STUDENT OF PHARMACY, NURSE, PUBLIC HEALTH, NUTRITIONIST AND PHYSICAL EDUCATION READINESS TOWARD INTERPROFESSIONAL EDUCATION (IPE)

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ABSTRACT

The implementation of interprofessional education (IPE) into higher education curricula is a significant method for creating professionals with the skills necessary for interprofessional collaboration (IPC), including those in the health sciences, nursing, pharmacy, and nutrition. Due to the changes in health services, which are becoming more integrated, it is vital to have the capacity for interprofessional collaboration. The readiness of the pupils for IPE must be assessed before to its implementation in order to identify the subjects that should be highlighted at that time. This research is a cross-sectional study using descriptive analysis method. The distribution of respondents was as all in 4th semester students, consist of department of Pharmacy (n=92), department of Nursing (n=88), department of Public Health (n=95), department of Nutrition (n=66) and department of Physical Education (n=42) in Faculty of Health Sciences. Questionnaire data collection was carried out online. The independent variable that is measured is the student's readiness for Interprofessional Education. The results findings there is a significant difference between the readiness of students in Nurse department and students of all department. The nurse department received the highest score (score = 68.47) and the Health Education received the lowest score (score = 65.59). But all department receive score > 80% of the total score. There is still room for improvement in the areas related to the value of learning together in practical situations.

Keywords: Readiness pharmacy; Health sciences; Interprofesional education

1. INTRODUCTION

Interprofessional collaboration practice (IPC) in health-care happen when multiple health-care professionals from various professional backgrounds deliver comprehensive services by collaborating with patients, their families, careers, and communities to provide the highest quality of care throughout settings (WHO, 2010). The establishment of interprofessional partnerships between health practitioners and students, patients, families, and communities with the ultimate goal of attaining improved health outcomes is what is known as interprofessional collaboration (The Canadian Interprofessional Health Collaborative, 2010). Compared to a team of a single discipline, a multidisciplinary healthcare team can give better treatment outcomes and higher-quality care. The members of an interprofessional team each bring their special role in order to improve the safety and quality of life for their patients. According to the World Health Organization (WHO), Interdisciplinary collaborative practice in healthcare settings, increases patient management frameworks (Maharajan et al., 2017).

Interprofessional Collaboration bring a lot of potential benefits. Therefore, IPC needs to be implemented in delivering services to the patients. Health workers need to have the skills or ability

to collaborate with other health workers, or work as a team with other health worker professions (WHO, 2010). To gain this collaboration skills, health workers need to implement Interprofessional Education (IPE). IPE (Interprofessional Education) is the key factor for achieving successful teamwork in healthcare settings (Bridges et al., 2011; WHO, 2010).

The World Health Organization (WHO) defines interprofessional education (IPE) as the process by which two or more healthcare professionals learn from, with, and about one another in order to enhance collaboration and the standard of care. WHO also promotes a viable strategy for creating a workforce that is prepared for workplace collaboration (WHO, 2010). Interprofessional Education (IPE) is a concept that emphasizes the growth of effective teamwork and communication across all healthcare professionals in order to deliver high-quality patient care (Alruwaili et al., 2020; Gilbert et al., 2010). IPE enables students to become familiar with the primary functions in their particular profession as well as the roles of their team members in related fields of employment (Maharajan et al., 2017).

Several studies concluded that IPE plays a significant role in creating an effective collaborating environment in a health-care setting (Guraya & Barr, 2018; O'Donoghue & Cusack, 2012), leading to a strong recommendation to include IPE as an integral part of the curriculum of undergraduate medical and health-related professions (Gilbert et al., 2010). Several schools have incorporated IPE standards into their medical curriculum (Alruwaili et al., 2020). The major objective of interprofessional education (IPE), which combines students from at least two distinct health care professions, is to improve patient outcomes by fostering collaborative practice and communication skills (Gilbert et al., 2010; Huebner et al., 2020). Researchers have discovered that IPE at the prelicensure stage improves patient satisfaction, fosters teamwork, and lowers clinical error (Nelson et al., 2017; Reeves et al., 2013). IPE is one of the ten recommendations for future education in the professions and is anticipated to be the primary element affecting education in the health care and medical areas in the twenty-first century (The Canadian Interprofessional Health Collaborative, 2010; Yune et al., 2020).

