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IMPROVEMENT OF STUDENTS' KNOWLEDGE AND READINESS AFTER A SHORT COURSE PILOT OF IPE IN GERIATRIC CARE

Ide Pustaka Setiawan^{1*}, Fitriana Mawardi², Rilani Riskiyana¹, Tony Arjuna³, Perdana Samekto³, Ema Adyaningrum⁴, Vita Yanti Anggraeni⁵, Eko Aribowo⁵

¹Department of Medical Education & Bioethics, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia

²Community and Family Medicine, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia

³Department of Nutrition and Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia

⁴Community and Mental Health Nursing Department, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia

⁵Department of Internal Medicine, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia

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ABSTRACT

Background: A five-day interprofessional education (IPE) pilot program in geriatric care was introduced to advanced students in clinical rotation. The program focused on providing students with interprofessional experience in managing elderly care. This study aimed to understand the knowledge, readiness, and perception of students from three different professional programs (medical, nursing, and health nutrition students) regarding this pilot program.

Methods: A descriptive quantitative research with open-ended questions was conducted. Wilcoxon analysis was performed to find the difference in students' knowledge and readiness regarding interprofessional collaboration practice before and after the pilot program. Open-ended questions were distributed online to evaluate students' reflections upon participating in the program.

Results: There were 27 participants consisting of 8 medical students, 10 nursing students, and 9 health nutrition students involved in this study. The quantitative study found an increase in interprofessional knowledge and readiness ($p < 0.001$). There were also improvements in intra-professional knowledge of the medical, nursing, and dietetics students with $p < 0.001$ in each profession. A descriptive analysis of open-ended questions revealed that teacher competence and good program coordination were regarded as important for the program's success. Students reported that they had a better understanding of the role of other professions in managing patients' problems. Interprofessional communication was regarded as important to ensure patient safety. Students also learned that interprofessional collaboration in elderly care is important to improve the patient's quality of life.

Conclusion: The pilot IPE program improved both interprofessional and intra-professional knowledge and readiness of the students in geriatric clinical rotation. Moreover, students felt this activity had a positive impact on their understanding of interprofessional collaboration and patient health outcomes.

Keywords: IPE, interprofessional education, geriatric care, short course IPE

*corresponding author, contact: idepustaka@ugm.ac.id

PRACTICE POINTS

- Short course interprofessional education improves interprofessional and intra-professional knowledge and readiness of students in geriatric clinical rotation.
- Teacher competence and good program coordination were regarded as important for the program's success.
- Interprofessional collaboration in elderly care is important to improve the patient's quality of life.

INTRODUCTION

The importance of collaborative practice and its education have been widely reported. The World Health Organization (WHO) stresses the importance of learning together to improve learning outcomes.¹ In 2003, the Organization for Economic Cooperation and Development noted interchanges between different professions as a key competency.^{2,3} The Institute of Medicine (2003) identified that working in interdisciplinary teams is one of five competencies for health professions education.^{4,5}

In health care, the collaborative practice among health workers prevents missed patient treatment, provides better health outcomes, and reduces health care costs. Collaborative practice also helps the hospital to save money with support for the effectiveness of working especially in doing patient care.⁴ Collaboration among health workers shows improvement in patient care and outcome, reduces medical error, starts patient treatment faster, reduces inefficiencies and healthcare costs, and improves staff relationships and job satisfaction.⁶

Although many benefits are obtained from interprofessional collaborative practice, some barriers influence the success of its implementation. For example, one profession may see other professions not at an equal and similar level. Further, it may feel that the specific profession is the most superior to others. Even this profession sees others as a rival and does not want to collaborate in patient care. The language barrier, customer service orientation, and reporting structures are other challenging issues

during the implementation of interprofessional collaborative practice.^{7,8} Those challenges should be prevented to obtain a better implementation of health care collaborative practice.

IPE is one approach that may answer those challenges. IPE offers collaborative education among students from many professions. The students are taught the benefits and effectiveness of collaboration when they work in the future.⁹ They are also taught and practiced interprofessional among health students. IPE triggers students to work together and collaborate to overcome health and clinical problems.¹⁰

Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada (FM PHN UGM) has a long time ago implemented IPE. The Community and Family Health Care (CFHC) program is one example of the implementation of IPE in FM PHN UGM. Since 2013, FM PHN UGM which consists of three undergraduate study programs which are: a medicine study program, a nursing study program, and a health nutrition study program agreed to implement teaching and learning processes together. They formed one curriculum for those three study programs, especially in the CFHC program. The students (medicine, nursing, health nutrition) learn together in the community as a representative of patients who have health and clinical problems. They work together in assessing, determining health and clinical problems, and giving health promotion to the members of the family, the whole family, and groups of family in the community.

