

**Analysis of Learning Application of Interprofessional Education in Nursing
Graduate Students with Medicine, Pharmaceutical and Nutrition in COVID-19
Era**

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Abstract

Introduction: *Interprofessional Education method is one of approaches in carrying out one or more interdisciplinary educational process in order to maintain the practice of each discipline. Interprofessional Education can be used to discuss health issues and certain cases which occur in the community so that through these interprofessional discussions, appropriate solutions can be found that can be applied effectively and efficiently.* **Method:** *Descriptive analytic research design with a cross sectional exploration was applied in this research. The total number of sample units used was randomly selected in which all population elements having the same opportunities to be selected. They were 4 study programs.* **Objective:** *Cross-sectional research design that aims to find out the picture of IPE Learning Methods.* **Result and Discussion:** *The result showed that the four-study program succeeded in applying Interprofessional Education (IPE) method of learning in the sixth semester during COVID-19 pandemic.* **Conclusion:** *Conclusion of this research is an interprofessional education approach for undergraduate nursing, medicine, pharmacy and nutrition in the COVID-19 pandemic era, with four study programs available through Interprofessional Education (IPE) in Semester Six*

Keywords: *Interprofessional Education method; Learning process; COVID-19 Pandemic;*

How to Cite

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Introduction

Learning method *Interprofessional* One of the collaborative approaches is to develop the education of health workers so that they can provide quality health services. An interprofessional learning approach is a teaching and learning approach that collaborates in the educational process of two or more different disciplines, with the aim of fostering interdisciplinary/interprofessional interactions that improve the practice of each discipline (Bridges, Davidson, Soule Odegard, Maki, & Tomkowiak, 2011)

Learning methods *interprofessional* can be carried out with a *collaborative* by an *interprofessional* namely Nursing, Medicine, Pharmacy and Nutrition.

Education *Interprofessional* has been recognized as an *innovativ nurse's professional* so that they can collaborate effectively. *Interprofessional Education* can increase partnership, cooperation and coordination among *professionals* (Alderman, Zerden, & ZomorodiPhD, 2021)

Based on the results of research (*World Health Organization*, 2010 in Sulistyowati, 2019) conducted in 42 countries about the impact of the application of *Interprofessional Education* being able to increase the effectiveness of communication in collaboration so as to increase the affordability and coordination of health services, use of appropriate clinical resources, *outcomes* health for chronic disease, care and patient safety. Research results by Reeves (Reeves, Xyrichis, & Zwarenstein, 2018) In realizing *Interprofessional Education*, commitment from universities is needed in curriculum mapping, technology is needed for *web* so that it can reach all participants, this really supports the online learning system in the *COVID-19 pandemic era*. Pandemic *Coronavirus-19* is an epidemic that has hit various parts of the world so that it has an impact on various aspects of people's lives. This epidemic caused health and economic problems, as well as the world of education which was greatly affected by the pandemic that was announced in Indonesia on March 2, 2020.

The health protocol, namely wearing masks, washing hands, keeping distance and not crowding made the ministry of education issue a special policy in implementing learning in educational institutions. This policy is contained in Circular Letter Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of *Coronavirus Disease (COVID-19)*.

The decision made in this policy is a ban on the implementation of face-to-face learning on campus. Online lectures were chosen as a solution to replace face-to-face or in-person lectures that cannot be implemented due to social restrictions. The application of *interprofessional education* can also be carried out by providing *online* or online learning. Online learning is very effective considering the same learning resources can be used by thousands of people at the same time.

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Method

The type of research used in this research is descriptive analytic research with a cross sectional research design which aims to find out the description. Application of the Interprofessional Education (IPE) Learning Approach for Undergraduate Students in Nursing, Pharmacy and Nutrition in the Era of the COVID-19 Pandemic. In cross sectional research, the measurement of variables is carried out at the same time (Sugiyono, 2017)

The population of this research is the Bachelor of Nursing program, the Bachelor of Medicine program, the Bachelor of Pharmacy program, and the Bachelor of Applied Nutrition program. Sampling using non-probability sampling and total sampling. In this method, the number of sample units used is chosen randomly and the population elements have the same probability, namely four research plans.

In the implementation of this research, the instruments used are the 2021 Indonesian Nurses Education Curriculum, Medical Curriculum, Pharmacy Curriculum and Diploma IV Education Core Curriculum.

In the implementation of this research, prior to the analysis of the IPE Learning Method, the 4 (four) study programs signed an MoU on IPE, so that each study program could provide its respective Education Curriculum for analysis. The results of this analysis will be recommended to each study program so that it can be carried out in the future.