IPE outcomes are more likely to be favorable when students have positive views regarding it. A thorough understanding of the students' readiness for future interprofessional collaboration can be gained by evaluating their perspectives of IPE (Alruwaili et al., 2020). It is vital to investigate the variations in students' interpretations of IPE in order to establish and administer IPE programs in different major as medicine, nursing, and pharmacy. IPE difficulties may arise from these variations. In order to better construct on IPE program, it is crucial to investigate how they view IPE (Yune et al., 2020). In the health education, IPE is commonly implemented to medical doctor and nurse students. But in the health care services, patients receive services not only from doctors and nurses, but also from other health workers, such as pharmacists, public health, physiotherapy, etc (D'Costa et al., 2022; WHO, 2010). Therefore, IPE also should be carried out in in this health profession education and assessing student readiness is the first step to initiate IPE. Jenderal Soedirman University has four department in health profession, consist of department of Pharmacy, Nurse, Public Health, Nutritionist, and Health Education in one faculty as Faculty of Health Sciences. As having those department in one faculty, allows their students to interact from the beginning of academic activities, thus will provide different readiness from health professional students from separate faculties. assessing its readiness for IPE will give important finding about students' readiness and wether they are differences of student's readiness based on each department. This study's objectives were to explore and to know which department has the most readiness for IPE.

2. METHODS

This research is a cross-sectional study using descriptive analysis method. In this study, the respondents were students in departments of Pharmacy, Nursing, Public Health, Nutrition and Physical Education, Faculty of Health Sciences (FIKES). The respondents used were all in 4th

semester students with a total of 383 student respondents. The distribution of respondents was as follows, department of Pharmacy (n=92), department of Nursing (n=88), department of Public Health (n=95), department of Nutrition (n=66) and department of Physical Education (n=42). Questionnaire data collection was carried out online. The independent variable that is measured is the student's readiness for Interprofessional Education and the dependent variable is the student's department. This research has received Ethical Clearance from KEPK FIKES Unsoed, No: 567/EC/KEPK/XI/2021.

Data collection on student readiness for Interprofessional Education was carried out using the Readiness for Interprofessional Learning Scale (RIPLS) questionnaire by (Tyastuti et al., 2014). Prior to use, the questionnaire's reliability and validity were assessed using the Alpha Cronbach test and Pearson correlation test, respectively. The score for each question item obtained from the questionnaire were then analyzed descriptively. The difference in student readiness for IPE between majors was assessed using the Kruskal Wallis test on the overall score. The greater the total score obtained on each questionnaire, the better the student's readiness for IPE.

3. RESULTS AND DISCUSSION

This research was conducted to get an overview of the readiness for IPE of FIKES students, as well as whether there are differences in these variables based on each department. This information is used to be able to build IPE materials that are more targeted to student needs. All of the RIPLS questionnaire's questions were valid, according to the findings of the Pearson Correlation validity test (p 0.001), and the Cronbach's Alpha reliability test also supported this finding (Cronbach's Alpha value of 0.898). **Table 1** displays the results of the average score for each question item. Students from different departments scored differently on the RIPLS questionnaire, according to the results of the overall score.

The highest scores were in the nursing department (score = 68.47), then pharmacy (score = 66.61). All majors scored > 80% of the total score. The greater the total score obtained; the more prepared students are for IPE. This shows that all students have good readiness for IPE. The score results for each question item show that the majority of students are ready for IPE by giving a score of 4 out of 5. Some of the questions that still score below 4 are questions about about collaboration learning activities to achieve IPE (item number 10, 11, and 12). In the other hand, learning activity that is carried out collaboratively with other professions, mutual interaction between students from different professions is the essence of IPE (International Pharmaceutical Federation (FIP), 2015; WHO, 2010). Therefore, learning activities are carried out collaboratively the same as students from other professions is the main requirement of IPE.

