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Health Students' Perceptions of Acquired Interprofessional Education Competencies in Community Settings

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ABSTRACT

Implementing interprofessional education (IPE) in a community setting is beneficial for both students and the community. However, there is a lack of understanding regarding how IPE competencies are acquired. This study assessed students' perceptions of IPE implementation in the community across multiple institutions. Additionally, we explored the experiences of students and instructors during IPE implementation. The study employed a mixed-method design. Students from four institutions with IPE programmes in a community setting were asked to complete a standardised questionnaire covering four domains related to learning outcomes: (a) understanding ethics and values, (b) roles and responsibilities, (c) communication, and (d) teamwork. A Kruskal-Wallis test was conducted to identify differences in students' perceptions across institutions. Furthermore, we used thematic analysis to examine data from focus group discussions (FGDs) with students and lecturers to gain deeper insights into their experiences in acquiring competencies and implementing IPE. Of 1,054 participants from four institutions, 970 returned the questionnaires, including 566 medical, 135 nursing, 145 nutrition, and 126 midwifery students, for a response rate of 92%. All students held positive perceptions of the competencies, though perceptions varied across institutions. The qualitative study revealed that both students and instructors valued the experiences of acquiring competencies, which also benefited community members. Students have positive perceptions of the competencies gained through IPE implementation in a community setting. Developing feasible assessment methods and tools across all institutions is essential. Additionally, the programme enhances the well-being of both students and the community.

Keywords: *Community setting, Competency, Health profession, Interprofessional education, Learning outcomes*

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INTRODUCTION

Interprofessional education (IPE) teaches students from different professions to learn together, preparing them for 'collaborative practice-ready' roles and improving their ability to meet local health needs (1). Consequently, there is a growing demand for health professional institutions to incorporate IPE into their curricula. Numerous studies have shown that IPE benefits students by promoting collaboration, improving teamwork, boosting communication confidence, and clarifying roles and responsibilities (2–4).

In implementing IPE, it is crucial to consider the context, mechanism, outcomes, and their interactions as guiding principles (5). For instance, a work-based setting within a community can serve as a context for IPE implementation, particularly in primary health care (6). Several studies have been conducted on IPE implementation in community settings in low- and middle-income countries (LMIC) to assess its impact on students' interprofessional learning. Research in Indonesia and the Philippines, for example, has highlighted the benefits of IPE in community settings, including enhancing communication skills, providing unique and direct learning experiences through community service, and developing cultural competency (7–9).

Another critical factor in delivering IPE is specifying learning outcomes. Various frameworks of IPE competencies have been adopted by Health Professions Education (HPE) as learning outcomes, including the Canadian Interprofessional Health Collaborative (CIHC), Interprofessional Education Collaboration (IPEC), and Interprofessional Team Collaboration (Sunnybrook). These frameworks have identified key competencies that serve as benchmarks for evaluating students' development in IPE, including (a) roles and responsibilities, (b) ethics and values, (c) conflict resolution, (d) communication, (e) collaboration and teamwork, and (f) shared decision-making (10–12). However, the development and implementation of IPE competency frameworks have predominantly occurred in clinical settings (13–16). Therefore, these findings may not be directly applicable to other settings, such as community environments, and may require further adaptation and evaluation of their implementation (8,17).

Several Health Professions Education (HPE) programmes in Indonesia have adopted IPE as recommended by the Ministry of National Education, and it has become a criterion for HPE accreditation (18). For example, the Faculty of Medicine at Universitas Diponegoro (UNDIP), the Faculty of Medicine, Nursing, and Public Health at Universitas Gadjah Mada (UGM), the Faculty of Medicine at Universitas Sebelas Maret (UNS), and the Faculty of Medicine at Islamic University Sultan Agung (UNISSULA), located in the Jawa Tengah and Yogyakarta province, have implemented IPE in community settings during the preclinical or academic stage. Both students and community members have expressed appreciation for the programme, with students effectively empowering community members to address their health issues (17). However, challenges have been reported in achieving interprofessional competencies, particularly in team functioning and communication (8,19).

