

Original Research Paper

Online Interprofessional Education (IPE) evaluation for healthcare students as Interprofessional Collaboration (IPC) optimization

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Abstract

Optimal health services require interprofessional collaboration between all health workers. Collaborative practice learning in the field of Health Education or known as Interprofessional Education (IPE) is essential to be taught to health students as a provision to prepare themselves to work with other health professions. Currently, conventional IPE learning is starting to shift to more flexible online IPE. The objective of this study is to evaluate the implementation of online IPE. This research employed a qualitative phenomenological approach involving 12 IPE facilitators and 4 students. Collecting data were performed by applying focus group discussions (FGD) and semi-structured interviews, and analyzed with thematic analysis. The results of this study indicate that online IPE is able to facilitate interprofessional learning for health students. Technical barriers are the main obstacles in implementing online IPE. Training for online IPE facilitators and the design of an attractive and interactive online IPE curriculum are required so that online IPE runs optimally.

Keywords: Online; interprofessional collaboration; interprofessional education; health student

Evaluasi Interprofessional Education (IPE) daring bagi Mahasiswa kesehatan sebagai optimalisasi Interprofessional Collaboration (IPC)

Abstrak

Pelayanan kesehatan yang optimal membutuhkan Interprofessional collaboration (IPC) antar semua petugas Kesehatan. Pembelajaran praktik kolaborasi dalam bidang Pendidikan Kesehatan atau dikenal dengan *Interprofessional Education* (IPE) penting untuk diajarkan pada mahasiswa kesehatan sebagai bekal mempersiapkan diri bekerja dengan profesi kesehatan yang lain. Saat ini pembelajaran IPE konvensional mulai beralih ke IPE daring yang lebih fleksibel. Penelitian ini bertujuan mengevaluasi pelaksanaan IPE daring. Penelitian ini menggunakan pendekatan kualitatif fenomenologi dengan melibatkan 12 fasilitator IPE dan 4 mahasiswa. Pengambilan data dengan *focus group discussion* (FGD) dan wawancara semi terstruktur, dan dianalisis dengan tematik analisis. Hasil penelitian ini menunjukkan bahwa IPE daring dapat memfasilitasi pembelajaran interprofessional bagi mahasiswa kesehatan. Hambatan teknis menjadi hambatan utama dalam pelaksanaan IPE daring. Pelatihan bagi fasilitator IPE daring dan desain kurikulum IPE daring yang atraktif dan interaktif sangat diperlukan agar IPE daring berjalan dengan optimal.

Kata-kata Kunci : daring; *interprofessional collaboration*; *interprofessional education*; mahasiswa kesehatan

1. Introduction

The progress of health science is very rapid and health problems are more complex, making it a challenge for health workers. Service coordination and collaboration between health workers is an important part in realizing optimal service to patients (Ghorob & Bodenheimer, 2012). The collaborative approach in health services is currently an Interprofessional Collaboration (IPC) based service. IPC is a service for professional health workers who have diverse backgrounds so that they can work to provide services to patients, families, and communities to provide the best health services (WHO, 2010).

Practice collaboration in health services does not only occur between health workers but with other disciplines, such as technicians who can support medical devices, environmental health which helps manage hospital waste, or IT teams who can support hospital administration using informatics programs. IPC is not automatically formed in health services, but this program must be prepared by health candidates through Interprofessional Education (IPE). Effective IPE enhances the attitudes, knowledge and skills needed to work effectively in collaborative practice (Reeves et al., 2017).

IPE development needs to be completed to ensure the realization of optimal IPC in health services. One of the efforts to improve the quality of IPE is to organize IPE online. The results show that online IPE improves aspects of interprofessional competence, which are communication, collaboration, roles and responsibilities, patient-centred, conflict management and team collaboration (Riesen et al., 2012). IPE online is one of the added values that can be competent to realize multidisciplinary (Hayward et al., 2021; Jones et al., 2020; Myers & O'Brien, 2015)

IPE is one method which implements learning using an integrated curriculum both within the scope of educational institutions and in hospitals. IPE provides direct experience to students (conventional methods), which can build students' abilities to collaborate with other health workers, and online IPE is one of the solutions implemented as an effort to anticipate learning challenges during the pandemic (Alrasheed et al., 2021).

