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REVIEW ARTICLE

Collaboration between interprofessional education (IPE) and interprofessional collaborative practice (IPCP) in health education: A narrative review


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Abstract

Interprofessional Education (IPE) and Interprofessional Collaborative Practice (IPCP) have become essential educational approaches to improve the collaboration system and quality of health services. This study aims to provide an overview of the IPE/IPCP implementation strategy focusing on achieving core competencies and their outcomes. The narrative literature review study preferred the PRISMA model approach. The articles were analyzed from three electronic databases: ScienceDirect, Scopus, and PubMed. The search keywords used "Healthcare professional" AND "Interprofessional practice" OR "interprofessional education" AND "Nursing education" AND "Improved competencies" with the study criteria involved students or health professionals, last ten years, English version, and used experimental or observational, mixed methods design. A total of 14 articles met the criteria and were summarised. As a result, the IPE/IPCP implementation strategies with simulation, curriculum, and training focused on the main competencies produced essential outcomes, including increasing knowledge, skills, positive attitudes, and perceptions of students and health professionals and improving the quality of patient care. IPE/IPCP strategies such as an integrated curriculum, simulation, and training program were recommended for implementation in the institution or clinical setting. Sustainable IPE/IPCP strategies and outcomes are essential in promoting collaborative practice and quality healthcare.

Keywords: [Healthcare professionals](#); [collaboration](#); [nursing curriculum](#); [higher education](#); [quality of care](#)

Introduction

Globally, healthcare systems are in a difficult situation due to increasing global health problems and needs, rising healthcare costs, healthcare-related workforce shortages, and insufficient understanding and respect for the contributions of healthcare professionals (Thistlethwaite, 2012). Interprofessional education (IPE) and interprofessional collaborative practice (IPCP) can play an essential role in mitigating the challenges faced by the global health system (Herath et al., 2017). Interprofessional Education (IPE) and Interprofessional Collaborative Practice (IPCP) are separate but related concepts. For health professionals, learning the skills to work effectively on IPCP teams is best acquired through IPE, where students from two or more health professions learn together to provide care to patients in a collaborative, safe, high quality and accessible manner (WHO, 2010). The World Health Organization (WHO) first proposed interprofessional education to improve collaboration between different health professionals to solve health problems holistically and achieve quality healthcare outcomes (WHO, 2010; Pardue, 2015).

Adequate collaboration can be obtained from mastering IPE/IPCP core competencies, including values/ethics for interprofessional practice, roles and responsibilities for collaborative practice, interprofessional communication practice, and interprofessional teamwork and team-based practice (Pardue, 2015). One of the intentions of IPE is that students from different health professions learn and get trained until they are optimized to explore the boundaries of

their respective health professions (Thannhauser et al., 2010). At the same time, they learn how to have effective interprofessional relationships by engaging in collaborative skills and knowledge. Several studies reported that interprofessional education based on IPE/IPCP core competencies can foster positive perceptions, teamwork, responsibility, collaborative attitudes and effective communication in health students (Mektrirat et al., 2022; Sevin et al., 2016). IPCP and IPE are pedagogical approaches that are integrated between students and health professionals in which adequate skills and knowledge are needed so that, in practice, there is synergy from multidisciplinary health professionals in providing complete health services to patients (Wietholter et al., 2017). Several studies recommend that through directed learning strategies based on interprofessional collaborative practice competencies, students and health professionals will acquire the knowledge and skills needed to work together in an environment built on mutual respect, mutual roles and responsibilities, and effective communication and teamwork processes (Schmitt et al., 2011; Wei et al., 2020). Specifically, increasing doctor-nurse interactions improved doctors' knowledge of the nursing profession (Setiadi et al., 2017). Thus, increasing the collaborative practice experience between nurses and doctors impacts the quality of care and patient satisfaction. However, nurses feel more inhibited than doctors when practicing collaborative practice. This may result from hierarchical structure and socio-cultural factors (Yusra et al., 2019).

The implementation of IPE/IPCP in developed countries is currently growing rapidly, but in developing countries (e.g., Indonesia), it still encounters various obstacles, such as curriculum, administrative issues, lack of faculty and student readiness and weak spreading of research (Homeyer et al., 2018; Sunguya et al., 2014). Very few universities in Indonesia still implement IPE, indicating a lack of knowledge dissemination related to effective approaches to IPE/IPCP implementation and understanding of the importance of interprofessional collaborative practices in healthcare. In addition, the inequality of education in health professions. For example, there are more nursing schools than other professions, limiting the implementation of IPE. Therefore, this study aims to provide an overview of IPE/IPCP implementation strategies focusing on achieving key competencies.