Based on these results, students need to emphasize the importance of collaboratively learning, communication and collaboration (The Canadian Interprofessional Health Collaborative, 2010) as well as designing learning methods that make students actively involved in collaborating and communicating directly between students and other department. This can be accomplished by giving students exposure to different professions that are directly involved in teaching and learning activities, in addition to learning. Students are intended to feel as though they are genuinely interacting and working with students from other professions through this direct exposure. This hands-on engagement and teamwork experience can come in handy when collaborating with other professions in the real world.

Table 2 shows the outcomes of the Kruskal Wallis test. Based on the overall result, this test show whether one department is more prepared than another. According to the test's results, there is a considerable gap between the readiness of students in the nursing department and that of the other departments. The Nurse department outperformed all other departments, receiving the highest score (score=68.47). With a score of 65.59, the Department of Health Education received the lowest rating.

Table 1. Student readiness for IPE based on department

Readiness for Interprofessional Learning Scale items	Skor / Department				
	Pharmacy	Nurse	Public Health	Nutritionist	Health Education
Learning with other students / professionals will make me a more effective member of a health and social care team	4.32	4.3	4.2	4	4.12
Patients would ultimately benefit if health and social care students / professionals work together	4.68	4.72	4.54	4.56	4.54
Shared learning with other health and social care students / professionals will increase my ability to understand clinical problems	4.51	4.48	4.41	4.3	4.44
Communications skills should be learned with other health and social care students / professionals	4.27	4.41	4.16	4.06	4.27
Team-working skills are vital for all health and social care students / professionals to learn	4.48	4.5	4.35	4.35	4.44
Shared learning will help me to understand my own professional limitations	4.34	4.36	4.29	4.21	4.24
Learning between health and social care students before qualification and for professionals after qualification will improve working relationships after qualification / collaborative practice.	4.4	4.43	4.29	4.15	4.29
Shared learning will help me think positively about other health and social care professionals	4.33	4.41	4.28	4.15	4.44
For small-groups who are learning to work, students / professionals need to respect and trust each other	4.62	4.65	4.54	4.42	4.51
I don't want to waste time learning with other health and social care students / professionals	3.02	3.31	3.37	4	2.73
It is not necessary for undergraduate / postgraduate health and social care students / professionals to learn together	3.37	3.86	3.85	3.98	3.46
Clinical problem solving can only be learnt effectively with students / professionals from my own school / organisation	3.1	3.6	3.51	3.73	2.93
Shared learning with other health and social care professionals will help me to communicate better with patients and other professionals	4.32	4.42	4.23	4.14	4.37
I would welcome the opportunity to work on small group projects with other health and social care students / professionals	4.29	4.36	4.16	4.05	4.32
I would welcome the opportunity to share some generic lectures, tutorials or workshops with other health and social care students / professionals	4.26	4.35	4.16	4	4.22
Shared learning and practice will help me clarify the nature of patients' or clients' problems	4.3	4.31	4.13	4.03	4.27
Total Score	66.61	68.47	66.47	66.13	65.59

*Note: The RIPLS questionnaire uses Likert scale of 1-5; Unfavorable question scores (numbers 10, 11 and 12) have been adjusted

Table 2. Student readiness significance value based on between department

No.	Department	Significance Value
1.	Health Education-Nutritionist	0.415
2.	Health Education-Public Health	0.336
3.	Health Education-Pharmacy	0.296
4.	Health Education-Nurse	0.004*
5.	Nutritionist-Public Health	0.911
6.	Nutritionist-Pharmacy	0.832
7.	Nutritionist-Nurse	0.017*
8.	Public Health-Pharmacy	0.912
9.	Public Health-Nurse	0.012*
10.	Pharmacy-Nurse	0.017*

*Level of significance: 0.05.

