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Original Research Article

Interprofessional Education for Maternal and Pediatric Health Curriculum Development: Focusing on the Quality of Health Education

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Abstract: This study is designed to develop a reliable and appropriate IPE Maternal and Child Health curriculum and modules in IPE learning. To achieve this goal, using a mix-method design with a Research and Development (R&D) approach with a 4D model (Define, Design, Develop, Disseminate), involving 30 participants in faculties, study programs, lecturers, and health students from one of the private universities. In Yogyakarta. Indonesia. The collection of qualitative data used Focus Group Discussions, which were continued with the preparation of the IPE curriculum and modules. The results are quantitatively tested for content and construct validity and expert judgment. The results of this study were 7 themes as the basis for the development of the IPE curriculum and modules, the development of the IPE curriculum with the results of content validity 3.9 and construct validity 3.93. The results of the IPE curriculum and modules received positive support from the leadership and the IPE lecturer team, 20 (67%) of the participants highly recommended the design of the IPE curriculum and modules. The conclusion is that the findings of the maternal and child health curriculum and the IPE module are declared reliable and feasible, and can be further investigated for their application.

Keywords: Interprofessional education, Curriculum, Maternal, Pediatric Health.

INTRODUCTION

In modern times, the world of health is faced with challenges in the demand for effective, efficient, and satisfy customers. The problems faced are limited health personnel resources and unequal distribution, so that health services are fragmented, resulting in client dissatisfaction and inefficiency (International Organization for Migration (IOM), 2017). One solution that can be applied is collaboration between health workers. Effective collaborative practices between health professionals can optimize health services, strengthen health systems, and improve health outcomes (Widyandana, 2018). Previous research on the impact of interprofessional collaboration on healthcare professional practice with randomized controlled trials found that practice-based collaborative interventions can improve treatment outcomes, including increased health care professional competence and patient satisfaction. In terms of achieving optimal and satisfying health services, it is a challenge for health education institutions to prepare interprofessional education-based health education curricula. Prospective health practitioners have been trained cognitively, affective and psychomotor in practicing collaborative practice. Health worker graduates can be ready to use in implementing services by collaborating among health workers on their work team (Piterman, *et al*., 2014).

IPE has been implemented for manyyears, almostall of the latestevidence on IPE implementationcomes from developed countries. Sweden and United Kingdom governments have allocated substantial funding and have adopted a clearregulation to integrate interprofessional education into health professional education. Interprofessional education is a mandatory requirement for pre-registration training in health and social care in Sweden and theUK. Some developing countries such as Qatar, Japan, Egypt, Philippines, India, Indonesia, and Thailand haveapplied IPE in their curriculum; however, the implementation is not full IPE. Some of them only includeIPE in their extra-curriculum activities, and

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some countries still developan IPE initiative program. The lack of IPE evidence requires the establishment of IPE programs in developing countries based on assumptions and tools derived from developed countries. Lessons learned from challenges and constraints faced in planning, initiating, and implementing IPE in developed countries are essential to encourage the adoption of IPE globally and assist in the implementation of IPE programs in developing countries (Piterman *et al*., 2014).

In Yogyakarta, Indonesia, research on the application of the IPE curriculum at the academic and professional stages of education has been carried out at well-known public universities that have health faculties covering medical, nursing and nutrition studies programs. The results showed that 85% of students who have been exposed to IPE learning at the academic and professional stages of education have better readiness, confidence and performance result in interprofessional collaborative practices (Claramita *et al*., 2019).As an initial study of the application of IPE in a private university in Yogyakarta, Indonesia, the research involved 78 students from the disciplines of nursing, nutrition, medical laboratory technology, and physiotherapy. The research was carried out through the introduction of the concept of IPE and simulation of IPE learning between disciplines by discussing a case of a health problem. The research aims to build and determine the readiness of students to study IPE. The results showed 68 (87.2%) of 78 (100%) students after being given an understanding of the concept. Following the simulation of the implementation of IPE learning implementation, the students' readiness was in the very good category to face IPE. The research was also conducted on 40 lecturers from the same fourdisciplines. Lecturers are given an understanding of the concept of IPE learning and simulations of preparing IPE learning plans, compiling cases, learning objectives, and implementing IPE learning by applying their respective disciplines. After being given an understanding and following the simulation of the preparation of the IPE learning program design, it was found that 39 lecturers (97.5%) out of 40 (100%) were very good at IPE readiness (Purwati & Asnindari, 2020).