Method

The method used in this study was a narrative literature review. The preparation of this literature review was through the process of screening articles using the PRISMA flow diagram (Figure 1). The English journal databases used through ScienceDirect, Scopus, and PubMed. The search focused on reputable international journals with article characteristics according to predetermined inclusion and exclusion criteria. Determining keywords for article searches used a search strategy with the PICO approach (Population, Intervention, Comparison, and Outcome). Literature searches from three journal databases used keywords from the PICO framework, namely "Healthcare professional" AND "Interprofessional practice" OR "interprofessional education" AND "Nursing education" AND "Improved competencies".

The authors set inclusion and exclusion criteria for article selection. The inclusion criteria included research subjects involving students or health professionals, publications in the last 10 years, English language, original research, experimental and observational research design, mixed methods, and implications for the application of IPE and IPCP. Meanwhile, the exclusion criteria are review-type articles and protocol studies. Articles were extracted and analyzed into a table containing the author and year of publication, research location, research design and subject, type of intervention (model/procedure), interprofessional model (IPE/IPCP), and competency.

Results

Based on the article search results, the total number of participants was 1,454, consisting of 693 students from various majors, 332 health workers, 8 faculty members, and 421 patients. The research design in the traced literature used quasi-experimental, with as many as 8 studies. RCT is as many as 2 studies, cross-sectional is as many as 2 studies, mixed method is as many as 1 study, and randomized controlled multicenter non-inferiority is as many as 1 study. This literature review study is divided into Interprofessional Education (IPE) as many as 8 studies and Interprofessional Collaborative Practice (IPCP) as many as 6 studies (**Figure 1**). The studies were conducted in the USA, South Korea, New York, France, Chile and East Africa (**Table 1**).

