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ORIGINAL ARTICLE

A MODEL OF INTERPROFESSIONAL EDUCATION IN THE COMMUNITY WITH FAMILY HEALTH APPROACH: PERSPECTIVES FROM INDONESIA

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ABSTRACT

There is no standardized model of interprofessional education (IPE) that is performed in community settings. This study aimed to develop and acquire suggestions for a model of IPE implementation in such environments. This study employed educational design research (EDR) with a qualitative research approach. Step 1 (Analysis and Exploration) was carried out through focus group discussions (FGDs) with students and instructors to explore their experiences with the IPE program, which then proceeds to Step 2 (Design and Construction) by developing a draft model. Eventually, Step 3 (Evaluation and Reflection) was carried out by conducting in-depth interviews with experts to obtain suggestions for the draft model. This study revealed three key themes from FGDs: 1) preparedness of students and families, 2) Coordination, and 3) Students' assessments. Based on in-depth interviews, the experts provided suggestions categorized into four themes: 1) Characteristics of Participants, 2) Detailed preparation and implementation, 3) Student assessment, and 4) Former thematic definition of health problems. The IPE model in a community setting was perceived as a positive learning experience, and several recommendations were added to increase its effectiveness. Further research is recommended to facilitate broader implementation of the model widely.

Keywords: *Community setting; family health approach; health professional; Interprofessional Education (IPE)*

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BACKGROUND

The World Health Organization (WHO) defines interprofessional education (IPE) as "an approach where students from two or more professions learn about, from, and with each other" (World Health Organization, 2010). Health professional students gain valuable learning experiences in their expertise areas of expertise, as well as opportunities to share knowledge and context, collaborate effectively, and engage in teamwork that imitates their future practices upon graduation (Reeves et al., 2016; Thistlethwaite, 2012).

Based on the aforementioned reasons, a growing number of health professional schools worldwide have implemented IPE programs in various settings, including classrooms, hospitals, families, and communities (Herath et al., 2017; (Randita et al., 2019). Several studies show that IPE positively impacts students by enhancing teamwork, promoting collaboration, improving coordination, patient management, and holistic intervention, as well as fostering strong communication skills and a clearer understanding of roles and responsibilities (Herath et al., 2017; Opina-Tan, 2013; Randita et al., 2019). Consequently, the innovative implementation of IPE resulted in students becoming more effective members of interprofessional team (Darlow et al., 2015; Kahaleh et al., 2015; Reeves & Barr, 2016).

When IPE is implemented in the community setting, , it should benefit both students and the patients they serve —whether

as individuals, families, or communities., This approach can enhance communication and teamwork among students while improving health outcomes for patients (Kristina et al., 2023; Lestari et al., 2020; Opina-Tan, 2013; Randita et al., 2019). Health institutions that are committed to implementing IPE in community settings should develop a curriculum in which that allows, students to witness the result of their efforts through improved health outcomes and sustained well-being of families and communities (Kristina et al., 2023; Opina-Tan, 2013). A collaborative approach to family health care through the implementation of an IPE program is essential for creating a more efficient workforce and achieving positive health outcomes. By involving interprofessional students, the health information provided to families will be more comprehensive, and families will have a greater role in addressing health issues and determining interventions (Keshmiri et al., 2020; Kristina et al., 2023). However, literature documenting the impact of IPE on families and communities is limited. Furthermore, to our knowledge, there is currently no such generic model of IPE implemented in the community that could assist institutions to establishing a similar program.

Four institutions in Indonesia—Universitas Diponegoro (UNDIP, Public University), Universitas Gajah Mada (UGM, Public University), Universitas Sebelas Maret (UNS, Public University), and Sultan Agung Islam University (UNISSULA, Private University)—have conducted IPE programs in the community setting for 3-year undergraduate health profession students with similar learning activities. These activities included: 1) Identifying family health needs; 2) implementing intervention to solve the identified health problems; 3) Monitoring and evaluating the result of the interventions; and finally 4) Reporting and discussing the findings. Based on these similarities, we developed a draft model of the IPE program in the community setting, utilizing a family health approach as the smallest unit in the community. Therefore, this paper aims to develop a model further and gather perceptions from stakeholder representatives to validate the model.