This study analyzes the data using descriptive analytical techniques with a cross sectional research design that aims to describe the IPE Learning Method.

The researcher has conducted a Research Ethics Test at the Medan Ministry of Health Polytechnic and has been granted permission/passed the Ethics Test to conduct this research.

Results and Discussion

A. Results

The results of an analytical study on the application of an interprofessional education approach for nursing, medical, pharmacy, and nutrition undergraduates in the COVID-19 pandemic era show that four study programs can lead to interprofessional education (IPE) in the sixth semester. The following are the results of the analysis of courses that can be done by Interprofessional Education (IPE)

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Table 1

Distribution of Nursing Undergraduate Study Program Courses

| No. | Courses | SKS | T | P |
|--------------|-----------------------------------|-----------|-----------|----------|
| 1 | Community Aggregate Nursing | 3 | 2 | 1 |
| 2 | Biostatistics | 2 | 1 | 1 |
| 3 | Nursing Leadership and Management | 4 | 3 | 1 |
| 4 | Emergency Nursing | 4 | 3 | 1 |
| 5 | Family Nursing | 4 | 3 | 1 |
| Total | | 17 | 11 | 6 |

In table 1, the Bachelor of Nursing study program that can be done by Interprofessional Education (IPE) is the Emergency Nursing course.

Table 2

Distribution of Medical Undergraduate Courses

| No | Name of Course | Credit | Block |
|--------------|-----------------------------------------|-----------|----------|
| 1 | Mental Health & Psychiatric Disorder | 7 | 15 |
| 2 | Genetic, Newborn & Chromosomal Disorder | 7 | 16 |
| 3 | Emergency & Traumatology | 7 | 17 |
| 4 | Scientific Writing | 6 | - |
| Total | | 28 | - |

In table 2 below the Medical Undergraduate Study program, the courses that can be carried out by *Interprofessional Education (IPE)* are Emergency & Traumatology courses.

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Table 3

Distribution of Courses in the Pharmacy Undergraduate Study Program

| No. | Code of Courses | Courses | SKS |
|-------|--------------------|---------------------------------|-----|
| 1 | SF213 | Biostatistics | 2 |
| 2 | SF215 | Research Methods | 2 |
| 3 | SF319 | Pharmacognition II | 2 |
| 4 | SF320 | Phytochemicals | 2 |
| 5 | SF323 Medical | Chemistry | 2 |
| 6 | SF403 | Entrepreneurship | 2 |
| 7 | SF326 | Clinical and Community Pharmacy | 2 |
| 8 | SF319P05 | Practicum II | 1 |
| 9 | SF319 Pharmacology | Pharmacognition Molecular | 2 |
| 10 | SF320P | Phytochemistry Practicum | 1 |
| 11 | Elective Courses | | 2 |
| Total | | | 20 |

In table 3, the Bachelor of Pharmacy study program that can be done by *Interprofessional Education (IPE)* is the Clinical and Community Pharmacy course.

Table 4

Distribution of Undergraduate Nutrition Study Program Courses

| No. | Code | Course | SKS | | | |
|--------------|--------|----------------------------------|----------|----------|----------|-----------|
| | | | T | S/BL | P/K/L | Jlh |
| 1 | GZ6112 | Nutrition Surveillance | 1 | 1 | 0 | 2 |
| 2 | GZ6512 | Food Formula Development | 1 | 1 | 0 | 2 |
| 3 | GZ6123 | Nutrition Program Planning | 1 | 1 | 1 | 3 |
| 4 | GZ6412 | Nutrition Advocacy | 1 | 1 | 0 | 2 |
| 5 | GZ6313 | Food Service Quality Management | 2 | 1 | 0 | 3 |
| 6 | GZ6422 | Nutrition Education and Training | 1 | 1 | 0 | 2 |
| 7 | GZ6612 | Thesis Proposal | 0 | 2 | 0 | 2 |
| Total | | | 7 | 8 | 1 | 16 |

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In table 4, the Applied Nutrition Undergraduate Study program, the courses that can be carried out by *Interprofessional Education (IPE)* are the Nutrition Program Planning courses.

