-ScR guidelines. Literature searches were conducted in PubMed, Scopus and Web of Science for studies published between 2020–2025 using keywords such as “interprofessional collaboration,” “nutrition management,” and “innovation.” Thirteen eligible studies were thematically analyzed according to innovation type, involved professions, measured outcomes, barriers, and facilitators. **Results:** Four main themes were identified: (1) Digital technology integration enhancing coordination and personalized nutrition interventions; (2) Interprofessional training (IPE) improving collaboration competencies and role clarity; (3) Integrated team models promoting holistic, patient-centered approaches; and (4) Community and patient empowerment supporting sustainable nutrition outcomes. Barriers included professional cultural differences, resource limitations, and fragmented communication systems. Facilitators included structured IPE programs, supportive leadership, and digital adoption. **Conclusion:** Innovations in interprofessional collaboration substantially improve the quality and outcomes of nutrition management. Strengthening digital integration, structured IPE training, and supportive policy frameworks are essential for sustainable collaboration. Moreover, fostering healthcare entrepreneurship offers potential for scalable, technology-driven nutrition programs that can advance global health outcomes.

Keywords: Interprofessional collaboration; nutrition management; innovation; digital health; scoping review

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INTRODUCTION

Nutrition management is a fundamental component of comprehensive healthcare services, particularly in addressing chronic diseases, malnutrition, and improving patients' quality of life[1]. The complexity of nutritional issues requires a coordinated, multidisciplinary approach involving various healthcare professionals working synergistically, known as Interprofessional Collaboration (IPC)[2]:[3]. The IPC framework engages physicians, nurses, dietitians, pharmacists, and other healthcare [1]:[2].

The World Health Organization (WHO) has emphasized the importance of IPC by encouraging both educational and healthcare institutions to develop and implement interprofessional collaboration programs[4]. IPC refers to teamwork among multiple healthcare professionals aimed at improving preventive, promotive, curative, and rehabilitative services within their respective scopes of practice. Such collaboration enables shared decision-making in addressing patient health problems and ensures the provision of comprehensive and coordinated care [5].

Interprofessional Practice (IPP) represents the application of IPC principles in clinical and community settings, where professionals from diverse disciplines collaborate directly to deliver high-quality and holistic care[4]. The success of IPP depends not only on technical expertise but also on effective teamwork, communication, and mutual respect. Evidence has shown that well-established IPP enhances healthcare providers' well-being, reduces stress and burnout, and improves patient-centered care.[6]:[7]. A number of empirical studies have highlighted these benefits by emphasizing shared goals and a person-centered care approach[6]:[8]:[9]. The significance of this interaction extends beyond individual experiences. By promoting collaborative decision-making and shared accountability, IPP fosters stronger, more resilient health systems that respond efficiently to the needs of diverse populations [10]:[11].

With the rapid advancement of digital technology and innovative approaches in healthcare delivery [11], integrating innovation into IPC programs has become increasingly vital to enhance the efficiency and sustainability of nutrition management. These innovations encompass the use of digital health tools[12], and interprofessional training[13] and holistic team-based models of care[14]. However, there is a lack of comprehensive literature examining these innovations within the context of their application in nutrition management.

Therefore, this study conducts a scoping review to map and analyze innovations in interprofessional collaboration programs that contribute to nutrition management, with the aim of providing a conceptual framework that can serve as a foundation for developing innovative and sustainable policy programs and clinical practices.

METHODS

This study employed a scoping review design to systematically map existing literature related to interprofessional collaboration (IPC) in nutrition management. The methodology followed the framework proposed by Arksey and O'Malley[14], which includes five sequential stages: (1) identifying the research question, (2) identifying relevant studies, (3) selecting studies, (4) charting the data, and (5) collating, summarizing, and reporting the results. This approach was further aligned with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines[14], ensuring methodological rigor, transparency, and reproducibility.