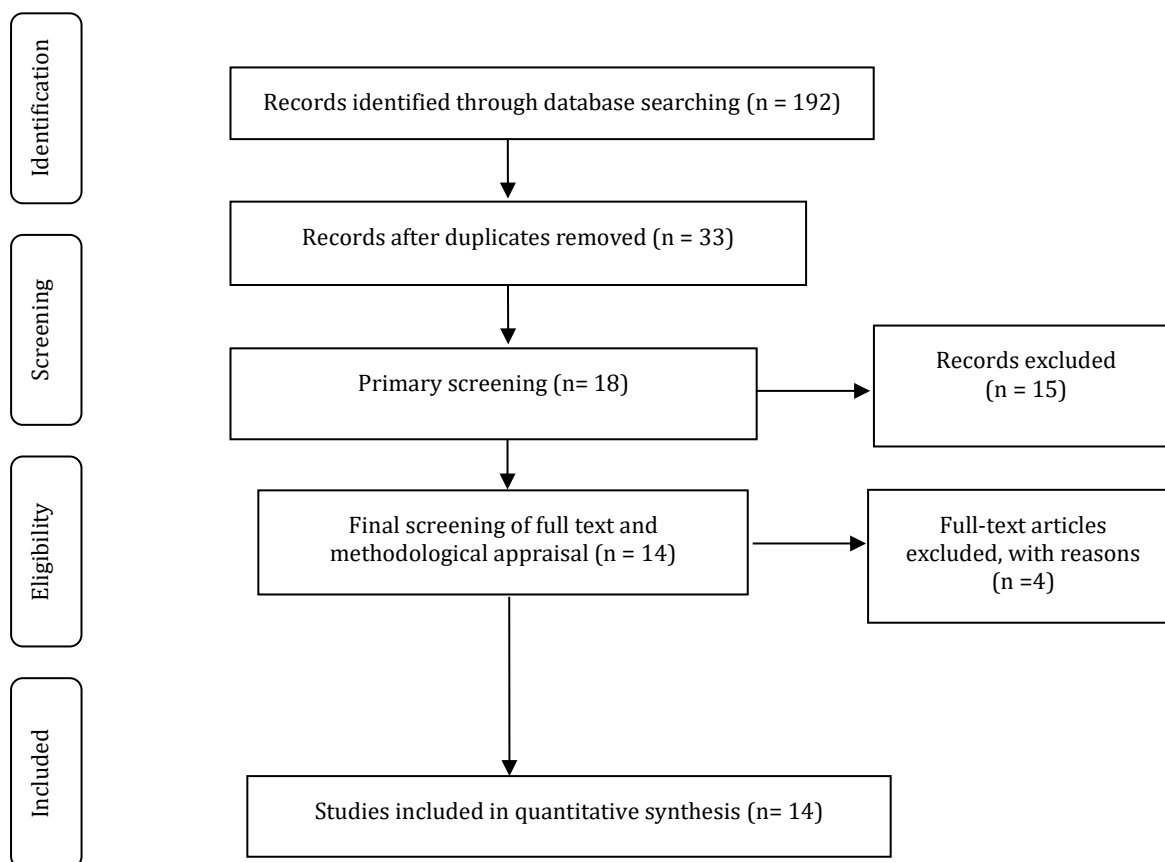


Figure 1. Article selection process

Discussion

The study conducted by Blakely & Biehle (Blakely & Biehle, 2021) showed that the implementation of collaborative practices involving students from several health professions, such as medical, nursing, pharmacy and social work students, in the form of interprofessional simulations to develop care plans for patients with mental disorders can improve students' perceptions of ethics and interpersonal communication. Another study by Munoz-Rubilar et al. (2020) revealed that the implementation of joint clinical simulation on physical and mental health could contribute to the development of protocols, training, and collaborative work practices in interprofessional education, making it possible to improve student competence and confidence. Another simulation, namely High-Fidelity Simulation (HFS) using scenarios, has proven effective in increasing positive attitudes and behaviors in students in teamwork (Paige et al., 2014). The study by Ciceron et al. (2021) used a simulation method consisting of three stages: a preparatory briefing session, the simulation itself, and a debriefing session to facilitate reflective discussion. The debriefing was conducted individually before the instructor at the end of the simulation experience by viewing certain parts of the video recording. To reduce the length of the debriefing, the researcher developed in the pilot study a collective debriefing technique consisting of one debriefing involving 6 pairs of participants who had each undergone the same half-day simulation session. The impact of this collective debriefing method on learning remains to be evaluated.

The study by Wietholter et al. (2017) used simulation as one approach to offer high-quality IPE experiences that mirror actual IPCP and has been shown to improve health professional students' knowledge, behaviors, and skills. Simulation experiences can provide the realism of actual clinical practice in an environment that allows for mistakes without harming patients. Case-based scenarios can also be revised and updated to meet the needs of diverse learners. The results of this study show that simulation-based training has positively impacted patient safety by improving teamwork, confidence, knowledge, skill acquisition, and overall team performance. Simulation experiences related to IPCP can increase learners' knowledge, awareness, and comfort level when working with other disciplines and have improved outcomes in both adult and pediatric patient populations.