METHOD

Study design

This study employed educational design research (EDR), which consists of three steps: (1) analysis and exploration, (2) design and construction, and (3) evaluation and reflection (McKenney & Reeves, 2021). In Step 1, focus group discussions (FGDs) with students and instructors in each of the author's institutions was carried out to explore their experiences with the current IPE program used to develop the model. Additionally, a literature review was conducted on IPE studies in a community settings, following using six generic steps as guidance: formulating research questions, searching the literature, screening for inclusion, assessing the quality of studies, extracting data, and analyzing (Templier , 2015). Based on on the findings from Step 1, a draft model was developed for the implementation of IPE in a community setting (Step 2). Eventually, in-depth interviews with experts were conducted to acquire their opinions, feedback, and suggestions regarding the draft model (Step 3).

Sample/ Participants/ Informant

We involved 36 students and 24 instructors from four different institutions, each representing various subjects, in focus group discussions (FGD) during Step 1. The institutions included Universitas Diponegoro (UNDIP) with students from medicine from medicine, nursing, and dietetic students, Universitas Gadjah Mada (UGM) with students from medicine, nursing, and dietetics, Universitas Sebelas Maret (UNS) with students from medicine and midwifery, and Universitas Islam Sultan Agung (UNISSULA) with students from medicine and midwifery. This study used simple random sampling to select the students and instructors who had experience with the IPE program. In Step 3, seven experts from seven different institutions in Indonesia were invited for in-depth interviews. he limited number of institutions implementing IPE in Indonesia resulted in only seven experts participating in the interviews.

Data collection

Focus Group Discussions (FGDs) involving instructors and students were conducted at each of the four institutions where the authors served as the primary investigators in their institution. The participants represented various disciplines within each institution. Furthermore, in-depth interviews were conducted by TNK. Three days prior to the interviews, a digital copy of the draft model was emailed to the participants. The research team developed semi-structured questions to guide FGDs and in-depth interviews. Both FGDs and in-depth interviews were recorded, and the data were subsequently transcribed.

Data analysis

Qualitative data from both FGDs and in-depth interviews, as well as data from the literature review, were analyzed using content analysis to manually code and develop the themes with Ms.excel® (Braun & Clarke, 2006). Two raters [TNK and FYA], performed the qualitative analysis. After individually creating initial issues—such as identifying keywords, categorizing them, developing themes, and extracting meanings from the original notes notes—the team discussed anydiscrepancies were discussed in the team to reach a consensus.

Trustworthiness

Member checking is a method used to ensure the trustworthiness in qualitative research (Sandelowski , 1993). The team returned the results to the representatives of FGD participants in each institution to ensure that findings accurately reflected their ideas. Additionally, the result of the in-depth interviews was reviewed by a panel of experts for the same aim.

Ethical considerations

This research has obtained approval and ethical clearance from the Health Research Ethics Commission of the Faculty of Medicine at Universitas Diponegoro (No: 204/EC/KEPK/FK-UNDIP/VI/2021). All participants were informed about the study's process and signed a consent form before participating. They have the right to refuse involvement in the study, and their decision will not affect their academic scores, as the IPE program was completed prior to the commencement of the study. The identities of the participants were kept anonymous.

RESULT

Step 1: Analysis and Exploration

The literature review identified five key themes: IPE competencies, learning activities, assessment, enablers, and barriers to the implementation of IPE. In addition, FGDs were conducted separately with 36 students and 24 instructors across four institutions. Each student FGD includednine respondents, while each instructor FGD comprised six participants.

a. FGD with Students

Most students had a positive perception of the current IPE program in the community. They believed that community

members appeared trustworthy to the students and even requested for medicine when a family member fell ill.

> *"The family stated that we helped them with their health problem, but we can only request that they bring the patient to the health center, as because we do not have the authority to provide medication"*. (S3M FGD1 UNDIP)

The students also identified barriers to IPE implementation including the challenge of coordinating schedules among students from different study programs, facilitating communication between students and field instructors across various disciplines, the absence of, detailed guidelines for student activities, and the lack of a clear framework for student assessment.