The success of IPE implementation with the CFHC program inspired the Faculty to develop and implement IPE in other levels of education. Currently, FM PHN UGM develops IPE in the clinical rotation phase for undergraduate students. This educational program is called Interprofessional Education and Collaborative Practice in geriatric care which involves three professions of students in clinical rotations which are medical, nursing, and health nutrition. Geriatric care is chosen as a case for this pilot program due to the complexity of the problem in geriatric patients which can be managed and learned together by three different perspectives: medicine, nursing, and health nutrition problems. The program was created to develop collaborative competencies among health students. Through this collaborative practice program, it is hoped that it can improve the quality of health human resources and it can provide optimal outcomes of health service in Indonesia.

The research aims to understand the knowledge, readiness, and perception of students from three different professional programs (medical, nursing, and health nutrition students regarding this pilot program.

METHODS

This descriptive quantitative research with open-ended questions was held in August – September 2019. This was umbrella research that gained ethical approval from the Ethical Commission Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada number KE/0037/01/2020. The subjects of this research were participants who registered for a short course pilot of IPE in geriatric care which consisted of three professions: medical students, nursing students, and health nutrition students.

In August 2019, FM PHN UGM held a five-day course themed on interprofessional education for elderly care in the community. This activity was a pilot program provided for clinical rotation students. This program aimed to improve students' understanding and application of interprofessional education and

collaborative practice (IPCP), especially in handling health problems for geriatric patients.

This pilot program opened opportunities for students in the clinical rotation phase to register and participate in. There were 30 places provided in this program consisting of 10 places for medical students, 10 places for nursing students, and 10 places for health nutritionist students respectively. Those 30 places were divided into 10 groups. Each group consists of each profession.

The participants underwent a 5 days short course which was guided by FM PHN UGM lecturers. The lecturers who manage the activity and also become lecturers in this program came from various professions medical doctors, nurses, and health nutritionists.

The short course consists of several learning activities including video learning, lectures, field visits, group work, interactive discussions, assignments, and assessments. The activity set consists of both on and off-campus activities, namely field visits by visiting the patient's home for doing patient health assessment and health care services (Table 1).

For accommodating field visit activity, FM PHN UGM collaborated with the home care unit of the DR Sardjito Hospital as the main teaching hospital. This collaboration activity was related to the use of home care unit patients to become patients in the implementation of this IPE course. Several meetings were held between the teams and the home care unit to discuss several cases and problems that were suitable to be used as IPE patients. In the geriatric context, the selected patients were those who over 50 years of age with various health problems which can be approached collaboratively by various health professions, especially medical doctors, nurses, and health nutritionists. By the number of participant groups, namely 10 groups, for this reason, 10 home care patients were determined around the area covered by Dr. Sardjito Yogyakarta (Table 2).

Home care patients managed by Dr. Sardjito Hospital's home care unit is a general patient who regularly uses home care services in this hospital.

Apart from the pilot program, Dr. Sardjito Hospital's home care unit regularly visits these patients to carry out clinical assessments and clinical interventions aimed at improving the patient's health status. Various health professionals, including doctors, dentists,

nurses, physiotherapists, and nutritionists, visit these home care patients, but they do not come at the same time. However, patient health problems are discussed regularly in the home care unit by various health professionals, to get collaborative treatment.