Table 1. Study findings

Author (year)	Study design	Participant (n)	Strategy	IPE/IPCP	Competency	Outcome
Blakely & Biehle (2021)	Cross-sectional design	Health profession students (n=97); pharmacy students (n=47)	Simulation	IPE	Ethics & communication	Perceptions of ethical dilemma management, respect, and courteous behavior
Chen <i>et al.</i> (2021)	Cross-sectional design	Health graduate students (n=68)	Curriculum and patient care	IPE	Teamwork & responsibilities	Collaboration competence, perception, and trust in the team.
Niranjan <i>et al.</i> (2019)	Pre-post design	Dental, nursing, medical and pharmacy students (n=65)	Training and curriculum	IPE	Responsibilities & Ethics	Knowledge, confidence, attitudes, and clinical competence of health students
Ciceron <i>et al.</i> (2021)	Randomized controlled trial	Resident doctors and nurse interns (n=48)	Simulation	IPCP	Teamwork, responsibilities & ethics	Reflections and experiences, work stress, and treatment time efficiency
Munoz-Rubilar <i>et al.</i> (2020)	Mixed method	Nursing students (n=108); psychology students (n=16)	Simulation	IPE	Teamwork & communication	Development of protocols, training, and collaborative work practices
Kim <i>et al.</i> (2019)	Pre-post design	Medical students (n=144)	Training, FGD, and role play	IPE	Teamwork & communication	Communication and teamwork competencies
Yu <i>et al.</i> (2020)	Pre-post design	Medical students (n=37); nursing students (n=38)	Simulation	IPE	Teamwork & responsibilities	Awareness, perceptions of collaboration, roles and teamwork
Wietholter <i>et al.</i> (2017)	Pre-post design	Nurses (n=62); doctors (n=9); pharmacist (n=10)	Simulation	IPCP	Responsibilities, communication, ethics, teamwork	Experiences, interactions, awareness, collaboration, and communication
Paige <i>et al.</i> (2014)	Pre-post design	Nursing students (n=18); nurses (n=20); medical students (n=28)	Simulation	IPE	Interprofessional communication teamwork	Student attitudes and behaviors in teamwork
Scotten <i>et al.</i> (2015)	Pre-post design	Faculty staff (n=8)	Quality Improvement practice	IPCP	Responsibilities, teamwork, and communication	Communication, healthcare errors, readmissions, satisfaction and length of stay
Brommelsiek <i>et al.</i> (2018)	Pre - post design	Nursing students (n=22); pharmacist students (n=9); psychology students (n=10); worker students (n=13)	Clinical practicum	IPE	Ethics & communication	Knowledge, cooperation skills, values, belief and communication
Goertz <i>et al.</i> (2017)	Randomized controlled trial	Healthcare professionals (n=131)	Learning and Training Module	IPCP	Teamwork	Medication adherence, quality of life and satisfaction with health services
Sagahutu <i>et al.</i> (2019)	Randomized controlled trial	Health workers (n=203)	Interprofessional practice	IPCP	Ethics & teamwork	Knowledge and attitude
Nagelkerk <i>et al.</i> (2018)	Pre-post design	Nurses, doctors and social workers (n=NA)	IPCP training	IPCP	Ethics & teamwork	Knowledge, attitudes, interactions, communication and teamwork

Based on the study conducted by Chen et al. (2021) showed that the implementation of a year-long workplace-based curriculum by combining the concept of interprofessional preceptors (IP) and formal conferences and then forming teams involving graduate students from geriatric medicine, pharmacy, social work, and law to learn IPCP and care for geriatric patients with a patient-centered care approach significantly improves interprofessional collaboration competencies in students. In addition, the program elicited positive client and family perceptions of quality care and increased their trust in the team. Applying the curriculum through a practicum conducted at the Veterans Administration (VA) primary care clinic increased nursing, pharmacy, clinical psychology, and social work students' knowledge of military, cultural values and veterans' health (Brommelsiek et al., 2018). This interprofessional program integrates simulation methods by analyzing problems and providing interventions based on scenarios applied to nursing and medical students to increase students' awareness, self-competence and perceptions in interprofessional collaboration.

Training

According to a study by Niranjan et al. (2019), IPE training or courses involving medical, dental, nursing and pharmacy students can improve health students' knowledge, confidence, attitudes, and clinical competence in conducting pediatric oral health assessment practices. In addition, Kim et al. (2019) also explained that communication training between health professionals in the clinical field, consisting of small group discussions and role play, improved students' communication competence and perceptions of the importance of communication. The study conducted by Scotten et al. (2015), using training methods reinforced by continuous in situ simulation, teamwork, and communication, was applied as the basis for developing an interprofessional transitional care model. The transitional care model was designed to identify patients at risk of problems after discharge from a pediatric inpatient unit. Interprofessional team members, including patients and families as participatory members, discussed the potential use of telehealth method components. The telehealth follow-up component used tablet technology (iPad) to connect the inpatient team with the family after discharge.

Goertz et al. (2017) conducted a randomized controlled trial in 131 adult outpatients with subacute or chronic low back pain. Participants were randomly allocated to 12 weeks of individualized primary medical care (Medical Care), concurrent medical and chiropractic care (Dual Care), or medical and chiropractic care with enhanced interprofessional collaboration (Shared Care). The primary outcomes were low back pain intensity assessed on a numerical rating scale and back-related disability measured by the Roland-Morris Disability Questionnaire. Secondary outcomes included clinical measures, side effects, and patient satisfaction. The educational program on physician and student knowledge and attitudes toward IPCP was used to determine the effectiveness of the IPCP weight loss program in two nurse-managed health centers. The study team used the Midwest Interprofessional Practice, Education, and Research Center (MIPERC) collaborative practice educational program consisting of online learning modules followed by daily chats and collaborative care planning. The obesity intervention program was implemented by faculty, staff practitioners, and students in two clinics with very different patient populations (community residents and college students) (Nagelkerk et al., 2018). Another study conducted by Sagahutu et al. (Sagahutu et al., 2021) in a hospital in Rwanda measured knowledge and attitudes towards IPCP at baseline and after the training. Two hours of face-to-face meetings were held with the experimental group, and two months later, to receive feedback on implementing the workshop recommendations. Positive results showed trainees' knowledge and attitudes regarding IPCP implementation (Yu et al., 2020).