Research question

The review aimed to address the central research question: “What types of innovations have been developed and implemented within interprofessional collaboration (IPC) programs to improve nutrition management?” and This question was formulated to capture the breadth of innovative practices, technological integration, training approaches, and teamwork models contributing to improved nutrition outcomes.

Search strategy

The literature search was conducted using the Watase WE.ID platform in conjunction with five major electronic databases: PubMed, Scopus and Web of Science. The search strategy combined controlled vocabulary and free-text keywords such as “interprofessional collaboration”, “nutrition management”, “innovation”, “teamwork”, and their related synonyms. Boolean operators (“AND”, “OR”) and truncations were applied to maximize search sensitivity and precision. To ensure comprehensiveness, additional manual searches were performed in the reference lists of included studies. The search was restricted to studies published between 2020 and 2025, in either English or Indonesian, and full-text availability was required.

Inclusion and exclusion criteria

Studies were included if they met the following criteria:

1. Published between 2020 and 2025.
2. Original research articles, reviews, or program reports explicitly addressing innovation in interprofessional collaboration related to nutrition management.
3. Available in full-text format in English or Indonesian.

Exclusion criteria included:

1. Studies that did not focus on nutrition or IPC.
2. Editorials, opinion papers, or non-peer-reviewed articles.

Study selection process

The selection process was conducted in three stages:

1. Title and abstract screening,
2. Full-text screening, and
3. Final eligibility assessment.

Two independent reviewers conducted the screening process using the Watase UAKE application to facilitate systematic filtering. Discrepancies between reviewers were resolved through discussion and consensus. The study selection flow is illustrated in Figure 1, following the PRISMA-ScR flowchart structure.

Data extraction

Data from the eligible studies were extracted using a standardized charting form that captured the following variables:

1. Study identification (author, year, title)
2. Type of innovation
3. Professions involved
4. Study setting
5. Primary outcomes
6. Reported barriers and facilitators

Data synthesis was conducted using a narrative and thematic analysis approach. The extracted findings were organized according to the Interprofessional Education Collaborative (IPEC) Core Competencies framework, which includes values/ethics, roles/responsibilities, interprofessional communication, and teamwork.

RESULTS

Study Selection Process

The initial database search yielded 95 articles. After removing duplicates and conducting preliminary screening, 72 studies were excluded due to irrelevance or not meeting the inclusion criteria. A total of 13 studies were retained for in-depth analysis. The study selection process is summarized in **Figure 1**, which follows the PRISMA-ScR flowchart structure.