Table 1. Learning Activities of IPE Pilot Program

Time	Day 1	Day 2	Day 3	Day 4	Day 5
07.30-08.00	Pre test	Field visit		Supervised field	
08.00-09.00	Introduction of the course	Prior to interaction, students should provide informed consent	Group discussion (facilitated)	visit (intervention)	Case reflection
09.00-10.00	Team building activity				Expert lecture and discussion
10.00-10.15	Break		Break	Documentation (photo, video)	Coffee break
10.15-12.00	Team building activity	Documentation (photo, video)	Independent study	upload to e-learning	Expert lecture and discussion
12.00-13.00	Break	upload to e-learning			Post test closing
13.00-14.00	Clinical preparation (learning from video)	Online assignment 1			Program evaluation

Table 2. Characteristics of Home Care Patients

No	Patient initial	Gender/ Age (y.o)	Clinical Problem
1	Mrs.NW	F/77	Hypertension, GERD, mobilization disturbance, psychosomatic disease
2	Mr. S	M/76	Hypertension, post stroke sequelae
3	Mrs. S	F/84	Post stroke sequelae, decubitus gr 2
4	Mr. M	M/68	Haemorrhoid gr 3, post-stroke sequelae, hemiplegia, diabetes mellitus, underweight
5	Mrs. SS	F/91	Fracture of collum femoris, Diabetes Mellitus, Neuropathy Diabetes
6	Mrs. SU	F/81	Post stroke sequelae, Neural Hearing Loss, Atherosclerotic Artery Disease, Community Acquired Pneumonia, Acute Kidney Injury
7	Mrs. Z	F/85	Hypertension, Gout Arthritis
8	Mrs. SA	F/93	Hypertension, myalgia, obesity
9	Mrs. H	F/74	Post stroke sequelae
10	Mrs. S	F/91	GERD, geriatric anorexia, Low back pain, mild dementia

This pilot activity was designed differently from the regular program implemented by the home care unit. In this program, the three health professionals (medical student, nursing student, and health

nutrition student) guided by one supervisor/ lecturer, visited patients altogether at the same time. Each profession did an assessment of the patient's health problem from their profession's perspective,

then they discussed together to conclude and do the best health and clinical management to overcome the patient's health problem.

In this pilot program, each group visited the patient twice. The first visit aims to conduct a comprehensive and collaborative examination to determine the patient's health problems. Meanwhile, the second visit aims to intervene and manage problems based on a clinical assessment of the first visit. Intervention and management of patient problems have previously been carried out by discussion and approval by the supervisor. During the field visit activity, the participants of the short course for elderly care were guided directly by a supervisor who was in charge of guiding and monitoring the activities carried out by the participants as well as backing up the examination if there was an examination or intervention that was beyond student competence. At the first visit, a representative of the home care unit at Sardjito Hospital was assigned to accompany each group as a communicator and give permission to the patient regarding this pilot program.

Before and after following this pilot program, students were asked to fill out the questionnaire. There were 2 questionnaires that should be fulfilled by each student. The first questionnaire was regarding interprofessional knowledge and readiness. The second questionnaire was regarding intra-professional knowledge which consist of intra-professional knowledge for medical, nurse, and health nutrition. Each profession fulfilled intra-professional questions based on their profession. This questionnaire was adopted from RIPLS (the Readiness for Interprofessional Learning Scale). The discriminant validity of RIPLS was greater than 0.5 whereas the reliability was included as satisfactory which has an alpha coefficient greater than 0.7.¹¹

The interprofessional knowledge and readiness questionnaire consisted of 23 statements that should be answered by each student. Each student has to choose one answer among 4 options: strongly disagree, disagree, agree, and strongly agree. For the purpose of statistical calculations, coding numbers were given to 1,2,3, and 4 respectively.

So, the minimum score of each statement was 1 and the maximum score was 4. Whereas the intra-professional knowledge questionnaire for medical students consisted of 12 statements, the intra-professional knowledge questionnaire for health nutrition students consisted of 6 statements and the intra-professional knowledge questionnaire for nursing students consisted of 18 statements. The options of all intra-professional knowledge questionnaires were: very bad, bad, moderate, good, and very good. For the purpose of statistical calculations, coding numbers were given to 1,2,3,4 and 5 respectively. So, the minimum and maximum scores for each statement of the intra-professional knowledge questionnaire for medical students, health nutrition students, and nursing students were 1 and 5.

The mean of participants' answers was calculated for each question. Afterward, A quantitative analysis was performed to see the difference in mean scores in students' knowledge and readiness regarding interprofessional collaboration practice before and after the pilot program. Wilcoxon analysis was performed to find the difference.

Open-ended questions were distributed online to evaluate students' reflections upon participating in the program. Students were asked open questions regarding the implementation of this program. The questions regarding factors affecting the success of the program and reflection after accomplishing the program.