In the findings of this study, all studies analyzed reported positive results related to IPE/IPCP implementation strategies in educational settings and hospital services. The outcomes obtained include increased positive student perceptions, interprofessional collaboration competence, increased knowledge, confidence, attitudes, and clinical competence of health students, increased experience, communication competence to satisfaction and performance of the health team. The research outcomes reflect the main competencies of IPE / IPCP, which are the benchmark for the success of each research strategy. Several studies in this study used IPE/IPCP implementation strategies through simulation methods with key competency indicators, namely values/ethics, interprofessional communication, teamwork, and roles/responsibilities. Outcomes included an increase in positive perceptions of ethical dilemma management, respect, and the polite behavior of positive reflections and experiences, decreased work stress and treatment time efficiency, collaborative work practices in interprofessional education, increased competence, and student confidence (Blakely & Biehle, 2021; Ciceron et al., 2021; Wietholter et al., 2017; Yu et al., 2020). Through IPE and IPCP, students improve their ability to communicate and solve problems collaboratively among their healthcare team, understand team members, and perform patient-centered care more effectively (Yu et al., 2020). Previous

studies found that interprofessional simulation improved self-competence in communication, collaboration, and situation management among team members in clinical settings (Davenport et al., 2007; Garbee et al., 2013). Competency development is a crucial component of clinical simulation (Magnani et al., 2014). In the nursing setting, the study by Regan et al. (2015) explained that structural empowerment, authentic leadership and a professional nursing practice environment can improve IPC. Nurse leaders who ensure access to resources, such as knowledge of IPC, need to create awareness, build trust among nurses, and support the presence of a professional nursing practice to establish a collaborative environment.

The development of IPE/IPCP implementation strategies that can be applied in developing the IPE/IPCP curriculum into learning methods such as discussions, role plays, and clinical education practices. The IPE/IPCP curriculum is expected to improve interprofessional collaboration competencies, positive perceptions, and trust in the team (Chen et al., 2021; Niranjana et al., 2019; Scotten et al., 2015). However, with the growth of interprofessional education (IPE) and practice in health professional colleges, faculty managers must take on new roles in leading or delivering interprofessional curricula. Unfortunately, existing faculty feel underprepared for the challenge of this curricular innovation (Hall & Zierler, 2015). Implementing IPE/IPCP with any strategy will not be successful if it is not based on readiness and commitment to implementing collaborative interprofessional education (Bridges et al., 2011). Other elements, including responsibility, accountability, coordination, communication, cooperation, assertiveness, autonomy, and mutual trust and respect, are elements of a successful IPE experience (Bridges et al., 2011; Hall & Zierler, 2015). The main barriers to interprofessional curriculum development, in particular, require restructuring existing curricula and a willingness on the part of health professionals to reconsider the professional identity of each profession (Grace, 2021).

Conclusion

Interprofessional education and interprofessional collaborative practice are essential to improving collaboration systems and the quality of health services. Interprofessional Collaboration Practice is the interaction or relationship of two or more health professionals who work interdependently to provide patient care, share information to make joint decisions and know the optimal time to collaborate in patient care. Key competencies are obtained with diverse outcomes from applying several strategies in both IPE and IPCP. The implications of this model can run well if, in the process, each team member respects and understands the roles and responsibilities of each profession, exchanges information openly, and can manage and carry out tasks individually and with groups in the team. IPCP, which is based on IPE, is integrated with the curriculum, one of which is creating a comprehensive method in the implication process. Commitment between the institution and the study program is needed to include interprofessional learning in the institution's curriculum. IPE and IPCP imply that health professionals are expected to play an active role in improving competence to complement each other, form attachments together and improve the quality of health services.

Author's declaration

The authors made substantial contributions to the conception and design of the study and took responsibility for data analysis, interpretation, and discussion of results. For manuscript preparation, all the authors read and approved the final version of the paper.

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Availability of data and materials

All data are available from the authors.

Competing interests

The authors declare no competing interest.

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