The initial study of students and lecturers' readiness in implementing IPE is very important and urgent to be followed up to develop IPE learning. The next step needs to be developed a curriculum, learning plan, and IPE module that includes competency targets and effective methods in IPE learning that can be applied face-to-face and online. The results showed that the implementation of interprofessional education was more effective in increasing students' attitudes and self-confidence. Besides, the users of the time were more qualified than face-to-face learning (Evans, Ward & Reeves, 2019). This curriculum's development is aimed at the Nursing Study Program, the Nutrition Science Study Program, the Physiotherapy Study Program, and the Medical Laboratory Technology Study Program. The purpose of this research is to produce the availability of reliable and feasible IPE curriculum and modules that can be applied, so that IPE learning can be applied properly, trained students carry out collaborations between health professions and create quality health professional graduates to improve the quality of health services.

LITERATURE REVIEW

A number of literature reviews reveal various studies related to the importance of IPE. Research by Kenaszchuk *et al*., (2015) on "Interprofessional simulated learning: short-term association between simulation and interprofessional collaboration". The study used a single group design longitudinal self and proxy-report survey. The results of the study showed differences in student attitudes before and after training. Medical students have higher collaborative abilities than nurses and other health workers. The difference with the research to be carried out is related to research variables, research design and students involved in the research.

Research by Watters *et al*., (2015) entitled "Does Interprofessional simulation increase in self-efficacy: a comparative study". The method used with the mixed method is through simulation exercises using 5 clinical scenarios and 1 communication scenario. The results of the activities were measured qualitatively and quantitatively by using a self-efficacy questionnaire in managing emergency situations, teamwork, communication and leadership. The results showed that simulation training improved participants' self-efficacy in clinical situations. Interprofessional training shows an increasing positive effect on self-efficacy for nurses and doctors. The difference between this research and those that will be conducted is that the research respondents are lecturers and students of the Nursing, Physiotherapy, and Nutrition and TLM study programs.

Research by Mohaupt *et al*., (2012) entitled "Understanding interprofessional relationships by the use of contact theory", is a research with an exploratory qualitative design involving nursing students, radiology technology, breathing and occupational therapy students using simulation methods. The results showed that students felt that the scientific interdisciplinary teamwork simulation and the environment were very supportive of working in clinical situations. Students can solve client problems by approaching various scientific pathways more effectively and successfully. The difference with the research that will be carried out is that the research samples that will be involved in the research are students of Nursing, Physiotherapy, Nutrition and Health Analyst Study Programs.

Research problems

The Interprofessional Education learning system has been discussed in various previous studies that IPE contributes greatly to the competence, the ability to collaborate with health workers which has an impact on service quality, recovery and satisfaction of treated clients. However, there has not been much research on the development of the IPE curriculum, especially in the development of the IPE curriculum that focuses on maternal and pediatric health.

Research question

The study formulated the following research questions:

1. What are required in the preparation of the IPE curriculum in the field of maternal and pediatric health?
2. How is the IPE curriculum formulated for maternal and pediatric health?
3. How is the feasibility of the IPE curriculum that has been prepared?
4. Can the IPE curriculum be followed up?

Research focus

This research focuses on the preparation of the IPE curriculum in the field of maternal and pediatric health, feasibility and reliability tests to be applied.