Online IPE has been implemented in health education institutions in various countries in full online and blended learning, such as Canada, Australia, the United States, England and Finland (Evans, 2019). The implementation of online IPE in Indonesia is in accordance with the policy of the Ministry of Research, Technology and Higher Education regarding the implementation of online learning which has been initiated since 2014, where online learning is built to meet global demands and answer the challenges of the industrial revolution 4.0. However, the IPE learning model that has been implemented recently is still using conventional methods and not many institutions have implemented online IPE learning methods. Online IPE learning has become an urgent need in the midst of the current COVID-19 pandemic. Evaluation of online IPE implementation is important as input so that online IPE learning can be more optimal. Therefore, the objective of this study is to evaluate the implementation of online IPE at STIKES Bethesda Yakkum Yogyakarta.

2. Research Method

This research is a qualitative research using a phenomenological approach. Respondents consisted of 4 students and 12 facilitators (doctors, nurses, and pharmacists). Collecting data used the interview method and Forum Group Discussion (FGD). Checking the validity of qualitative data were applied using source triangulation and member check by returning interview transcripts to participants for data checking (Reeves et al., 2016). Data analysis used thematic analysis (Braun & Clarke, 2006).

3. Result and Discussion

3.1. Respondent Characteristics

The majority of the respondents were female as many as 3 students with the age category in late adolescence of 4 students and 50% of nursing students. Respondents of IPE facilitators, 66.3% are female, the majority are in early adulthood as many as 8 facilitators and 50% of the facilitators are from nursing as presented in **Table 1**.

Table 1. Characteristics of respondents

CHARACTERISTICS	STUDENTS		FACILITATOR	
	Number	%	Number	%
Sex				
Male	1	25	4	33,3
Female	3	75	8	66,4
Age				
Late adolescence (17-25 years)	4	100	0	0
Early adulthood (26-35 years)	0	0	8	66,6
Late adulthood (36-45 years)	0	0	4	33,4
Education				
Nursing	2	50	6	50
Pharmacy	1	25	3	25
Medicine	1	25	3	25
TOTAL	4	100	12	100

3.2. Focus Group Discussion (FGD)

The results of FGD data analysis resulted in 82 codes, 9 categories, and 4 themes, which are: the positive impact of online IPE implementation; online IPE learning outcomes; challenges and barriers to online IPE implementation; and the contribution of online IPE in the implementation of IPC.

3.2.1. Positive Impact of Online IPE Implementation

The results of the FGD showed the positive impacts of online IPE, including: training communication skills in collaboration, fostering an attitude of respect and recognizing the authority and duties of other professions, and improving patient safety.

“...they will be able to practice earlier communication with the main thing is to think about the patient. How can we keep our patients safe and the safety is still running, he also recovers quickly....” (FGD 1).

“...This will also train skills in communication between professions... get to know ... eee... more deeply about the role of the profession itself, how and when to practice later in the hospital... eee... friends... eee... these nursing students will jump right in with various kinds of health professions from others, so in my opinion, IPE is a bridge or forum for friends to practice first maybe eee... before those friends eee... go to the field...” (FGD 2).

The results of previous studies showed similar results, where online IPE could significantly improve students' attitudes and knowledge about professional practice including increasing their trust and understanding of the duties and roles of other health professions (Evans, 2013; Guraya et al., 2021). IPE can be a medium for health students to practice communication skills in teams, so that they can apply these skills when they become health workers (Singh & Matthees, 2021). Interprofessional communication and understanding of the role of each health profession are key prerequisites for enhancing patient-centred collaboration services (Homeyer et al., 2018). Effective communication can improve service quality, patient safety, treatment cost efficiency and patient satisfaction and conversely, failure of communication within the health team can lead to medical errors, negative health outcomes that can lead to patient death (Bok et al., 2020; Brock et al., 2013; Burgener, 2017).

3.2.2. IPE Online Learning Outcomes (CP)

The results of the FGDs in this study indicate that the achievement of CP that has been jointly formulated by the professions of doctors, nurses, and pharmacists in the implementation of online IPE

varies. The cognitive domain can be achieved 100%, while the affective and psychomotor domains can be achieved 40% - 50%.

“...In this case, I also feel that there is a difference in my opinion...eee...IPE with this online method has not been able to achieve the learning objectives in skills, especially...” (FGD 1).

“...skills and SOPs...eee.....Then yesterday...eee...following the process, there were indeed some students who...eee...the attitude was still lacking...meaning from the cognitive, affective, psychomotor (CAP) aspects too, right? If...eee...affective aspect...but it's hard to see...” (FGD 2).

These findings are supported by the results of other studies, where the average post-implementation score of the online IPE curriculum/module has decreased in the skill/psychomotor aspect. In the pre-implementation of the online curriculum, the skill aspect has a score of 6.1 while the post-implementation score becomes 5.8, so it can be identified that the online IPE is not yet optimal for improving the psychomotor domain.