B. Discussion

1. IPE Analysis of Nursing Undergraduate Students

Based on the results of research on the implementation of IPE in Nursing Bachelors is the Emergency Nursing course which consists of 4 credits (3 T; 1P) with the Mini Lecture, Case study, SGD, Project Based Learning (PjBL) learning methods, Lab skills, mappingbased learning. Judging from the curriculum, namely the learning outcomes of Emergency Nursing, which are used as IPE materials, are Carrying out nursing care simulations with emergency, emergency and emergency cases related to disorders of various systems in individuals by paying attention to legal and ethical aspects, where the subject matter consists of pathophysiology, pharmacology and diet therapy. in various system disorders (shock, chest trauma, myocardial infarction, head trauma, abdominal trauma, musculoskeletal trauma, obstetric emergencies, psychiatric emergencies, overdose and drug poisoning) Emergency nursing care (assessment, data analysis, nursing diagnosis, intervention, implementation and comprehensive evaluation covering bio-psycho-socio-spiritual) on various systems. On the subject of the role of the Medical Profession in Pathophysiology, the role of pharmacy graduates in the fields of Pharmacology and Nutrition Science in diet therapy is a collaborative action in the implementation of nursing care in emergency cases.

This is supported by research by Jung (Jung, Park, Min, & Ji, 2020) The implementation of IPE with the role-play learning method and small group activities for nursing students, medical students and pharmacy students helps their competence in collaborative leadership, interprofessional communication, conflict resolution skills, and understanding the roles of others, professionals in interprofessional collaboration and understand their own role in collaborative practice in interprofessional collaboration as well as assist in raising awareness of the importance of working as a team, and communication and collaboration. In the implementation of IPE learning in Emergency Nursing courses, it can be carried out using Based Learning and Lab Skills methods.

This is supported by research by Wang (Wang, Shi, Bai, Zheng, & Zhao, 2015) In the IPE group, simulation scenarios of appendectomy, splenectomy, small bowel resection and anastomosis were performed. Each simulation scenario lasted for three hours carried out every week for 2 periods in the simulation operating room. During this scenario the nursing student plays the role of the scrubber and the medical student plays the surgeon. The interprofessional training carried out had a positive impact on participants' attitudes towards team-based competencies and knowledge of each profession.

2. Analysis of IPE in Medical Graduates

Based on research results the implementation of IPE for medical undergraduate students is carried out in the Traumatic emergencies course with a load of 7 credits in block 17. The achievements of this course are Students are able to explain the pathogenesis and pathophysiology of emergency diseases, Students are able to explain pathogenesis and pathophysiology from infections that are emergency, Students are able to take anamnesis and examination of emergency diseases, Students are able to take anamnesis and examinations of infections that are emergency, Students are able to explain the management of emergencies, Students are able to explain the management of infectious diseases that are emergency, Students are able to analyzing simulation cases and providing differential diagnoses, students are able to communicate effectively, students practice lifelong learning.

The sub-topics of this course are assessment and initial management and referral plans for thoracic trauma, abdominal trauma and emergencies (including acute abdomen except inflammation), pelvic trauma and emergencies, head and spinal trauma, thermal trauma, facial trauma, and other emergencies. assessment and management of shock, fluid therapy in cases of bleeding, transfusion, AGDA readings, Internal Medicine: Respiratory tract emergencies (massive hemoptysis, airway obstruction), Cardiovascular (AMI, CHF, critical hypertension), Gastrointestinal tract (bleeding), Urinary system, Endocrine Metabolic and hypoglycemic, poisoning, pharmacology of drugs, emergency in infants and children, (Convulsive status, respiratory distress syndrome), emergency obstetrics (obstetric and gynecological bleeding, puerperal sepsis, septic abortion, eye emergencies (trauma, glaucoma, uveitis, retinal detachment, corneal ulcers, nervous system emergencies (cerebrovascular hemorrhage) vascular, and status epilepticus), Psychiatric emergencies (Suicide attempts and other psychiatric emergencies in adults and children, Skin emergencies (Steven Johnson's Syndrome and Toxic Epidermal Necrolysis).

Research results Kim (Kim et al., 2019) The Role-play lecture method can improve communication between students and how to resolve conflicts between health professionals in the cases they receive. In the achievement of courses where students are able to take anamnesis and examination of infections that are emergency in nature as well as the subject of pharmacology and drugs, it can be used as an IPE between pharmacy and medical students.

This is supported by research by Guilding (Guilding et al., 2020). This study designed and evaluated an interprofessional education conference on antimicrobial education approaches in pharmacy and medical students. Against the backdrop of a response to reports highlighting the adverse impact of prescribing on antimicrobial resistance, the UK Specialist Advisory Committee on Antimicrobial Resistance advocates a coherent multidisciplinary approach to the entire antimicrobial prescribing process, based on IPE that progressively builds collaborative capabilities and is supported by

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educational theory which then demonstrates changes in prescribing behavior and potential health benefits.