> "*It is difficult to match schedule within our team or discussions and consultations with the instructor.".* (S2F FGD1 UGM)

> "*Our instructor is busy; there should be a fixed schedule for consultations".* (S1F FGD1 UNDIP)

> *"We did not know how we would be assessed. The score was solely determined by from our instructor."* (S5F FGD1 UNISSULA)

b. FGD with Instructors

All instructors particularly valued the currently specific activities in which students should monitor, evaluate, and present the results of their interventions.

> *"Their interventions' success or failure can be used as a valuable lesson learned for both the students and the field instructor".* (I3M FGD2 UNDIP; I6F FGD2 UGM).

FGDs between students and instructors l resulted in three key themes: 1) Student and family preparedness, 2) Coordination, and 3) Student assessments (see Table 1). These themes were used to enrich the model. Furthermore, a literature review was conducted on IPE competencies (Schmitt et al., 2011), learning activities and assessments (Hammick et al., 2007; Reeves et al., 2013; Thistlethwaite, 2012), as well as the enablers and barriers to the implementation of IPE in a community settings (Herath et al., 2017; Opina-Tan, 2013; Sunguya et al., 2014).

Table 1. Evaluation of Implementation of IPE from students and instructors (FGDs' result)

1. Students and family preparedness	Students felt that they needed to meet with their team to get to know one another and understand the learning objectives, including matching their schedules. *"We need to build a similar understanding of the objective of the IPE program and share our plans prior implementation*." (S2F FGD1 UNDIP, S4F FGD1 UGM, S1M FGD1 UNS) Both students and instructors were also impressed by the need for an appropriate introduction to the IPE program for the family. Therefore, they suggested using the initial home visit for trust-building between the students and family representatives, rather than immediately addressing family health issues.
2. Coordination	The students believed that the instructors should coordinate more frequently with the students to gain a similar understanding of their perspectives. *"I felt difficulty when we encountered health problems that were outside from my area of expertise*." (S3F FGD1 UNDIP, S2F FGD1 UNISSULA) *"Sometimes, I asked my colleagues from other disciplines to help me with students' cases"* (I2F FGD2 UNDIP)
3. Students' assessment	Most instructors agreed on the importance of self, peer, family member, group, and individual assessment. However, instructors from UGM were the only ones who did not agree to perform portfolio assessments. *Most field instructors need additional time to be ready to assist the students with their portfolios*. (I6F FGD2 UNISULLA) Moreover, most students and instructors also suggested that peer assessment should not be used as a summative evaluation. But, the main reason for this recommendation was that most students tended to assign high scores to their peers.

Step 2: Design and Construction

Based on Step 1, we developed a draft model for the implementation of IPE in a community setting. The model comprises four components: preparation, implementation, assessment, and program evaluation. The preparation part focuses on establishing partnerships such as community health centers and cadres, students, and instructors. One of the key activities in this part is coordinating with community health centers to identify focused topics and patients to be addressed. The Implementation part incorporates IPE competencies aligned with established frameworks, such as the Interprofessional Education Collaboration (IPEC, 2011) and the Canadian Interprofessional Health Collaboration (CHIC, 2010). This part also includes student activities, which encompass learning strategies and assignments tailored to the institution's design. The assessment part consisted of various methods and tools, while the program evaluation part included the timeline and participants' engagement. We refer to this model as Prototype 1.

Step 3: Evaluation and Reflection

In-depth interviews with seven experts from seven different health institutions (5 private and 2 public schools) yielded in a positive view of the draft model. Moreover, they suggested

involving nearby faculty if the institution offers only has one study program. The experts provided several opinions and advices that can be categorized into four themes: 1) Participants' characteristics; 2) Detailed preparation and implementation; 3) Students assessment; and 4) Previous thematic definitions of health problems (see Table 2).