3.2.3. Challenges and Barriers to IPE Online Implementation

The condition of the COVID-19 pandemic prompted online IPE to be performed. The implementation of IPE online is a challenge for both facilitators and participants. Based on the results of the FGD in this study, the challenges and obstacles in implementing IPE online include: requiring more preparation for facilitators and students, limited supervision of facilitators towards students, student gestures cannot be clearly assessed by the facilitator. Online IPE requires a lot of preparation regarding human resources and other supporting components. The basic components of implementing online learning are not the same as conventional learning, the preparation of several components to ensure the quality and uniformity of access to materials needs to be completed. Components that need to be prepared include internet network connecting devices used for smooth network connections, and operational devices, which are computers, laptops or smartphones and tablets with specifications that support.

The limited interaction during online learning makes it difficult for facilitators to assess student performance (Hanna et al., 2013; Yeh et al., 2019). During face-to-face learning, the facilitator can assess and provide feedback by looking at the cues displayed by students such as body gestures and facial expressions, but during online IPE, the facilitator finds it difficult to do this, especially when students cannot turn on the camera during online IPE.

“...However, there are some that we cannot observe, namely gestures...” (FGD1).

“...the facilitator cannot confirm...eee...the students' abilities...we also cannot see their expressions, because yesterday we did not open the camera at all...” (FGD 2).

Based on the results of the FGD in this study, the obstacles to implementing online IPE are the limitations of internet connectivity/signals and media/devices used by facilitators and students. FGD participants revealed that unstable signals hindered the online IPE learning process. The blocking signal and the occurrence of latency make IPE participants have to access the platform repeatedly. This latency causes a feedback delay in communication due to delays in receiving voices during the online learning process. Technical obstacles in the form of unstable internet signal, failure to perform screen recording, and latency during live streaming became the main obstacles in implementing online IPE (Yeh et al., 2019).

“...also affected by the signal... that's right, there are people who go in and out, yes, eee... so they cannot...eee...what...follow the discussion properly. Actually, there were many opinions, at that time one of them came in and out...” (FGD 1).

“Then, the delay from admission...eee...students. Sometimes, we get to where they are, they can only receive our voices after a while, even though it's not that far away...” (FGD 1).

“...However, there are still many obstacles...eee...one of them is the network. Sometimes, in one group, sometimes someone bounces because the network is not stable, and someone uses a laptop or cellphone. If the laptop is good, it can be fast, some say the cellphone is slow...” (FGD 2).

Several previous research results have shown similar results regarding the challenges and barriers of online IPE. Online IPE challenges facing developing countries include: inadequate infrastructure, lack of face-to-face interaction, inadequate technical support staff, financing of platform maintenance, and required time commitment from facilitators (Frehywot et al., 2013). Barriers in the implementation of IPE are divided into 5 categories comprising of: technology (related to hardware, software, and internet connectivity); individual (covering learning styles, physical health, and physical health of students; domestic (worries at home or in the family, including financial difficulties); institutional (related to administration, curriculum, resources, and skills of educators); and community barriers (restrictions on community activities), infrastructure challenges, and socio-political problems (Baticulon et al., 2021).

3.2.4. Contribution of IPE Online in IPC Implementation

The contribution of online IPE to the implementation of IPC shows that online IPE is a part of the success of IPC. IPE provides students an idea of how IPC is done.

“...Well, they have an idea that tomorrow the process, will be like this, although...eee...the example might not be...Online, which is direct, I see, but they have a view...oooh, if IPC ehm...IPE is like this, I see. Then the second, if it's possible later it will still be implemented...” (FGD 2).

IPC is a situation in which healthcare professionals with diverse backgrounds work with patients, families and communities to provide the best possible healthcare (WHO, 2010). IPC is a follow-up result that is expected to prepare health students before entering the world of work, where teamwork and collaboration are important competencies. IPE can help students achieve competence and develop collaborative practices as they work (Hayward et al., 2021; Reeves et al., 2017; van Diggele et al., 2020).

3.3. Online IPE Implementation Evaluation

Data related to the online IPE implementation evaluation was obtained through interviews with 4 IPE participants and 4 facilitators. Based on the data from interviews with students, 4 themes emerged related to the evaluation of online IPE implementation, including: IPE implementation; the role of each IPE member; benefits of online IPE and obstacles in implementing online IPE. The results of the interview data analysis of the facilitators resulted in 64 coding, 5 categories, and 3 themes, including: experience of being an online IPE facilitator; achievement of online CP IPE; and the impact of online IPE on IPC.