RESEARCH METHOD

Research Goal

This research is a type of research and development called research and development (R&D), which is research used to produce certain products and test the effectiveness of these products. The development that is wanted to be produced in this research is a reliable and feasible IPE curriculum and module that can be applied to learning at tertiary institutions in the fields of maternal and pediatric health.

Sample and Data Collection

The research data participants were selected purposively beside the criteria that they had attended IPE training. Research participants at the Faculty of Health Sciences include the Nursing Undergraduate Study Program, Physiotherapy, Medical Laboratory Technology and Nutrition Science. Participants included 10 leadership elements, 10 lecturers and 10 students, so a total of 30 research participants. Participation of research subjects in FGDs and evaluation of the results of the IPE curriculum and module products. This study also involved 2 experts who were experts in the field of IPE for expert judgment and content validity and construct.

This IPE curriculum and module development research uses the 4D model (Define, Design, Develop, Disseminate) (Yanti *et al*., 2018). Step 1). Define, is the analysis of needs according to the characteristics of the institution, lecturers, students and resources, collecting sources from referral references and experts; step 2). Design, preparation of the design according to the results of the analysis, testing the design by experts and revising the design; step 3). Develop, IPE curriculum and module development includes content and structure, product validation tests for experts; 4). Disseminate, socialization of the curriculum and IPE modules that have been compiled to faculty leaders, study programs, and lecturers to get responses to the products developed.

Researchers used Focus Group Discussion (FGD) techniques at the defining and design stage, using interview guides 7 components of the IPE curriculum. Researchers used expert judgment at the development testing stage. Curriculum validation sheets were prepared by researchers based on the principles of curriculum development (Acedo& Hughes, 2014). The validity tests carried out for this instrument were content validity and construct validity with expert judgment. Assessment is done by prospective product users for the resulting product through conformity evaluation of the components of IPE development which is stated by a statement of approval on the product design curriculum and the resulting IPE module.

Analyzing of Data

The data from the FGD results were analyzed qualitatively, including data organization, category grouping, themes and presentation of results. Data from expert testing were analyzed descriptively qualitatively and became a reference for product revisions. The results of the assessment of all aspects are measured by a Likert scale. Each item is given five choices of 1-5 scale scores, namely 5 (very good/very feasible), 4 (goo /decent), 3 (good enough/quite feasible), 2 (not good/not feasible), 1 (very not good/very unworthy). The results of the evaluation of prospective users are displayed with the approval of eligibility with the same evaluation result format. The final result is calculated using a percentage formula and translated into the product eligibility criteria.

RESEARCH RESULTS

The research stages include the define stage (definition) of the curriculum, the stage of compiling the curriculum and modules, the development stage, and the dissemination/dissemination stage.

Define

Data collection was carried out using the FGD method with participants including tenleaders (L), tenlecturers (Lc), tenstudents (S) and twoexperts (E). Based on the results of the FGD, the following themes were found mentioned in table 1:

Table-1: FGD themes

Participant	Theme 1 Competency IPE	Theme 2 Learning Methods	Theme 3 Topic	Theme 4 Time to implementation
L1, L6, L7, TA1 Lc3,Lc2,Lc9,	Independence	Tutorial small group discussion	Effective communication	Semester 1 and 2 (Basic concepts of IPE)
L2,L3,L6,Lc3,Lc4,Lc 8, L4, E1	Cooperation ability	Practice/Simulation	Professional ethics	Semester 3 (maternity nursing)
Lc4,Lc8,Lc10, L4, L3, S8	Understanding Between Professions	Interactive in class	Basic concept of IPE	Semester 4 (Pediatric Nursing)
Lc4,Lc8,S2,S4,S6,L2, L6,E2	Mutual Respect	Community based learning	Conflict Management	
Lc1,Lc3,Lc6,Lc8,L2, L3,L8, S1,E1	Communication		Maternal and pediatric nursing	
E1,Lc3,Lc8,L2,L3,L6 ,Lc3,Lc8,S4,S5	Competency achievement	Tutorial room	Able to explore student ability	
Lc2,Lc4,Lc5,Lc6,Lc9 ,L4,L8,E2	Effective communication	Large classrooms	Have attended IPE training	
EA1,L1,Lc5,S7	Teamwork	LCD	Able to direct the trigger	
Lc2,Lc5		Flip chard		