Although students valued the programme, certain difficulties persist, including a lack of understanding of how interprofessional competencies as learning outcomes in the community setting have been acquired. The acquaintance process was under-researched, even though it provides evaluation data for educators to develop a better programme in the future, including learning strategies and assessment. Therefore, this study aimed to identify students' perceptions of the competencies they acquired during IPE implementation in a community setting. Moreover, students' and instructors' experiences with IPE implementation were also identified.

METHODS

Setting

Four institutions, comprising three public medical schools and one private medical school, located in the provinces of Jawa Tengah and Yogyakarta, Indonesia, participated in this IPE study. These institutions were selected due to their nearly identical IPE programme activities conducted in community settings. A group of students from different disciplines was assigned to either a family or a community. The faculty formed the groups. The programmes commenced with identifying each family member's health needs during a home visit, with a pregnant woman serving as the family representative. This was followed by health interventions based on the identified health issues, culminating in students' evaluations and presentations of their intervention outcomes. Furthermore, these institutions share similar learning outcomes aligned with the IPEC 2011 framework, which includes (a) roles and responsibilities; (b) ethics and values; (c) communication; and (d) teamwork. Table 1 provides a detailed description of IPE implementation characteristics across the four institutions.

Table 1: The characteristics of IPE implementation in four institutions

Institution	Length of the programme	Disciplines	Learning activities	Assessment method
Faculty of Medicine, UNDIP	16 weeks	6th semester of medicine, nursing, and nutrition students.	• Lecturing • Conducting team building • Attaching to family • Reporting the interventions in the seminar	Multi-source feedback (self-peer assessment, assessment from instructors).
Faculty of Medicine, UNS	32 weeks (2 semesters)	4th and 5th semesters of medical and midwifery students.	• Lecturing (semester 4) • Conducting a project (semester 4) • Attaching to a family (semester 5)	Multi-source feedback (peer assessment, assessment from instructors).
Faculty of Medicine, Public Health, and Nursing, UGM	7 semesters	1st–7th semesters of medicine, nursing, and nutrition students.	• Conducting team building (semester 1) • Attaching to a family (semester 2–3) • Giving simple health education to the family (semester 4) • Assessing health problems of a community (semester 5) • Giving interventions to families (semester 6) • Evaluating and reporting the results of the interventions (semester 7)	Multi-source feedback (self-peer assessment, assessment from instructors).
Faculty of Medicine, UNISSULA	8 weeks	Medicine, nursing, and midwifery students.	• Lecturing • Attaching to a family	Multi-source feedback (self-peer assessment, assessment from instructors).

Design

They used a mixed-methods approach, administering a self-administered questionnaire to students to collect quantitative data and conducting a focus group discussion (FGD) to collect qualitative data.

Participants and Sampling

All students (1,054 students) enrolled in the IPE programme at the institutions were included in the study. We employed total population sampling to recruit participants. Furthermore, students and instructors who were willing and available were invited to participate in the FGDs.

Instruments

Students' perceptions of their experiences were assessed using a self-administered questionnaire developed by the authors from several references and adapted to local conditions. Previous questionnaires, such as the Team Work Scale (TWS), Readiness for Inter-Professional Learning Scale (RIPLS), Interdisciplinary Education Perception Scale (IEPS), Inter-professional Collaborative Competencies Attainment Survey (ICCAS), Dundee's Reading Educational Environment Measure (DREEM), and Attitudes Toward Inter-professional Health Care Teams (ATIHCT), served as references (20–25). The questionnaire, consisting of 26 questions, was subsequently divided into four components of learning objectives aligned with IPE competencies: seven statements on ethics and values, six on roles and responsibilities, six on communication, and seven on teamwork. A Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used for responses. Therefore, the maximum score for ethics and values, roles and responsibilities, communication, and teamwork is 35, 30, 30, and 35, respectively. Table 2 describes the statements in each component.