Table 2. Issues raised by in-depth interviews with experts

1.	Participants' characteristics	Experts perceived that participant characteristics should be homogenous or that there should be a prerequisite for students' competencies to support effectiveness of teamwork. *"The students should be in a comparable semester. Therefore, the 3rd year of undergraduate students, as indicated in this model, are sufficiently prepared to participate in the program."* (E1, E2)
2.	Preparation and implementation the IPE program in detailed	Several suggestions regarding the preparation and implementation of the program should be outlined in detail. for example: 1. Conducting Instructor training for IPE preparation *"Instructors need to be trained before implementation for the same perception of activities."* (E5) 2. The head of government health officials or community health centers delivers a lecture at the seminar for preparation ✔ 3. The length of implementation was suggested to be at least for one semester ✔ 4. Work together with cadre to solve problems ✔ 5. The schedule of students' activities should be organized by the institution 6. Students should discuss the identified issues prior to meeting with their field-instructor
3.	Students' assessment	Experts suggested several aspects of assessment to strengthen the draft model, which mainly have been incorporate into the model. For example: 1. Assessing three domains that should align with IPE competencies ✔ 2. Assessment from cadre 3. Evaluation from a family member for students as part of the team. ✔ They also appreciate the self-assessment that has been put in the model. *"However, it should include self-reflection, as this can increase students' awareness of their ability to communicate and mobilize their family members*." (E3). Some different opinions regarding self-assessment was as follows: whether it should be conducted several times during implementation or only at the end of the program. Another suggestion was the adjustment of the % of assessment scores according to valuable community consideration.
4.	Former thematic definition of health problems	An expert in public health suggested that IPE should focus on specific health issues when selecting households for students to visit, such as child health, family planning, or maternal health. *"By focusing on a specific health problem, this program will yield good community outcomes."* (E6)

✔ *= The suggestions have already been stated in the draft model.*

Several suggestions from the experts were already aligned with our previous model (prototype 1), as indicated in the code ✔. For instance, the characteristics of participants from the instructors' perspectives were related to preparation part in Prototype 1 of the model.

Based on these results, we modified the model, as presented in Table 3. We coded an asterisk (*) to denote the recommendations from qualitative studies that were incorporated into to the model. Then, in the discussion section, we elaborate our decisions to include or exclude the suggested items.

Table 3. A revised generic model of IPE in the community with a family health approach

Preparation	**Partnership:** 1. Local Government Health Official and Community Health Centers (CHC) play a crucial role in obtaining necessary permissions and understanding current health issues, including government health programs within the community. 2. Cadres, the community health volunteers, operate under the coordination of the head of CHC. They are expected to collaborate with the students on home visits, identify family health problems, discuss and implement the possible interventions, and evaluate the outcomes. 3. If the faculty is willing to implement the IPE program but only has one study program, it recommended to seek collaboration with a nearby institution*