References: E (Expert), L (Leader), Lc (Lecturer), S (Student)

Based on the results of the FGD, several themes were found from interviews with participants, which can be grouped into categories and found 7 themes that can be used for the development of the IPE curriculum design, which include competence, learning methods, topics, implementation time, learning evaluation, facilities, and faculty infrastructure and competence. The results of the 7 themes are presented in table 2 below:

Table-2: Design Model for IPE Development

Competencies expected	Topics	Methods
Independence Competency Teamwork ability Understanding of other professions Respect between professions Effective communication	Effective communication Professional ethics IPE Concept Conflict management Maternal and Child Health	Small-group Discussion in tutorial Practice Interactive in class Community-based Learning
	Time	
	Semester 1-5	
Evaluation	Infrastructure	Lecturer competency
Competency Achievement Effective communication Teamwork	Tutorial room Practice room Large classroom LCD Flip chard	Able to explore students' abilities Have attended IPE training Able to direct the trigger

Preparation of IPE Curriculum and Modules

Based on the results of the FGD and the IPE curriculum development design chart and the focus on developing maternal and child health, the preparation of curricula and modules involves a team of lecturers who are in charge of maternal and child health in the Nursing Study Program, Physiotherapy, Health Analyst, Nutrition Science and Midwifery Professional Education. There are tenlecturers involved, and each study program is represented by twolecturers who have the competence and teach in the field of maternal and child health. Offline curriculum workshop activities were held for twodays on 7 and 8 July 2020, continued with offline and online finishing by optimizing the WhatsApp group discussion until a complete IPE curriculum and module were compiled.

IPE Curriculum and Module Development Stage

Curriculum development is carried out in consultation with experts in interprofessional education, including experts from the Faculty of Medicine and Health Sciences at state and private Universities in Yogyakarta Indonesia. The results of the consultation included construct validity and content validity with the following results in figure 1:

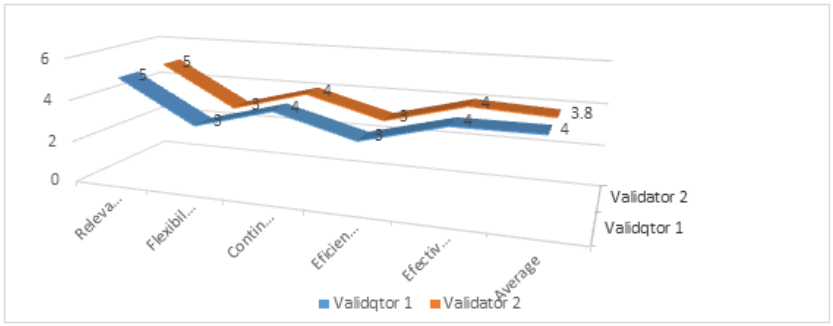

Fig-1: Result of construct validity

The construct validity test results for the curriculum and IPE Module showed that the average value of validator 1 was 4, and validator 2 had an average of 3.8 so that the construct validity value was 3.9. This shows that the constructs of the IPE curriculum and modules are declared valid and only require improvement in the use of words to facilitate meaning in accordance with the results of expert judgment. The results of the content validity are presented in Figure 2 below:

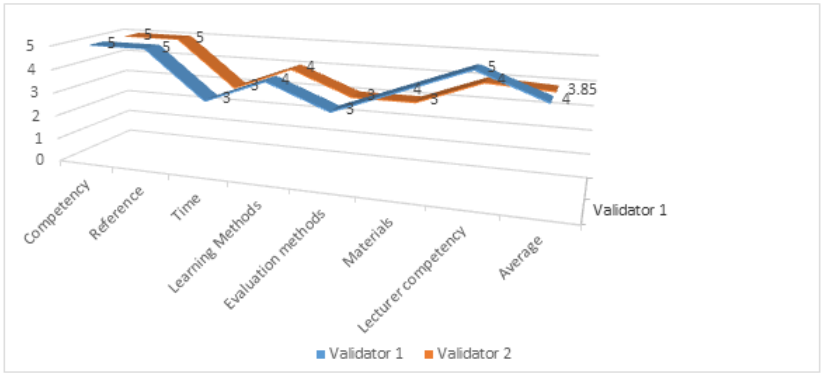

Fig-2: Result of Content Validity

The content validity test results for the curriculum and IPE Module obtained results for validator 1 with an average value of 4, and validator 2 with an average of 3.85, so that the content validity was 3.93 means valid. Based on the construct validity test and the contents, revisions were made according to the experts' instructions and then preparations for the dissemination of the IPE curriculum and module.

Dissemination of the IPE Curriculum and Modules

The IPE curriculum and modules are then disseminated to higher education leaders which include: Vice Chancellor 1, Dean, Head and Secretary of the Department, a team of lecturers who provide maternal and child health, with a total of 30 participants. The evaluation obtained from the dissemination participants in preparation for the implementation of the IPE curriculum and module is shown in figure 3 below:

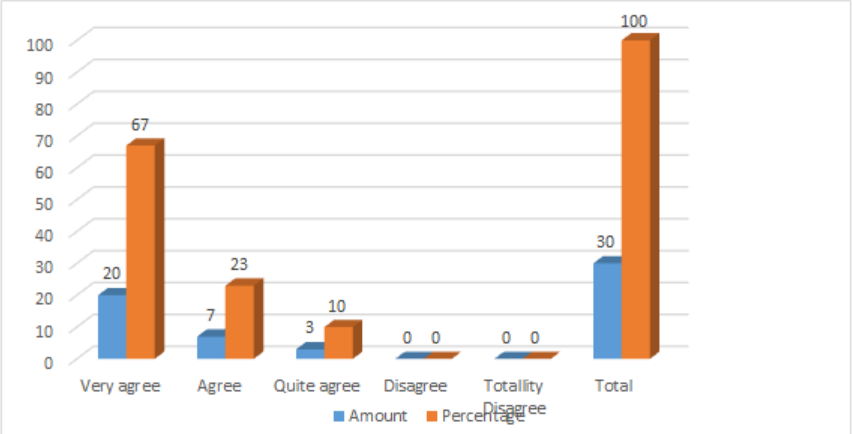

Fig-3: Curriculum and Modul of IPE Evaluation

Based on the results of the socialization and examination of the IPE curriculum and modules by the leadership and the team of lecturers who provide maternal and child health, the results revealedthat most of them strongly agree, namely 20 people (67%), meaning that the IPE curriculum and modules are appropriate to be applied and implemented.

DISCUSSION

Based on the research results, several themes describe the Interprofessional Education (IPE) model, which is more towards the technical model of implementing the IPE. These themes are discussed in detail, namely, the competencies expected in IPE, learning methods in IPE, learning topics at IPE, timing of IPE implementation, evaluation of IPE learning, facilities and infrastructure required, and IPE competence lecturers/facilitators. The following is a discussion of each theme developed in the IPE curriculum and modules:

IPE Competence

Interprofessional Education (IPE) is a collaborative practice between two or more health professionals who learn from each other the roles of each health profession and improve collaboration skills and the quality of health services (Evans and Reeves, 2019). The implementation of IPE in the health sector is carried out for students to instill IPE competencies from an early age with gradual retention so that when students are in the field, they are expected to prioritize patient safety and improve the quality of health services with other health professionals (Evans and Reeves, 2019). Based on the results of research with a focus group discussion from informants in this study, it was found that the competency groups to be achieved in IPE learning were student independence, the ability to work together, understanding between professions, mutual respect and effective communication. Some of these competencies are in accordance with the results of research by Purwati *et al*., (2020), which states that Health students who carry out IPE must learn the IPE concept, including the roles, functions, and duties of each profession in IPE, team management and project management.