Table 2: The statements in the four components of IPE competencies

No.	Statement
	Ethics and values
1.	Individuals in the team from other professions appreciate the work of our profession, as do individuals in my profession appreciate other professions' work.
2.	I can give input to team members with respect.
3.	I can respectfully accept input given by other members in the team.
4.	Learning in IPE helped develop my confidence.
5.	Learning in IPE helped develop my competence.
6.	My problem-solving skills developed well after taking part in the IPE programme.
7.	I could take advantage of the IPE programme.
	Roles and responsibilities
8.	The health professional team could better identify family health needs and problems through the IPE approach.
9.	The community would be more benefited if the healthcare teams from various professions work together.

(*continued on next page*)

Table 2. (*continued*)

No.	Statement
10.	I was able to identify and explain my abilities and contribution to the IPE team.
11.	I understand the contribution and role of other health professions in the team.
12.	I learned many things in IPE that would be relevant to my future career as a health worker.
13.	I was responsible for my contribution in the team.
	Communication
14.	Each team member can communicate ideas and opinions.
15.	I felt easy to talk with other professions in the team.
16.	The team could resolve differences of perspective without causing disputes.
17.	Team members communicated openly with the whole team.
18.	Team members could assertively provide input to other members.
19.	Address team conflict in a respectful manner.
	Teamwork
20.	The skill of working together in teams is vital for the learning of health profession students.
21.	Learning together and sharing before and after licensing will help me to become a better worker in the team.
22.	Intervention planning for families is formulated together in the team.
23.	The interprofessional approach makes interventions/care more efficient.
24.	The workload was shared among members of the team.
25.	Team members collaborated with each other.
26.	Health workers who work in teams are more responsive to family needs in terms of emotional and financial aspects.

Prior to data collection, the questionnaire underwent validation and reliability testing. Initially, content validity was assessed by soliciting feedback from experts in medical education and community-based education, who concurred with the statements but suggested language revisions for clarity, such as replacing 'the students' with 'I' to emphasise personal responsibility.

The second construct validity test involved a comprehensive analysis of the item-total correlations using Pearson product-moment correlations. The scores for the seven statements on ethics and values ranged from 0.502 to 0.835, indicating a strong correlation. In the section on roles and responsibilities, scores ranged from 0.472 to 0.863, and in communication, from 0.698 to 0.917, demonstrating a robust relationship. The scores for teamwork ranged from 0.443 to 0.867. All scores exceeded the threshold of 0.3 ($r \geq 0.3$), providing strong evidence for the validity of all statements.

The third test assessed reliability, yielding Cronbach's alpha coefficients of 0.839, 0.800, 0.908, and 0.801, indicating high internal consistency across the four domains of ethics and values, roles and responsibilities, communication, and teamwork. The results confirmed the reliability of the questionnaire.

Data Collection

Students participating in the study were required to provide consent by agreeing to and signing the informed consent form along with the questionnaire. We collected the data after the IPE programmes had finished. Subsequently, participants were instructed to complete an online, valid and reliable self-administered questionnaire. Additionally, FGDs were conducted with 8–10 student representatives from each programme. Moderators facilitated the FGDs, who posed several questions developed by the research team. The questions addressed students' perspectives on IPE, including its usefulness and learning outcomes; the challenges encountered in acquiring competencies; strategies to overcome these challenges; and participants' experiences during IPE implementation, both positive and negative. Furthermore, 8–10 lecturers representing each institution were involved in FGDs during which similar questions were posed.

Data Analysis

The quantitative data were analysed by calculating the mean and frequency distribution. Given the data's abnormal distribution, we employed a Kruskal-Wallis test to examine differences in students' perceptions across disciplines. The qualitative data obtained from the FGDs with students and instructors were subjected to thematic analysis, following the six-step process outlined by Braun and Clarke (26): familiarisation with the data, generation of initial codes, identification of themes, review of themes, definition of themes, and summarisation of results. FYA and TNK identified initial codes, which were then used to develop categories. Subsequently, key themes were identified by examining and organising these categories. All authors engaged in discussions to reach a consensus on the final themes. Due to the manageable size of the data, no software was utilised for the analysis. Each theme was supported by quotes, which were coded, for instance, as A1Md1 (student, no institution [UNDIP], discipline (Medicine), number of participants).