3.3.1. IPE Implementation

The implementation of IPE is divided into small groups consisting of 8 people (2 nursing students, 1 medical student and 5 pharmacy students), small groups of 6-8 people from various professions are optimal groups to promote psychological safety in the learning process (Hayward et al., 2021). The

formation of small online groups can increase interaction between group members. More intense interactions occur in small online groups than in small groups with face-to-face, it is possible that students feel more comfortable and free to express opinions online than in person (Jones et al., 2020).

"...There are 2 nurses, only one medicine..... there are even more pharmacy, there are five children..." (Pm 2)

Briefing must be conducted in IPE activities given to students before the implementation of IPE. It is implemented as a form of student preparation before the implementation of IPE. Students from different professions have different learning needs and levels of basic knowledge. For example, nurses and doctors have different approaches to patient care. Incorporating students in groups without a common perception can be an obstacle in implementing IPE (Sunguya et al., 2014).

"...at the beginning, I met Ms. at the first gathering, the first one who got together... yesterday was good and it was fun, everyone was active... the group was given cases and the directions were given on what to do and what tasks to collect when doing IPE..." (Pm 3).

The process of implementing the online IPE curriculum/module is applied in several steps, which are the introduction of the three professions using the asynchronous method via video, followed by case discussions using the synchronous method conducted independently by students, interprofessional discussion sessions conducted using the synchronous method with the facilitator with the meet platform. After the process is conducted, students are provided the opportunity to discuss independently with synchronous and asynchronous methods for reporting preparation, and end with asynchronous report collection.

3.3.2. The Role of Each IPE Member

IPE is performed when two or more individuals from different professions share knowledge and skills with the aim of creating effective collaboration in improving the quality of health services (WHO, 2010). The results showed that students had performed their respective roles and responsibilities well.

"...The process itself went smoothly, luckily, because our group yesterday was fine and happy, all of them are active..." (Pm 2).

3.3.3. Benefits of IPE Online

IPE is useful for increasing awareness of the role of team members, communication and collaboration, and producing quality services (Singh & Matthees, 2021). Reinforcing the research findings above, more intense interactions, flexible schedules can make students feel more comfortable because they do not need to travel (Jones et al., 2020).

"...If I myself feel better, ma'am, so usually nurses if PBL is just given a case and then it will be very wide, so we from those who have doctors also from those who have the medicine, what about the IPE, if yesterday the IPE turned out to be good, so we are really working on it like It's just the nurse's job, so do not worry about getting the medicine later... well, the pharmacy will decide later and the doctor will have a more specific task, ma'am..." (Pm 3).

"...can work together with other professions but still within the scope of health..." (Pm 4).

3.3.4. Obstacles in the Implementation of IPE Online

The results of this study indicate that there are obstacles in the implementation of online IPE, including: lack of enthusiasm, unable to assess active students, many assignments, lack of interaction and signal barriers. The effectiveness of the IPC competency program is influenced by the quality of student interaction, which is obtained through group discussions, collaborative projects and also team building (Riskiyana, 2021). Student interaction during online IPE is limited and has the potential to hinder the achievement of interprofessional competence (Hanna et al., 2013; Jones et al., 2020; Poirier et al., 2016; Turkelson et al., 2020).

"...Those who are online are less... less enthusiastic, ma'am, ..." (Pm1).

"...can't know which one is active, which one is not, I don't know, that is all we are talking about..." (Pm 3).

"...the signal is lacking..." (Pm 4).

3.3.5. Experience Being an Online IPE Facilitator

Online IPE is considered more flexible because it provides various conveniences, including many choices of online meeting platforms that can be used and opens opportunities for collaboration between various institutions (Myers & O'Brien, 2015). Furthermore, IPE also opens up opportunities for collaboration between countries. The online IPE was conducted by a research team using an online method involving 3 medical professions from Duta Wacana Christian University (UKDW), nurses from STIKES Bethesda, and pharmacists from Sanata Dharma University (USD). This collaboration provides a new experience for the people involved.

The role of the facilitator in face-to-face and online IPE is not much different. The facilitator plays a role in guiding and supporting students through the learning process and providing opportunities to increase student understanding. IPE facilitators are tasked with encouraging students to collaborate and share perspectives between professionals, as well as being a role model for interprofessional collaboration (Evans, 2019).

The results of interviews with online IPE facilitators showed that although they had been exposed to face-to-face IPE, the facilitators felt they did not have the best picture of online IPE. The facilitator feels the need to set the right strategy while on duty by preparing and learning.

"...I do not know yet, if... if... we were asked about the design other than the one we were here yesterday, yeah... because we are talking online, right... if we talk about offline, there are still a lot..." (Pf 1).

"...if you do not do reps you cannot, so I read the guide over and over again....the facilitator also has to be direct when blocking, because it is online..." (Pf 1).