The implementation of IPE in the health education curriculum has three focuses. First, increasing the knowledge, skills, and attitudes of students in collaborative practices between health professions. Second, it focuses on learning about how to create effective collaboration in a team. Third, creating effective collaboration to improve service quality to patients (Vuurberg *et al*., 2019). Communication skills as part of collaborative practice also play an important role in producing quality services (Barr, 2015). One of the communication problems that can be found in clinical practice is the overlapping work in interprofessional teams caused by ineffective communication between team members which then affects patient outcomes (Sulistyowati, 2019). This study's results are in accordance with previous research that states that the competence that students are expected to have with the IPE learning method is the ability to develop the competencies needed to collaborate. This competency development is fostered by the synergistic interaction between students from various professions, which is a balance of the profession during interactions (Wanchai *et al*., 2020). Collaborative competencies that need to be possessed include: 1) clearly understanding the roles, responsibilities and competencies of other professions, 2) working with other professions to resolve conflicts in deciding patient care and treatment, 3) working with other professions to assess, plan, and monitoring patient care, 4) tolerating differences, misunderstandings and shortcomings of other professions, 5) facilitating interprofessional meetings, and 6) entering into interdependent relationships with other healthcare professionals (Barr, 2015).

IPE Learning Methods

The application of interprofessional education in the Health education curriculum can improve communication skills and teamwork, which are the main competencies in collaborative practice between health professions. These skills really support service improvement. Ego of the profession, differences in professional culture, scheduling, teaching resources, and perceptions of IPE were found to be obstacles in implementing IPE. In order for learning to have an effective impact, the IPE learning method is an important factor that will determine the success of IPE learning. Previous research conducted by Sulistyowati (2019) stated that the IPE learning method could be applied with the OSCE method, case study discussions, community practice and extracurricular activities. This study's results are in line with this research which found that the learning methods that can be done in IPE are small group discussion/problem-based learning tutorials, practicum/simulations, interactive in class, field work/community-based learning.

The learning method in IPE is one of the elements that need to be prepared in supporting the success of IPE learning. Scientific findings state that the lecture method does not really provide opportunities for students between professions to interact; lectures are felt to be less able to improve student collaborative abilities between professions (Guraya dan Barr, 2018). Small group discussion and PBL are the pedagogical strategies that are felt to be the best for classroom learning. However, in this study also found that students between professions were not able to work well in small groups, and students between professions considered that during this learning session, the contributions from each profession were not yet equal. These results are clarified by responses to open-ended questions, with results; Most students between professions consider that problem based learning is the most effective method of

inter-professional learning followed by role play and learning in real settings. Most of the students stated that the lecture method could only increase knowledge but did not increase students' collaboration skills so that the lecture method was given only as an introduction so that the proportion was not too much in the learning process. More than 50% of students between professions feel bored with this method and can only follow it well for 20 ± 30 minutes and then pay less attention.

The existing teaching and learning approach wereadopted and developed as a new learning method in IPE to attract students' learning attention and new innovations from teachers. There is no single method that is the main choice in IPE. The teaching experience method of the teacher can change at any time depending on the learning needs of students and how the teacher maintains students' attention to the lesson. Existing learning methods can reinforce each other, not stand alone. Teaching and learning approaches that can be applied in IPE are exchange-based learning, action-based learning, practice-based learning, simulation-based learning, observation-based learning, and e-based learning (Judge, Polifroni, & Zhu, 2015).