RESULTS

In this study, 970 out of 1,054 students from four universities participated, representing four disciplines: medicine, nursing, nutrition, and midwifery, resulting in a response rate of 92%. Table 3 provides a detailed description of the participants categorised by institution and discipline. Notably, except for UNISSULA, the majority of participants were medical students.

Table 3: Description of participants (n = 970)

Study programmes	Number of participants, n (%)				Total
	UNDIP	UNS	UGM	UNISSULA	
Medicine	220 (22.7)	169 (17.0)	127 (13.1)	50 (5.2)	566 (58.4)
Nursing	77 (7.9)	0 (0.0)	58 (6.0)	0 (0.0)	135 (13.9)
Nutrition	109 (11.2)	0 (0.0)	34 (3.5)	0 (0.0)	143 (14.7)
Midwifery	0 (0.0)	68 (7.0)	0 (0.0)	58 (6.0)	126 (13.0)
Total	406 (41.9)	237 (24.4)	219 (22.6)	108 (11.1)	970 (100.0)

Table 4 presents student perceptions regarding IPE competencies following the programme's implementation. The findings of this study indicate that the majority of students held positive perceptions of the competencies they acquired, although students from UNDIP reported slightly lower scores. Furthermore, variations in students' perceptions of the acquired competencies were observed across different institutions.

Table 4: The differences in students' perceptions of acquired IPE competencies based on institutions (n = 970)

IPE competencies	Maximum score	Mean of students' perceptions				*p*-value
		UNDIP	UNS	UGM	UNISSULA	
Ethics and values	35	26.08 ± 3.896	28.09 ± 3.402	28.73 ± 2.897	28.86 ± 4.687	0.000*
Roles and responsibilities	30	22.47 ± 3.452	24.61 ± 2.898	24.30 ± 2.613	24.56 ± 3.792	0.000*
Communication	30	21.12 ± 3.797	23.89 ± 3.025	22.44 ± 3.237	21.80 ± 3.655	0.000*
Teamwork	35	26.68 ± 4.414	28.50 ± 3.521	29.97 ± 3.067	27.19 ± 5.006	0.000*

Notes: *Kruskal – Wallis test; Differences in students' perceptions (*p*-value < 0.05)

The qualitative data from FGDs with students and field instructors revealed several themes, including the acquisition of IPE competencies, the benefits of IPE implementation, and the challenges encountered during implementation.

Theme 1: Acquired IPE Competencies

Understanding the roles and responsibilities of group members

Several medical students at UNDIP encountered challenges related to role ambiguity when attempting to implement interventions. In contrast, it is noteworthy that other students did not perceive these circumstances as problematic, highlighting the variability of experiences within healthcare settings.

> Our role in the community was almost similar, i.e., to implement disease prevention and health promotion, which can be used to increase the quality of our collaboration. (A1Md1)

Students from UNISSULA effectively addressed the challenge of role ambiguity by assigning roles to team members based on their individual competencies and professional responsibilities. This approach offers a promising model for fostering effective collaboration in healthcare environments.

> We divided our roles based on our professions, for instance, midwife students focused on pregnancy and children's health while medical students focused on adult and elderly health. (A4Md1)

Communication

Instructors have observed that IPE programmes, when implemented within community settings, facilitate the development of students' communication skills with community members from diverse socioeconomic and educational backgrounds. Additionally, these programmes provide students with opportunities to engage with peers from various disciplines, thereby enhancing their teamwork competencies in addressing family health issues.