RESULTS AND DISCUSSION

Of the 30 places provided for the registrant, there were only 28 students followed this pilot program. Two people resigned from this program because of health problems and coincided with other activities. All participants which were comprised of 9 medical students, 10 nursing students, and 9 health nutrition students agreed to participate in this study (Table 3). Of the 28 participants, they were then divided into 10 groups, each of which contained the professions of doctors, nurses, and health nutritionists. Not all groups consist of complete members from each health profession.

The composition of each group which was comprised of medical students, nursing students, and health nutrition students showed an interprofessional group.¹² They worked together to assess the patient and provide management of patient health problems. By bringing together students from different healthcare disciplines, this collaborative model promoted comprehensive patient care and facilitated a holistic understanding of healthcare needs.¹³ The interprofessional groups encouraged effective communication, shared decision-making, and mutual respect among students, fostering the development of teamwork skills that are essential for future healthcare practice.¹⁴

Table 3. Characteristic of respondents

Category	Amount
Study program	
Medical	9
Nursing	10
Health	9
Gender	
Male	10
Female	18
Age	
22 years old	3
23 years old	19
24 years old	6

All participants followed the program as planned (Table 1). Each group was guided by a facilitator. The facilitators were the lecturers from those three study programs (medicine, nursing, and health nutrition). In detail, there were 3 doctors (1 internist and geriatric consultant, 1 cardiologist, 1 general practitioner), 2 nurses, and 2 health nutritionists involved as facilitators in this program (Table 4).

In this case, the presence of a learning facilitator is crucial. The facilitator plays a vital role in observing the actions of the participants, intervening when necessary to ensure patient safety, and providing valuable feedback to enhance learning and performance¹⁵. By actively monitoring the activities of the participants, the facilitator can identify any potential issues or deviations from best practices, offering timely guidance and correction. Additionally, the facilitator facilitates reflective discussions, encouraging participants to critically analyze their experiences and explore opportunities for improvement.^{16,17} Through this process of observation, intervention, feedback, and reflection, the facilitator fosters a supportive learning environment that enhances the participants' professional development and patient-centered care.

The evaluation result showed there was a significant increase in interprofessional knowledge and readiness ($p < 0.05$), intra-professional knowledge of medical students ($p < 0.05$), intra-professional knowledge of nursing students ($p < 0.05$), intra-professional knowledge of health nutrition students ($p < 0.05$) (Table 5).

Table 4. Characteristic of facilitators

No	Initial	Educational Background	Teaching experience (years)
1	EA	Internist, geriatric consultant	13
2	VY	Internist, cardiologist consultant	10
3	F	General Practitioner, M.Sc	16
4	EM	Nurse, PhD	16
5	RR	Nurse, M.Sc	5
6	TA	Health Nutritionist, PhD	7
7	PS	Health Nutritionist, M.Sc	5

Table 5. Evaluation Result of Interprofessional and Intra-professional knowledge of each profession

No	Outcome variables	Test	Mean	p value*
1	Interprofessional knowledge and readiness	Pre test	3.03	<0.001
		Post test	3.31	
2	Intra-professional knowledge of medical students	Pre test	3.57	<0.001
		Post test	4.67	
3	Intra-professional knowledge of nursing students	Pre test	3.28	<0.001
		Post test	4.14	
4	Intra-professional knowledge of health nutrition students	Pre test	3.78	<0.001
		Post test	4.31	

*Wilcoxon test

This indicates that the interprofessional learning experience positively impacted both the participants' understanding of collaborative practice across disciplines and their individual discipline-specific knowledge. The findings suggest that engaging in interprofessional education can enhance students' competence and preparedness for interprofessional teamwork while also strengthening their proficiency within their own professional domains.^{18,19}

By working collaboratively with peers from different healthcare disciplines, students gain a broader perspective on healthcare delivery, develop effective communication skills, and cultivate a shared understanding of roles and responsibilities. This interprofessional approach not only promotes interdisciplinarity but also fosters a deeper appreciation for the unique contributions each profession brings to patient care. Consequently, interprofessional education plays a vital role in preparing future healthcare professionals to work collaboratively, improve patient outcomes, and promote a patient-centered approach to care.

Descriptive analyses from open-ended questions showed the students believed that engaging in this activity had a beneficial effect on their comprehension of interprofessional collaboration and its impact on patient health outcomes.²⁰ Students' reflections showed the importance of teacher competence and good program coordination to conduct this program.