3. Analysis of IPE for Bachelor of Pharmacy

Based on the results of research, the implementation of IPE for Bachelor of Pharmacy is in clinical and community Pharmacy courses with a load of 2 credits. Course descriptions of clinical and community pharmacy study complex cases (problem solving) involving frequent disorders of various organ systems, ranging from simple to very complex. The purpose of this course is to be able to understand the concepts of clinical pharmacy and be able to understand the clinical pharmacy approach in various fields of disease. Face-to-face learning methods or lectures, discussions, independent assignments and practice groups, as well as extracurricular activities that support the process of achieving student competence. The research content of the clinical and community pharmacy curriculum is the scope of clinical pharmacy, analytical methods in clinical pharmacy, research methods in clinical pharmacy, evidence-based medicine (EBM), cytology and sterile drug management, cardiovascular and vascular disease case studies of the respiratory system, diarrhea, diseases infectious, cancer, endocrine nervous system. This course can be used as interprofessional education in terms of the learning objectives of students being able to understand clinical pharmacy approaches in various fields of disease.

This is supported by the research of Cropp (Cropp, Beall, Buckner, Wallis, & Barron, 2018). qualitative research design, the purpose of the study was to determine the perceptions of pharmacy students and nursing students on interprofessional pharmacokinetic simulations. In this pharmacokinetic simulation, nursing students conduct a head-to-toe assessment and pharmacy students collect the necessary information and data from the results of the nurse's assessment and calculate the required dose.

This is supported by the research of Schussel (Schussel, Forbes, Taylor, & Cooley, 2019). This study carried out the implementation of IPE by means of Medication Therapy Management (MTM). This interprofessional MTM experience spans three weeks, with students meeting health sciences (medicine, nursing, nutrition, and pharmacy) once a week. IPE facilitates interprofessional student collaboration through small group sessions to conduct MTM consultations for patients with complex chronic conditions.

4. Analysis of IPE at the Bachelor of Nutrition

Based on the results of the research, the implementation of IPE at the Bachelor of Nutrition is in the Nutrition Program Planning course with a load of 3 credits. Learning outcomes, mastering the theoretical concepts of nutrition advocacy, planning nutrition programs, monitoring and evaluating nutrition services, community empowerment and nutritional care management, and documenting clinical/dietary nutrition services, as well

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as being able to plan, implement clinical/dietary nutrition services, advocacy, monitoring Documentation for evaluate and manage nutritional care and clinical/dietary nutrition services. Learning materials, nutrition care process, nutritional care management, nutritional data assessment (nutritional history and nutritional needs, other data that support nutrition), nutritional status assessment (anthropometry, biochemistry, clinical), client nutrition diagnosis, nutrition planning Individual and group interventions, planning monitoring and evaluation of nutritional services provided to clients, documentation of nutrition services, ethics of providing nutritional care as a process of nutrition services, teamwork in the management of nutritional care, maintaining the confidentiality of nutrition service documentation, monitoring and evaluation of nutritional services provided to clients.

Research results Braun (Braun et al., 2019) In a projectbased learning method on knowledge orientation research on medical students and nursing and nutrition students, they create a teaching project by analyzing the nutritional situation in the treatment of patients. The purpose of this research is to see the extent of student work in interprofessional teaching projects in internal medicine wards. The research instruments were patient medical records, doctor's instructions, nutrition protocols in the ward, nurse documentation, Complex Care Measure Score (PKMS) taken from the patient's medical history, care commentary notes. This study was conducted for three months pre-intervention and four months post-intervention then analyzed the nutritional status of the patient.

This is supported by the research of Yinusa (Yinusa, Scammell, Murphy, Ford, & Baron, 2021) this study is a multidisciplinary collaborative care approach in providing nutritional care to patients in hospitals. The explored aspects of nutritional care were identified using the European Society for Clinical Nutrition and Metabolism (ESPEN) guidelines. The purpose of this study was to determine aspects of nutritional care explored by multidisciplinary and multidisciplinary collaboration, the process of activities and how the collaboration results. The research sample was 18 yearold hospitalized patients who were malnourished. The results show that nutritional care with a multidisciplinaryapproach benefits from the involvement of various disciplines, namely: clarity of roles, effective multidisciplinary relationships facilitated by effective communication.

Conclusion

Conclusion of this research is an interprofessional education approach for undergraduate nursing, medicine, pharmacy and nutrition in the COVID-19 pandemic era, with four study programs available through Interprofessional Education (IPE) in Semester Six

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