> Students got experience in communication with other team members in a group and with the patients and families. (B2Ns3)

> My communication skills increased in a team, especially with the family in the community. (A3Nt2)

Teamwork

Students perceived that a leader should bear greater responsibilities. Consequently, various methods were employed to select the group leader, including mutual nomination, lottery, selection based on the facilitator's profession, or consideration of gender. Notably, students from UNISSULA consistently selected a medical student as their leader. Certain dominant students frequently aspired to leadership roles, particularly in problem-solving and decision-making. In instances of conflict among students, resolution was typically achieved through team discussions. Interestingly, some groups chose to ignore conflicts until their projects were complete.

> We changed the leader in each stage, so all students had experiences being a leader. (A1Nt5)

> Mostly, the leader was a medical student, because in our opinion, medical students have more capability in problem solving and decision making. (A4Mv1)

Theme 2: Benefits of the IPE Programme

Value of IPE implemented in the community

Students generally perceive that IPE programmes within the community are highly valuable, particularly for enhancing their communication skills with other professionals and community members, as well as for applying their knowledge to address real-world health issues. Additionally, they noted that IPE facilitates training in social functions, broadens their understanding of the roles of various health professions, and provides opportunities to engage with stakeholders such as heads of primary health centres and community cadres. Furthermore, students reported increased opportunities for collaboration with peers from other professions and with the community.

> The programme is useful for us. We have opportunities for having communication with our friends with different disciplines, families, and the community. (A3Md2)

> Besides, we have experience coordinating with other sectors, such as a head of Community Health Centre (Puskesmas) and caders. (A3Ns1)

Family benefits

According to the students, most family members welcomed them warmly, particularly when accompanied by primary health care providers. Several interventions were also perceived as advantageous for family members, including health education on antenatal and postnatal care, health promotion, and disease prevention, such as preparing nutritious meals for children.

> I think the family has benefited from the IPE; they also showed enthusiasm for our intervention, and there were changes in behaviour, especially towards visiting the

> community health centre for ANC, and they decided to deliver in that centre rather than with a traditional healer. (A3Ns7)

Students also felt that community members, who were predominantly from poor families, should be given small gifts from the students as a token of appreciation for their cooperation and hospitality.

> A mother from a poor family asked me what she would get from this programme; therefore, as a way to say thanks for their cooperation at the end of this programme, my team gave fruit and baby stuff for this family to meet their basic needs. (A3Md4)

Theme 3: Challenges During the Implementation

There were some problems faced during the implementation:

Scheduling

Most students perceived scheduling as the most common problem they encountered, but some groups solved it through open communication and adjustments.

> We have problems in scheduling visitation with the family and discussing in a group. (A4Md1)

> My schedules did not match with the students' schedules; it troubled us to discuss and to have supervisions. (B2Md1)

Assessment

Students from UNDIP and UGM expressed concerns that peer assessment does not accurately reflect students' actual performance, as all students received similarly high scores. In contrast, students from UNS proposed that peer assessments should be utilised solely for formative purposes. An instructor from UNDIP also mentioned that peer assessment is recommended, as it will provide an overview of how students perform as a team.

> I don't think that peer assessment is a suitable method to assess us; we pretend to give high scores for our friends. (A1Nt4)

> I agreed with a self-assessment method; however, it will be better to use it as a formative assessment without considering the final score. (A2Md4)

> In my opinion, peer assessment should be conducted; it shows how students' performance in a team. (B1Md2)

Families' expectations

Students recognised that their family members held high expectations of them, such as administering medication when a family member became ill. Nevertheless, the students were only able to provide education, advice, and/or companionship.

> Family expectations were too high because when medical students visited their house, they were expected to cure their disease. (A4Md3)

> I ensured that students provided promotive and preventive interventions, such as health education. (B1Ns3)

Cultural considerations

According to student reports, the majority of mothers serving as family representatives preferred home visits conducted by students of the same gender. This preference-imposed limitations on students of different genders. A student explained that there was a community stigma associated with home visits, as such visits were perceived as indicating health issues within families.