IPE Learning Topics

IPE is integrated learning between health professional students with one another. The benefits of IPE in the future are the creation of positive collaborative relationships between health professionals to improve the quality of health services (Wanchai *et al*., 2020). The topic of IPE learning is one of the important factors that will determine the success of IPE learning. The results of this study found that according to respondents, the topics of IPE learning included effective communication, professional ethics, conflict management, IPE concepts, maternal and child health. This study's results are in line with the research of White *et al*., (2019), which states that the topics of interprofessional education learning are health ethics, global health issues such as HIV/AIDS and tuberculosis, disaster management, and emergency cases. According to White *et al*., (2019) the recommended topic of learning on IPE is about roles, responsibilities and professionalism. Health communication science is an interesting topic to discuss in IPE so that students can be trained to use good and effective communication patterns to patients, peers and other health professionals. In line with Clark (2018), another topic that needs to be studied in IPE is transferable skills such as communication.

IPE Learning Placement Time

Health academics have a role and responsibility to provide education and training for health students with team-based service competencies. In this process, governments, academia and policymakers must define a clear vision of quality health education and programs that meet these standards. To create collaborative practice and improve health outcomes, one or more different professionals must understand the profession's role and function and understand the roles of other health professions. Interprofessional education is an effective way to develop collaborative skills between health workers who are ready to work together to provide comprehensive care in various health services (Sulistyowati, 2019). The importance of IPE learning in improving health services and IPE learning in the curriculum structure is very important. This will affect the output in the IPE learning. Based on the results of this study, it was found that the most appropriate time to place IPE learning was in semesters 1, 2, 3 and the results of this study are in accordance with Clark's (2018) research. The application of IPE must begin at the early academic stage of students before becoming health professionals. This is reinforced by the results of research (Vuurberg *et al*., 2019) that IPE must be carried out both at the academic and clinical practice stages to connect the theories obtained by students during learning on campus and practices undertaken in the field, and this has proven to provide many benefits for college student. Other research states that the placement of IPE learning in the academic and professional stages is very important. In the undergraduate and diploma study programs, students get exposure and introduction to IPC in the form of an intro curriculum. Students have been introduced to IPC even though it is not in the form of IPE they should be. Students do not get learning material about IPE in the professional study program, but they work directly with other health professionals. This causes more undergraduate students to have good perceptions of IPE compared to professional study program students. This is consistent with research conducted in Canada that states that IPE, which is carried out in theory or practice, can provide significant positive changes to health science students' perceptions towards the health profession.

IPE Learning Evaluation

The focus group discussion results in this study showed that the evaluation of IPE learning included competency outcomes, communication skills, and team work skills. Health research results (Wanchai *et al*., 2020) state that the evaluation of IPE learning processes and outcomes includes competency outcomes, communication/individual skills and the ability to work together. This result is in line with research (Visser *et al*., 2018) which states that the success indicator of IPE according to students and lecturers is the achievement of student competence; both professional independent competence and collaborative competence, there are program implementation standards and program evaluation, clear and measurable evaluation, creation of integrated learning, and student involvement in program evaluation.

Assessment of the results of the IPE learning experience can be seen through an understanding of the collaborative attitudes and roles of each health worker so that an assessment of patient and community perceptions of the quality of health services provided by the IPE health service team can be seen by referring to the attitudes toward health care team scale. The success of IPE learning can be assessed through the community's response that assesses their perceptions of the health service collaboration. Research results (Vuurberg *et al*., 2019). Getting the results of the evaluation of IPE learning through the assessment of community perceptions is the provision of comprehensive services, continuity of care, communication between the team and patients and team collaboration. Through community perceptions, there are two perceptions of collaborative education. Good collaborative education is obtained through patient-centered services and good communication between the health care team and patients and patient families and between members in the health service team.