The results of previous studies show that facilitators get positive outcomes related to involvement in online IPE (Evans et al., 2014). The implementation of IPE can improve students' skills in reflection, organization, communication, facilitation, diplomacy, conflict resolution and self-confidence skills, development of interprofessional identification, IPC improvement with colleagues. With this learning method, the facilitator focuses more on interprofessional care planning, practice change, student supervision so that it better reflects the principles of collaborative practice (Clouder et al., 2012 ; Evans et al., 2016)

Research conducted by Evan (2014) found that online IPE facilitators had difficulty engaging some students in synchronous learning because of the lack of interaction as in face-to-face learning (Evans et al., 2014). Important factors that influence the facilitator's experience in facilitating asynchronous and synchronous online IPE learning include: role flexibility, and support as a facilitator (Evans et al., 2016). Training for online IPE facilitators and the design of an attractive and interactive online IPE curriculum

are needed so that online IPE runs optimally, hence, facilitators and students also get positive outcomes.

3.3.6. IPE Online Learning Outcomes (CP)

The facilitator reveals the achievement of CP in the realm of knowledge, while in the affective and psychomotor domains it cannot be evaluated optimally.

“...So, regarding the knowledge, so far it can be achieved. Which is then difficult to achieve if online is the psychomotor or affective one, so there are three, right...” (Pf 1)
“...you can use video or something like that...so you can see them doing their skills...” (Pf 2).
“...if you evaluate the proportion or percentage online, the outcome is clearly different. If we face to face, we can balance between cognitive, affective, and psychomotor. But, if online maybe a higher percentage is the cognitive. Well, if we use psychomotor, we ask about SOPs, that's it. If it is with video, or directly, in my opinion, if you want to judge it is considered good, a value a b c, yes, directly, what outcome will we get depends on us...” (Pf 3)

Assessment of student performance in synchronous sessions is limited because there is no visible non-verbal language (appearance and gestures), so there is a need for guidelines and rubrics for assessing performance. Meanwhile, asynchronous platforms usually already have a tracking feature to record student engagement. The facilitator also revealed that the implementation of online IPE was not optimal due to lack of preparation, so it was necessary to evaluate and improve if later online IPE would be performed again for future programs (Hayward et al., 2021; Riskiyana, 2021).

“...Then when it was repeated, it seemed that yesterday it was possible because this was the first time it was forced to go online, so our preparations are still not... what is it?... not done yet...” (Pf 4)

Four attractive and effective pedagogical principles for online IPE include investing in the development of IPE facilitators; IPC modeling; support meaningful and relevant interprofessional content; and ensure psychological safety. Professional development and mentoring to facilitate online IPE has been identified as an integral part of collaborative learning (Hayward et al., 2021; Reeves et al., 2017). Facilitator training for all IPEs should cover IPC basics and training using the same platform to introduce the technology used (Evans, 2019). It is also possible for the facilitator to develop practice and knowledge about IPC. Modeling shared learning in the form of collaboration between educators and practitioners between professions can also be performed to achieve common goals and create IPC practices (Hayward et al., 2021). The certainty of psychological security is expected to make students more active in discussions because students feel comfortable in expressing opinions without shame and fear.

3.3.7. Impact of Online IPE on IPC

IPE is implemented when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes (WHO, 2010). Participant 2 revealed that students who are exposed to IPE will also be able to apply IPC well.

“...because it is applied in our place of nursing, pharmacy and medicine. In medicine here, the student has not yet practiced and has been exposed to food from medicine. Can we try it or can it be done with just Koas?...” (Pf 2).

One of the goals of IPE is for medical students to practice applying education and training and to explore the boundaries of practice in the field. At the same time, students learn how to have effective

interprofessional relationships through collaborative skills and knowledge sharing. Elements of collaborative practice include responsibility, accountability, coordination, communication, cooperation, assertiveness, autonomy, mutual trust, and respect (Sullivan et al., 2015). IPE and Interprofessional collaborative practice (IPCP) are concepts that cannot be separated. For healthcare professionals, learning skills to work effectively is gained through IPE, where students from two or more health professions learn together, so that they can provide collaborative, safe, high-quality and accessible patient-based care (WHO, 2010).

4. Conclusion

Interprofessional education online can facilitate interprofessional learning for health students and open up opportunities for multi-institutional collaboration. Technical constraints in the form of limited devices and internet connectivity are the main obstacles in the implementation of online IPE. The online implementation of IPE needs to be reviewed and modified in future programs. Training for online IPE facilitators and the design of an attractive and interactive online IPE curriculum are required so that online IPE runs optimally, facilitators and students also obtain positive outcomes.

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