> The mother preferred to be visited by female students. (A4Mv3)

> I felt that the mothers in the beginning had difficulty communicating with us because they thought that we wanted to find something wrong with the family's health behaviour. (A2Ns2)

Relationship with the middle socioeconomic family

Students encountered challenges when engaging with families of middle socioeconomic status, as these families perceived themselves to be in good health. The students observed that, although the families appeared healthy, there was a need for lifestyle improvements. It was suggested that IPE programmes might be more effectively implemented in communities experiencing low socioeconomic conditions.

> We faced difficulties in approaching the families because they felt healthy, while we found that their healthy behaviour needed to be improved. (A1Nt2)

DISCUSSION

The findings indicate generally positive perceptions among students, although there are disparities in perceptions of students' attainment of IPE competencies across institutions. Qualitative data corroborate that both students and instructors believe that students have acquired these competencies. Furthermore, participants expressed appreciation for the programme, noting its benefits for both students and the community. However, challenges were encountered during implementation, which will be addressed in subsequent recommendations. The following paragraphs will elaborate on these themes.

Acquired IPE Competencies

The findings of this study indicate that students hold positive perceptions of their attainment of competencies. This can be attributed to their direct experiences in communicating with the IPE team and the community. The literature suggests that students typically learn the attitudes, norms, values, and practices of their discipline through tacit observation of staff behaviour (6,9). However, when students encounter discipline-bound stereotypes and communication issues in practice, these may significantly impact their perceptions of collaboration. The qualitative findings reveal that students believe they can enhance their communication and collaboration skills with team and community members through activities such as interacting with community members, families, health activists, healthcare professionals, and supervisors; engaging in group discussions; and understanding social and cultural phenomena. Previous studies have also reported that health professional students expressed satisfaction with their collaborative practice during IPE and improved their communication and collaboration skills through participation in community-based interprofessional education programmes (8,17).

Some students noted role blurring unclear roles and responsibilities within the group. Research indicates that role blurring can affect communication and teamwork in interprofessional teams, making it more challenging to achieve interprofessional outcomes (27,28). Therefore, considering students' roles, sharing roles, and working, discussing, and collaborating in a team are strategies to avoid role blurring and to build and strengthen collaboration and teamwork (28). Additionally, task distribution based on professional roles aids in understanding roles within an interprofessional team for each profession (28). The findings also demonstrate that students' perceptions of achieving IPE competencies vary between institutions. This variation may be explained by differences in institutional processes, including implementation duration and the learning strategies employed. The programme's duration, whether measured in hours, days, or over a year, combined with various educational activities such as IPE lectures, workshops, and seminars, and the diversity of participants, contributes to the programme's heterogeneity, influencing its outcomes and overall effectiveness (28,29). Therefore, creating a universal model for IPE implementation within community settings is essential, covering preparation, execution, assessment, and evaluation (30). This approach assists the IPE coordinator in designing and implementing an IPE programme in a community setting, ensuring consistency and the potential to evaluate outcomes.

Benefits of the IPE Programme

Within IPE programmes situated in community settings, students engaged with authentic family health issues and collaborated with other professionals to provide education and/or empower family members. IPE facilitated students' recognition of the necessity to collaborate with other health professionals to address family and community health needs. Furthermore, the four competency domains demonstrated significantly positive perceptions, indicating effective communication among team members. Effective communication influences problem-solving and teamwork, reinforces values and ethics, and clarifies students' roles and responsibilities (31). Based on the team-building model, effective team building occurs when goals and visions are clearly communicated among team members, roles and responsibilities are clarified, and interprofessional relationships are cultivated (32). Additionally, students reported understanding professional identity, managing interprofessional dynamics, and integrating teamwork upon completing IPE courses (8,33,34).

Moreover, the IPE programme offers significant benefits to families. According to the students, families receive health education on topics such as pregnancy, health promotion, and disease prevention, including preparing nutritious meals for children. This observation aligns with previous research indicating that a combination of community-based education and IPE enhances health outcomes, such as increasing knowledge about children's nutrition (17).