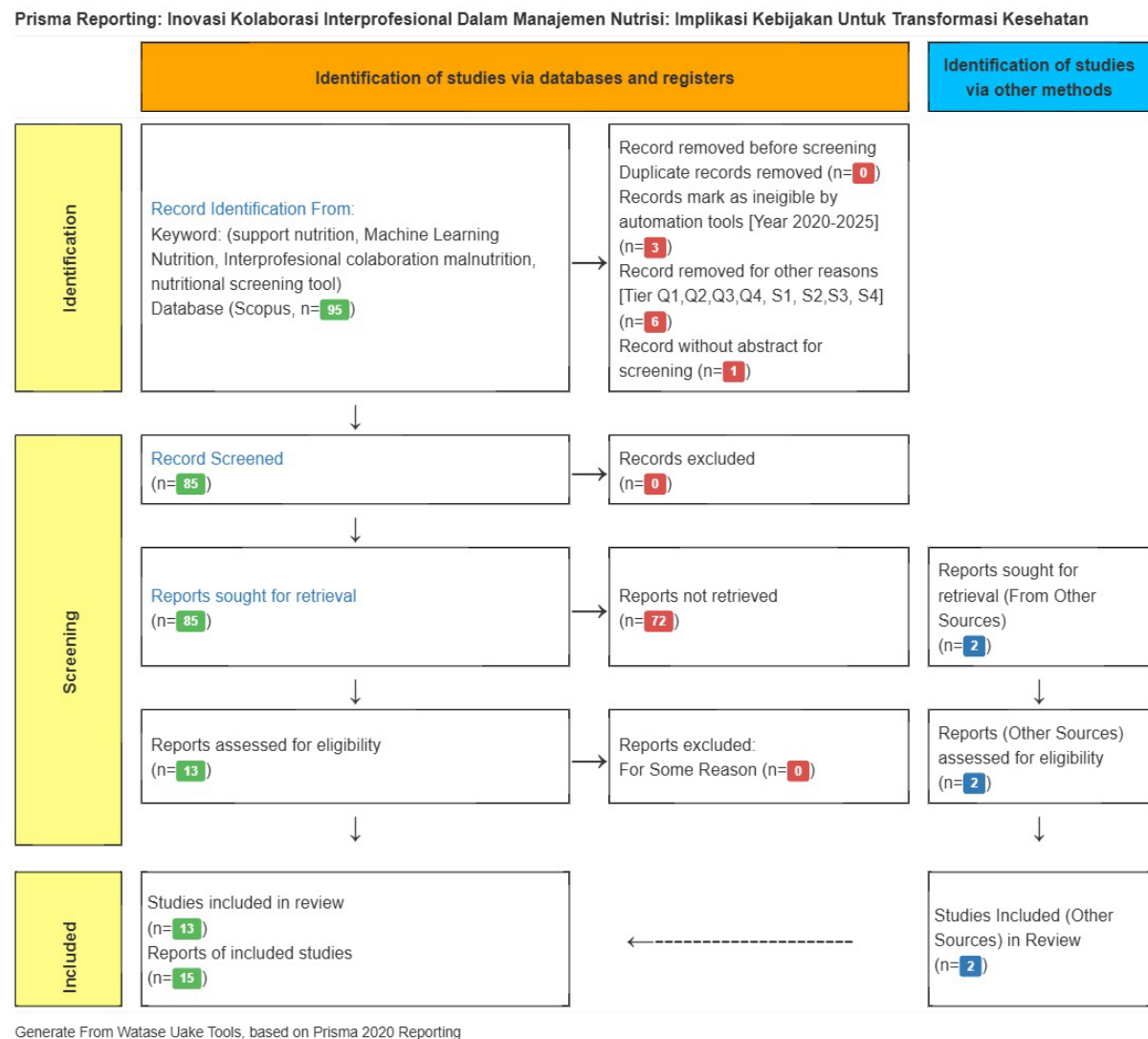


Figure 1. Flow chart of the study selection protocol

Figure 1 illustrates the systematic selection process following the PRISMA-ScR guideline, ensuring methodological transparency and reproducibility in identifying 13 relevant studies.

Characteristics of included studies

The 13 included articles originated from diverse countries and healthcare settings, including hospitals, community health centers, and health professional education institutions. The study designs varied and encompassed qualitative, quantitative, mixed-methods, narrative reviews, integrative reviews, and expert consensus papers. Table 1 presents a summary matrix of the included studies, outlining the main innovation type, professional disciplines involved, study setting, measured outcomes, and reported barriers or facilitators.

Table 1 provides an integrated comparison of innovations in IPC for nutrition management. It highlights the diversity of study designs, interdisciplinary involvement, and contextual barriers or facilitators, demonstrating the multidimensional nature of collaborative innovation in nutrition care.

Summary of findings

The reviewed studies collectively highlight four central themes of innovation in IPC for nutrition management: (1) Digital technology integration to improve coordination and nutrition monitoring [13]·[25]; (2) Interprofessional education and training to enhance collaborative competencies[20]·[26]; (3) Integrated team models and holistic approaches involving multiple health disciplines[26]·[27]; (4) Community and patient empowerment to strengthen prevention and long-term adherence[17]·[27]. These innovations collectively contribute to improving service quality, patient outcomes, and the sustainability of collaborative nutrition programs.