	Participants' readiness: 1. Students should possess the necessary competencies and skills to assist the community in improving their health. Students in semesters 6 and 7 would be well-suited for these activities. 2. Training of students in group dynamics to build relationships and align their vision and goals of IPE, including sharing schedules and other collaborative efforts.* **Instructor:** 1. The field instructor is drawn from the study programs that involved in the IPE program 2. One instructor facilitates three to four small groups of students from different study programs **Seminar prior to IPE implementation:** 1. Inviting the head of CHC to serve as a guest lecturer, discussing the health issues faced by the community in their area, as well as the current priorities of the local government health program 2. Objective of the Seminar: a. To describe the IPE program (IPE definition, objectives, competencies to be acquired by) both field instructors and students b. To explain a questionnaire developed to identify family health needs, including the screening of risk factors c. To explain how students will be evaluated d. Team building
Implementation	1. The competencies to be acquired in IPE are stated as follows: a. Understanding ethics and values b. Awareness of roles and responsibilities c. Communication skills d. Teamwork & Problem-solving skills 2. Small groups consisting 1-2 students from each study program will be assigned to one family. A small group of students of3-4 students should visit a family and collaborate with the cadre. 3. Student activities: a. Students engage in discussions with cadres to gain similarity understanding of the IPE program prior to home visits* b. Students should discuss the problems identified among team members and cadres before consulting with the instructor* c. The length of activities should sufficient to ensure that students achieve the results of their intervention, specifically regarding family outcomes and well-being. A minimum duration of 16 weeks, equivalent to one semester, is recommended. d. Home visit (minimum of 4): Family member schedules takes priority for home visits * 1) Home visit 1: Trust building with family representative*. 2) Home visit 2: Identification of family health needs. 3) Home visit 3: Implementation of integrated health intervention by considering empowering the family member. 4) Home visit 4: Monitor and evaluate the results of the intervention, including providing feedback and expressing their gratitude to the family. Finally, ask the family representative to complete the team assessment * 4. Consultation and discussion with the field instructor for a minimum of 3 times: a. Discussion regarding the health problems will be conducted to choose a priority health problem to be that will receive integrated, comprehensive, and holistic intervention. b. Discussion about the fluency or the effectiveness of the intervention, including potential obstacles that may arise. c. Presentation and discussion of the entire project including the results of the intervention
Students' assessments	Students are evaluated through by multi-source feedback: 1. Self-assessment, including self-reflection* 2. Peer assessment (formative assessment*) 3. Field instructor 4. Family representative (individual & group assessment*) 5. Cadre (group assessment*)

Program evaluation	1. The Institution should routinely evaluate at the end of each program to acquire direct information for the improvement of this IPE program 2. Resource persons for program evaluation: a. IPE coordinator b. Students c. Field instructors d. Family representative e. Cadre f. Head of PHC centre in the location area

** = recommendation from stakeholders (students, instructors, and experts)*

DISCUSSION

The study resulted in the model for implementating of IPE in a community setting. This model consists of four parts: preparation, implementation, assessment, and program evaluation. It represents an educational program, a community-based experiences, and an interprofessional learning experiences. We utilize seminars and training group dynamics as preparation before implementation. The seminar aims to emphasize the importance of interprofessional teamwork, provide an overview of current health issues in the community, increase awareness of the health paradigm approach, and explain the principle of collaboration. Involvement in a training of IPE helps participants to be ready to participate in an IPE program and have a good perception on the program (Darlow et al., 2015; Sukaesih et al., 2022).

As outlined in this model, the community's IPE program should collaborate with the local health authorities. The program desires to be executed more efficiently and aligned with a government health initiatives. Another study also reported successful collaboration with the mayor's and the governor's office to get funding and ensure the sustainability of the agenda for the immigrant population (Ryan et al., 2015). The university must strengthen its relationships with the community and cultivate new partnerships (Oosterbaan-Lodder et al., 2023). In this model, a partnership was also established with a community health volunteer (cadres)., who are familiar to and respected by a family members, potentially enhancing the program's success.

Based on the results of FGDs in Step 1, we have put several valuable suggestions for the development of the model, including conducting training on group dynamics to foster students' relationships. This step is particularly important if the students had not connected before this IPE program. The institutions that have implemented IPE through a series of educational experiences and longitudinal IPE implementation may not find itnecessary to conduct such training (Reeves & Barr, 2016).

The students reported that the community had lost trust in them and asked for therapy, even though the students were still in the their sixth semester. This issue may stem from limited communication between students and families, as reported in several studies (Lestari et al., 2020; Opina-Tan, 2013). The students did not explain that the IPE program focused on preventive and promotive interventions, considering that medical students in their sixth semester have not yet assumed roles in patient care. Furthermore, health coverage in Indonesia is not yet optimally implemented. According to Agustina et al. (2019), the implementation of Universal Health Coverage (UHC) in Indonesia has succeeded through a single payment system that addresses all health problems. The government covers the costs for low-income families; however, the challenges arise for the middle-income group, which is not covered by the government and cannot afford healthcare. This situation prevents them from joining at UHC and requiring access to health services promptly. Consequently, they expect to receive medicine or therapy when students visit them.