Challenges of IPE Implementation

The findings indicate that families in the middle socioeconomic stratum often face educational barriers, even though they perceive their health status as adequate, even when lifestyle improvements are needed. Additionally, students encounter challenges stemming from familial expectations to provide medical care. The precise selection of subjects in community-based education is crucial for achieving educational objectives. Prior research has demonstrated that when community clients are appropriately selected, the community

derives significant benefits from the educational activities (17). Short-term advantages include enhanced service delivery, reduced hospital referrals, increased home visits, improved community-oriented primary health care, better patient communication, and heightened professionalism among healthcare practitioners. Long-term benefits encompass improved teaching methodologies through strengthened relationships with academic institutions and increased student familiarity with the healthcare system (35).

In this socioeconomic context, students deemed it appropriate to present a gift to the family as a token of appreciation for their cooperation during the programme. The faculty permitted the students to offer the gift and support the intervention, such as providing baby supplies, while the students delivered health education on newborn care. Community characteristics in middle socioeconomic status include low financial status and limited educational attainment (36). Consequently, presenting a gift to the family is anticipated to enhance cooperation between the students and the family (17).

Another challenge found in this setting is patients' preference for being visited by students of the same gender. Patient preferences for gender-concordant healthcare providers are influenced by cultural, social, and clinical contexts. For example, female patients prefer to have female obstetricians, while male patients prefer to have male urologists for intimate assessment and intervention (37). Additionally, comfort is another reason for patients' gender preference, and it is right for patients to choose their health professionals (38).

Consistent with many studies, coordinating students' schedules is often seen as a major challenge because each study programme has its own unique timing needs. In contrast, scheduling for home visits is easier, as students can discuss and modify plans with their families. Like most interprofessional education activities and curricula, logistical scheduling remains an ongoing challenge. Some research has shown success with innovative approaches, such as using e-learning for discussions and setting clear goals and timelines for the curriculum (39,40).

Another reported challenge is the perception among students and field instructors that peer assessment is ineffective method for evaluating student achievement, as students tend to award high scores to their peers. This peer evaluation method may cause discomfort, particularly in Asian cultural contexts, where maintaining face is important, and negative feedback is discouraged, thus rendering peer assessment less objective (41). Some students in this study suggested that peer assessment should be limited to formative assessments for feedback purposes. One field instructor proposed that peer assessment could still be employed to evaluate teamwork, an IPE competency, and to enhance student awareness of effective collaboration. Furthermore, as assessment drives learning, students are more likely to engage in learning when they are regularly assessed (42).

Study Limitation

The variability in the duration and study programmes of IPE implementation across the four institutions posed challenges in generalising the study results. Nevertheless, through conducting a multicentre study, we identified several common issues encountered during IPE implementation across different communities, which serve as valuable lessons. Consequently, it is crucial to develop strategies to standardise IPE programmes across institutions. This includes creating assessment methods and tools that are practical for evaluating students' competencies across all institutions.

Another limitation concerns the challenges of collecting qualitative data through FGDs. The FGDs were conducted across various institutions and with different leaders, which introduces the potential for bias. To address this issue, the research team developed a comprehensive FGD guide and engaged in collaborative discussions. Furthermore, an online briefing was conducted prior to data collection to ensure that all FGD leaders shared a consistent understanding of the FGD procedures.

In light of the quantitative data analysis, it is recommended to perform a post-hoc Kruskal-Wallis test to determine which institution among the four shows the most significant differences in achieving IPE competencies. Nevertheless, this test was not executed in the present study due to its complexity and the potential for error, which often results in its infrequent recommendation in practice (43). Furthermore, variations in learning activities, programme duration, and student participation complicate the identification of institutional differences.

CONCLUSION

According to student perceptions, IPE learning objectives can be effectively achieved when implemented in a community setting, although variations exist across institutions. Furthermore, IPE in a community context benefits not only students' educational development but also the community's well-being. It is recommended to develop practical assessment methods and tools to evaluate students' progress in IPE competencies.

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ETHICAL APPROVAL

The Faculty of Medicine Universitas Diponegoro Ethics Committee approved the study (No.339/EC/KEPK/FK-UNDIP/IX/2022).

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