DISCUSSION

This scoping review identified and synthesized evidence from 13 studies focusing on innovations within interprofessional collaboration (IPC) programs that contribute to effective nutrition management. The findings reveal four major innovation themes: digital technology integration, interprofessional education and training, integrated and holistic team models, and community and patient empowerment. These themes align with the World Health Organization's framework for strengthening health systems through collaborative, patient-centered, and technology-supported care[4]·[9].

1. Digital Technology Supporting Collaboration and Nutrition Management

The growing use of digital platforms—such as mobile health applications, telehealth systems, and artificial intelligence (AI)—has significantly improved communication and coordination among health professionals in nutrition care[13],[25]. These technologies facilitate real-time data sharing, personalized dietary monitoring, and multidisciplinary decision-making. Studies included in this review show that digital innovation reduces professional silos and enhances patient engagement, particularly in remote or resource-limited settings. However, challenges such as data privacy, unequal digital literacy, and limited infrastructure remain major barriers to optimal implementation.

2. Interprofessional Training to Enhance Collaborative Competence[20],[26]

Interprofessional education programs are fundamental to developing the competencies necessary for effective collaboration. Several studies[19],[26] demonstrated that IPE interventions—through simulation-based workshops, case-based learning, and practice-based training—successfully improved communication, teamwork, and role understanding among healthcare students and professionals. Embedding IPE within academic and clinical curricula supports

Table 1. Summary of included articles in the scoping review

No	Author (year)	Article Title	Study design	Key Innovation	Professions Involved	Main Outcome	Barriers/ Facilitators
1	Kaye J., Lee S., Chinn C.H. (2025)[15]	The need for effective interprofessional collaboration between nutrition and dentistry	Conceptual Review	Integration of nutrition and dental health through cross-disciplinary workshops and shared clinical protocols	Nutritionists, Dentists, Multidisciplinary Teams	Improved understanding of the link between nutrition and oral health; promotion of interprofessional synergy	Limited cross-disciplinary communication / Implementation of joint workshops and shared care protocols
2	Boxum et al. (2024)[16]	Interprofessional Management of Malnutrition and Sarcopenia: A Grounded Theory Study from the Perspective of Professionals	Qualitative (Grounded Theory)	Conceptual model of IPC collaboration for malnutrition/sarcopenia	Primary and social care professionals	Improved coordination and shared responsibility in IPC models	Poor infrastructure, unclear responsibilities / Client engagement, regular coordination, interprofessional communication
3	Rattu D.J. et al. (2024)[17]	Expert Consensus on Interprofessional Collaboration (IPC) Guidelines on Stunting Management in Indonesian Primary Healthcare	Expert Consensus	Development of IPC guidelines for stunting management in primary healthcare centers	Physicians, Nutritionists, Nurses, Midwives, Public Health Specialists	Consensus emphasizing IPC as essential for stunting reduction	Lack of inter-institutional coordination, unclear roles / Leadership engagement, interprofessional training, regular coordination meetings
4	Sulistyaningsih et al. (2022)[18]	The Effectiveness of Interprofessional Collaboration Practice to Reduce the Risk of Stunting: An Integrative Review	Integrative Review	Synthesis of IPC evidence in stunting prevention	Public health and nutrition professionals	IPC shown effective in reducing stunting risk when key indicators are	Non-collaborative work culture, limited institutional support