"The success of this program depends on the competence of the teachers and effective program coordination. If the teachers lack the necessary skills and knowledge, the program may not achieve its objectives. Additionally, without proper coordination, the program may become disorganized and less efficient".

The significance of teacher competence and effective program coordination was emphasized by the students^{21,22}. Students recognized that teachers who possess expertise in interprofessional collaboration and pedagogy play a crucial role in facilitating meaningful learning experiences. These teachers are equipped to guide and support students in navigating complex interprofessional dynamics and fostering a safe and inclusive learning environment. Additionally, students emphasized the significance of well-coordinated programs that provide structured opportunities for interprofessional interactions, allowing for meaningful engagement and collaboration among students from different disciplines. These aspects are vital for creating a positive and impactful interprofessional learning experience.

Besides that, students have a better understanding of the role of other professions in managing patients.

"This program helps students grasp the vital roles of diverse professions in patient care. It's eye-opening to see how the collaborative efforts of healthcare professionals from

different backgrounds come together to provide comprehensive care for patients."

Students possess a heightened comprehension regarding the responsibilities and contributions of various professions in patient management.²³ Through collaborative activities and shared learning opportunities, students gain insights into the unique expertise and perspectives brought by different healthcare disciplines. They develop a comprehensive understanding of how interprofessional teamwork enhances patient care by leveraging the diverse skills and knowledge of each profession involved. This enhanced understanding enables students to effectively collaborate, communicate, and coordinate with professionals from other disciplines to deliver holistic patient-centered care. By appreciating the distinct contributions of each profession, students are better prepared to work as part of an interdisciplinary healthcare team, fostering improved patient outcomes and overall healthcare delivery.

Furthermore, students said that interprofessional communication and collaboration improve patient quality of life.

"Interprofessional communication and collaboration unquestionably enhance the quality of life for patients."

Effective communication among healthcare professionals from different disciplines facilitates the exchange of vital information, ensuring comprehensive and coordinated care that meets the unique needs of patients. Collaboration promotes a team-based approach to decision-making, resulting in more holistic treatment plans and improved patient outcomes. By working together, healthcare professionals can identify potential gaps in care, address complex health issues, and implement tailored interventions that enhance patient well-being. The synergy created through interprofessional communication and collaboration plays a crucial role in optimizing the overall quality of care and improving patients' quality of life.

The limitation of this study was we could not find patients who had similar problems. It's made,

the complexity of the case was different among groups. It potentially impacts students' evaluative perspectives. Additionally, the study was limited by the brief duration of patient improvement observation post-clinical intervention. Furthermore, the pilot program's venue, situated in the community inadequately represented the clinical context.

CONCLUSION

The pilot IPE program improved both interprofessional and intra-professional knowledge and readiness of the students in geriatric clinical rotation. Moreover, students felt this activity had a positive impact on their understanding of interprofessional collaboration and patient health outcomes.

RECOMMENDATION

For further research, the authors suggest implementing interprofessional education of clinical rotation students based on more clinical situations in the hospital with longer time of patient improvement observation. Besides that, the authors suggest evaluating the long-term effect of interprofessional education on the professional development of healthcare students and their ability to work in a team.

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COMPETING INTEREST

The authors declare that there are no competing interests related to the study.

LIST OF ABBREVIATIONS

IPE	: Inter Professional Education
WHO	: World Health Organization
OECD	: Organization for Economic Cooperation and Development
UGM	: Universitas Gadjah Mada
IPCP	: Inter Professional Collaboration Practice

FM PHN : Faculty of Medicine, Public Health and Nursing
 CFHC : Community and Family Health Care

AUTHORS' CONTRIBUTION

Ide Pustaka Setiawan – Leading the proses of publication, developing research proposal, data analysis and writing first draft of publication manuscript
Fitriana - developing research proposal, adding manuscript of publication
Rilani Riskiyana - developing research proposal, collection data, data analysis, manuscript of publication
Tony Arjuna - developing research proposal, data analysis, manuscript of publication
Perdana Samekto – collecting data, data analysis
Emamadyaningrum - developing research proposal, collection data, data analysis, manuscript of publication
Vita Yanti Anggraeni – developing proposal, data collection
Eko Aribowo - developing proposal, data collection

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