Our study revealed that most students and field instructors suggested that peer assessment should not be used as a summative evaluation, as students tend to give high scores to their peers. However, peer assessment encourage students to take responsibility for evaluating their peers' work. This process allows them to both l provide and receive feedback, which can potentially increase their motivation and engagement in performance (Oktay et al., 2017).

During Step 3, we received a suggestion from an expert to add self-reflection in addition to self-assessment. Both self-assessment and self-reflection enable the students to evaluate their work and contemplate the progress of their activities, fostering their engagement and sense of responsibility for their program (de la Croix & Veen, 2018; Richard et al., 2019; Torres et al., 2020). Thus, we agreed to add self-reflection to the final model.

Another issue raised during the discussion with the expert was whether self-assessment should be conducted multiple times throughout the implementation or only at the end of the program. When students assess their learning and engage in self-reflection self-reflect during program, they gain better understanding of their abilities, including their weaknesses (Richard et al., 2019; Torres et al., 2020). Furthermore, the instructor will obtain vital information that can assist the students in planning their necessary learning.

This model is implemented in a community setting using a family health approach. This means that students within the health paradigm should assess the health of all family members, including identifying possible risk factors that may influence their health conditions. Hence, the suggestion from an expert to contain "the former thematic definition of health problems" is not incorporated into the model, as we believe that the students within the health paradigm should have experience with any health issues that may arise within the attached family unit. Besides, the actual health needs of the family will drive the integration of teamwork. Consequently, for this model, the students should already possess sufficient competencies to assist and empower the family (Kristina et al., 2023). Furthermore, innovative IPE that includes public health concepts is essential for preparing healthcare students to address the social determinants of health they will encounter in their future practice (Herath et al., 2017). Thus, this model aligns with the health paradigm.

This model was also developed within the context of low-to middle- socioeconomic communities, as implemented in our institution and several others. Based on our experience, the members of low-socioeconomic communities continue to face various health needs; however,, but they are relatively easy to mobilize and empower (Kristina et al., 2023). The

model also stated that the students should monitor, evaluate, and present the results of their interventions, particularly regarding patient outcomes. Assessing the impact of IPE programs on health outcomes is challenging due to costs, confounding factors, and a lack of clear outcome measures and suitable evaluation tools (Hill et al., 2021; Thistlethwaite, 2012). The final presentation, which may determine the success or failure of their intervention, can serve as a valuable learning experience for students, family members, field instructors, and the institution. This model can be categorized as a generic IPE program, designed to provide a collaborative approach as a better learning process in identifying health problems, executing health interventions, and evaluating the result of those interventions through the active participation of family members. This approach will increase students' awareness of teamwork while simultaneously allowing them to practice communication and problem-solving skills.

The strength of this model originated from several institutions with experience in conducting IPE programs within the community. Furthermore, it is combined with the results of a self-program evaluation. Finally, experts also provided several valuable opinions and suggestions, including the recommendation to involve nearby faculties if the institution offers only one study program. This suggestion aligns with another study that highlighted the importance of partnering with other institutions to provide IPE when the institutions have limited student enrolment or few professional training programs, or when larger institutions do not offer such programs (Oosterbaan-Lodder et al., 2023). Furthermore, this model should also be extensively field-tested. The applicability of the IPE model should be further examined to determine whether it can be used as a reference for implementing and evaluating an existing IPE program in community settings.

There were no negative opinions regarding the model. Instead, this model was supported by all expert participants in this study. However, further research is necessary to ensure that the model can be widely accepted. Thus, a limitation of this study lies in the location of this study (Indonesia), which may restrict the generalizability of the model.

CONCLUSION AND RECOMMENDATION

The model of IPE in the community setting, utilizing a family health approach, has been perceived as a positive learning experience. It provides students with direct experiences for collaborative learning alongside other health students, as well as the chance to deliver direct care to patients and their families. Several suggestions were added to enhance the value of this program. Further studies are planned to implement the model and conduct both quantitative and qualitative evaluation to ensure widespread acceptance. This will include an investigation into the impacts of IPE model implementation on patient outcomes and an assessment of patients' perceptions regarding model's implementation.

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