5	Study: Dietitians & Physiotherapists (2022)[17]	Interprofessional Treatment of Malnutrition and Sarcopenia by Dietitians and Physiotherapists	Mixed-method (Survey)	Exploration of interprofessional identity, attitudes, barriers, and enablers	Dietitians, Physiotherapists	met Stronger interprofessional identity associated with collaboration and care outcomes	Limited time, inefficient communication, bureaucracy
6	Schot E., Tummers L., Noordegraaf M. (2020)[17]	Working on Working Together: A Systematic Review on How Healthcare Professionals Contribute to Interprofessional Collaboration	Systematic Review	Examines professional roles and everyday practices shaping IPC; conceptualization of professional contribution	Physicians, Nurses, Allied Health Professionals	Identified daily behaviors enhancing IPC effectiveness	—
7	Vaseghi F., Yarmohammadian M.H., Raeisi A. (2022)[19]	Interprofessional Collaboration Competencies in the Health System: A Systematic Review	Systematic Review	Mapping of IPC core competencies (communication, participatory leadership, conflict resolution, task transparency)	Various healthcare professions	Established competency framework applicable to clinical and educational contexts	IPC and —
8	Patel H et al. (2025)[20]	A Scoping Review of Interprofessional Education in Healthcare: Evaluating Competency Development, Educational Outcomes and Challenges	Scoping Review	Interprofessional Education (IPE) for competency enhancement	Physicians, Nurses, Nutritionists	Improved collaboration competence and teamwork readiness	—
9	Sentika et al. (2024)[3]	Expert Consensus on Interprofessional Collaboration (IPC) Guidelines on Stunting Management in Indonesian Primary Healthcare (Puskesmas)	Systematic Review	Community education and empowerment through IPC-based programs	Cross-professional health teams	Improved community nutritional status	—
10	Browning, L., Fry, M., & Morrow, B. (2020)[21]	An Interprofessional Education Program for Health Professional Students in a Primary Health Care Setting:	Mixed-method Evaluative Study	Development and evaluation of practice-based IPE program to improve interprofessional	Medical, Nursing, and Allied Health Students	Enhanced collaborative attitudes and teamwork behavior	Institutional and logistical challenges

		Evaluation of the Impact on Collaborative Practice		collaboration			
11	Kaiser L. et al. (2022)[22]	Interprofessional Collaboration and Patient-Reported Outcomes in Inpatient Care	Systematic Review	Examines relationship between IPC and patient-reported outcomes (PROs)	Multidisciplinary hospital teams	IPC positively associated with improved patient experience	Lack of structured collaboration frameworks
12	Tracy Noerper et al. (2025)[23]	Increasing Nutrition Knowledge and Culinary Skills in Interprofessional Healthcare Students: An Active Learning Pilot Study	Pilot Quasi-experimental	Culinary and nutrition course for IPE students (nursing, PA, pharmacy, dietetics)	Dietitians/Nutrition faculty, Nursing, PA, Pharmacy Students	Increased confidence in nutrition counseling and understanding of the dietitian's role	Active learning approach, interprofessional teamwork, low-cost materials
13	Hollaar VRY et al. (2023)[24]	Success Factors and Barriers in Interprofessional Collaboration between Dental Hygienists and Dietitians in Community-Dwelling Older People: Focus Group Interviews	Qualitative (Focus Groups)	Identification of success factors and barriers in IPC between dietitians and dental hygienists	Dietitians, Dental Hygienists	Low collaboration level; identified issues include time, professional network, and role identity	IPE education, cross-professional networking, role recognition

sustainable behavior change and fosters a shared culture of collaboration. This finding reinforces the importance of integrating interprofessional learning as a strategic component of national health education policy.

3. Integrated Teamwork Models and Holistic Approaches

Innovative IPC models that integrate physicians, nurses, dietitians, pharmacists, and social workers create a holistic bio-psycho-social approach to nutrition care[26],[27]. Such models enable shared responsibility in decision-making, streamline care coordination, and enhance outcomes for patients with complex nutritional needs. The reviewed evidence suggests that clear role delineation, leadership support, and regular interdisciplinary meetings are essential to sustaining these collaborative models. Despite these benefits, organizational barriers such as hierarchical culture, limited staffing, and time constraints continue to hinder full implementation.