IPE Infrastructure

Studies show that many factors influence the success of IPE. One of these factors is the factor of the institution (faculty and educators). Educational institutions' role in preparing for the implementation of IPE includes the preparation of infrastructure (learning rooms; learning systems; interprofessional-related curricula) and the need to prepare budgets so that the IPE program is carried out effectively (Judge, Polifroni, & Zhu, 2015). The infrastructure needed in IPE according to this study is a tutorial room, class room, LCD, and flipchart. This study's results are in line with research with Clark (2018), which states that in the application of IPE, the facilities and infrastructure that may be needed are small spaces, large spaces, campus environments, LCDs, and flipcharts. Infrastructure is an important factor that will affect the success of learning. Academic facilities include furniture and equipment needed to complement each building / room to carry out its function to improve the quality and relevance of its products and services.

Competencies of IPE Lecturers/Facilitators

The final goal of IPE learning is to expect students to be able to develop the competencies needed to collaborate. The results of the focus group discussion from the informants in this study revealed that the right lecturer or facilitator's competence to facilitate IPE learning is to explore students' abilities and have attended IPE facilitator training, and be able to direct cases. For lecturers, IPE competence to teach and facilitate interprofessional learning groups is absolutely necessary. The results of this study are in accordance with Claramita *et al*., (2019), which states that teaching staff must recognize and realize the potential for learning in interprofessional groups' dynamics. This is in accordance with the teaching staff's responsibility to provide equal opportunities for effective individual learning for each group member.

The ideal lecturer description in implementing IPE, which is mostly presented by both lecturers and students, understands IPE. In addition, students also mentioned that the criteria for ideal lecturers include understanding the competence of other health workers, being able to make IPE operational modules, having experience in clinics, collaborative experience and having broad insights. IPE facilitator criteria: having sufficient knowledge of their profession, having sufficient knowledge of the focus of the IPE learning program including evidence-based practice, and having the ability and experience to collaborate (Vuurberg *et al*., 2019).

Based on the analysis of these themes, an IPE curriculum and modules have been developed that have been tested for construct validity and content validity by in interprofessional education. Revisions resulting from expert evaluations have been revised, and the results are disseminated to the leadership and a team of lecturers in the field of maternal and child health. The evaluation obtained from 30 respondents who took part in the dissemination showed that the IPE curriculum and modules that had been prepared were very suitable for the competence and preparation of the Dean. This is indicated by 20 (67%) respondents who stated that they were very suitable and agreed to implement IPE at the departments.

Previous research by Sulistyowati (2019) revealed a thatcreating health professional that are professional and are able to collaborate and collaborate with other health professionals is necessary. In maternity services, the ability to collaborate between health workers is needed to produce quality services so as to produce good outcomes for mothers and their babies. The application of IPE in health workers' education is highly recommended, supported by an appropriate curriculum and learning module. Student leadership in IPE learning is supported by learning planning. Learning methods that are in accordance with the problem-based learning approach provide a challenging, motivating, and fun approach to following the learning process. Problem-based learning requires a learning module that guides students and lecturers in implementing IPE learning, which involves several scientific disciplines to achieve an optimal output. In the long run, this can be applied in real services to solve problems together according to contributing in accordance with their respective scientific fields (Evans, 2018).

CONCLUSION

The results of this study documenteda model of curriculum design development and IPE modules based on seven basic indicators of developing IPE that isfeasible and reliable to be applied. The results of the

research in the form of the Maternal and Pediatric health IPE curriculum and module are new findings. The next researcher can develop this research by conducting intervention research on the application of IPE learning on maternal and child health based on the curriculum and mood, the results of this study.

RECOMMENDATIONS

Based on these findings, the researchers proposed a number of suggestions, namely the maturation of the IPE curriculum based on the core competencies that each department needs to achieve, representative learning scenarios in the competency targets that must be achieved by each department and the placement of appropriate learning implementation time. All lecturers involved in IPE have all attended IPE training. The results of all the IPE curricula on maternal and pediatric health can be continued in implementation trial research, with a more representative number and variation of samples as a more optimal application.

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