4. Community and Patient Empowerment in Nutrition Programs

Empowering patients and communities as active partners in IPC-based nutrition programs promotes preventive and sustainable outcomes[3],[27]. Interprofessional community outreach initiatives—such as education workshops, peer-support programs, and family-centered interventions—enhance adherence to dietary recommendations and strengthen health literacy. This participatory model aligns with the concept of person-centered care and reinforces the role of IPC in achieving equitable and context-sensitive nutrition services.

5. Cross-Cutting Challenges and Facilitators

Across the included studies, key barriers identified include differences in professional culture and terminology, fragmented communication systems, and resource limitations. Conversely, strong leadership, institutional support, and structured IPE programs were consistently reported as facilitators of successful IPC. The adoption of digital health tools was another important enabler, offering new opportunities for interprofessional networking and continuous patient monitoring.

6. Conceptual Implications

By applying the Interprofessional Education Collaborative (IPEC) Core Competencies values/ethics, roles/responsibilities, interprofessional communication, and teamwork—this review provides a framework for understanding how innovations enhance collaboration in nutrition management. The integration of technology and IPE represents a synergistic advancement that not only optimizes service quality but also cultivates a culture of continuous learning and innovation in healthcare.

7. Practical and Policy Implications

The highlight the urgent need for policymakers and academic institutions to:

- 1) Incorporate IPE and IPC frameworks into national nutrition and health education curricula;
- 2) Support the development of interoperable digital systems for multidisciplinary nutrition care; and
- 3) Promote policies that incentivize teamwork and interprofessional leadership development.
- 4) Encouraging entrepreneurship within IPC—such as creating digital nutrition monitoring tools or tele-counseling services—can also drive sustainability and scalability of collaborative programs.

Limitations and future directions

This review is limited by language and time constraints (2020–2025), which may exclude relevant earlier studies. In addition, variations in study design and outcome measures limited quantitative synthesis. Future research should focus on evaluating the effectiveness of specific IPC innovations through longitudinal and intervention-based designs.

CONCLUSIONS

This scoping review concludes that innovations in interprofessional collaboration (IPC) play a vital role in strengthening the effectiveness and sustainability of nutrition management. The synthesis of 13 studies revealed that the integration of digital health technologies, interprofessional education (IPE), and holistic team-based approaches has substantially improved communication, coordination, and the quality of nutrition care delivery. Empowering communities and patients within IPC frameworks further enhance preventive and long-term adherence outcomes, making collaboration not only a professional necessity but also a strategic imperative for public health systems. These innovations demonstrate that well-structured IPC fosters patient-centered, equitable, and efficient healthcare delivery. For policymakers and educational leaders, the evidence underscores the need to embed IPC and IPE principles into national health education curricula, support digital interoperability across health systems, and invest in leadership models that promote cross-professional collaboration. Additionally, nurturing entrepreneurship and innovation ecosystems within IPC practices can accelerate the translation of collaborative nutrition programs into scalable and sustainable solutions. Future research should focus on evaluating the measurable impacts of IPC based innovations—particularly technology-driven and education-integrated interventions—on both clinical and behavioral outcomes. Expanding such research will be crucial for shaping evidence-based policy, optimizing interdisciplinary teamwork, and improving population-level nutrition and health equity.

CONFLICT OF INTEREST

The authors declare that they have no commercial, financial, or personal relationships that could be construed as a potential conflict of interest in relation to this research. The study was conducted independently without external influence on its design, analysis, or interpretation.

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DECLARATION OF ARTIFICIAL INTELLIGENCE USE

This study used artificial intelligence (AI) tools and methodologies in the following capacities: Data preprocessing: AI-assisted techniques Watase UAKE were applied for skringing literatur, Manuscript writing support: AI-based language models ChatGPT, were/was employed to language refinement (improving the grammar, sentence structure, and readability of the manuscript). We confirm that all AI-assisted processes were critically reviewed by the authors to ensure the integrity and reliability of the results. The final decisions and interpretations presented in this article were solely made by the authors.

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