In comparison to others department, the Nurse department is the readiest for IPE, according to this score. This is due to the fact that the nursing department included the idea of interprofessional collaboration in one of its lectures, making it more well known than in any other department. The other department does not yet offer any lectures on working with other professions (Fikes, 2021). Therefore, it can be hypothesized that students' reactions to IPE teaching and learning activities varied during the actual implementation of IPE. However, the departments of pharmacy, public health, nutrition, and health education also achieved scores that were more than 80% of the possible total. This demonstrates the high level of departmental readiness for group learning. Rasmita conducted research on the readiness of Nurse, Public Health and Pharmacy students and reported that 80% of the respondents were ready for IPE (Rasmita et al., 2018). Comparable findings were also made by Febriana, who stated that 85% of nursing students were prepared (Febriana, 2019). Moreover, Mobalen, 2021 reported that students specializing in nursing, nutrition, and midwifery also received high score on the IPE readiness test (Mobalen et al., 2021). This finding describes the readiness of students in forth semester or in the second year only and cannot be generally use to describe the readiness from first year student or third year student. Their readiness maybe different because differences in understanding about profession and collaboration due to amout of knowledge that has been studied along the length of study. Also, asessing readiness in first year and third year students will give wider understanding about readiness toward IPE.

4. CONCLUSION

According to the outcomes, in comparison to others department, the Nurse department is the readiest department for IPE, nevertheless, every department in FIKES was ready for the IPE. As a result, implementing IPE lectures or programs will be easier. Based on these findings, topics about communication, collaboration and the the importance of collaboratively learning among the students are several topics recommended to be emphasized more when implementing IPE program for all department.

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Authors' Contributions and Responsibilities

The authors made substantial contributions to the conception and design of the study. The authors took responsibility for data analysis, interpretation, and discussion of results. The authors read and approved the final manuscript.

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7. REFERENCES

Alruwaili, A., Mumenah, N., Alharthy, N., & Othman, F. (2020). Students' readiness for and perception of Interprofessional learning: A cross-sectional study. *BMC Medical Education*, *20*(1), 390. https://doi.org/10.1186/s12909-020-02325-9

Bridges, DianeR., Davidson, R. A., Soule Odegard, P., Maki, I. V., & Tomkowiak, J. (2011). Interprofessional collaboration: Three best practice models of interprofessional education. *Medical Education Online*, *16*(1), 6035. https://doi.org/10.3402/meo.v16i0.6035

D'Costa, M. P., Jahan, F., & Al Shidi, A. (2022). Health professions students' attitude, perception, and readiness toward interprofessional education and practice in Oman. *Journal of Taibah University Medical Sciences*, *17*(2), 248–255. https://doi.org/10.1016/j.jtumed.2021.10.004

Febriana, B. (2019). Kesiapan Dan Persepsi Mahasiswa Keperawatan Pada Program Ipe: Studi Pada SGD Dengan LBM Jiwa. *Jurnal Keperawatan Jiwa*, *7*(1), 101. https://doi.org/10.26714/jkj.7.1.2019.101-106

FIKES. (2021). *Buku Pedoman Akademik Fakuktas Ilmu-ilmu Kesehatan (FIKES) tahun 2021-2022 Universitas Jenderal Soedirman*. FIKES UNSOED.

Gilbert, J. H. V., Yan, J., & Hoffman, S. J. (2010). A WHO Report: Framework for Action on Interprofessional Education and Collaborative Practice. *Journal of Allied Health*, *39*(3), 196–97.

Guraya, S. Y., & Barr, H. (2018). The effectiveness of interprofessional education in healthcare: A systematic review and meta-analysis. *The Kaohsiung Journal of Medical Sciences*, *34*(3), 160–165. https://doi.org/10.1016/j.kjms.2017.12.009

Huebner, S., Tang, Q. C., Moisey, L., Shevchuk, Y., & Mansell, H. (2020). Establishing a baseline of interprofessional education perceptions in first year health science students. *Journal of Interprofessional Care*, *35*(3), 400–408. https://doi.org/10.1080/13561820.2020.1729706

International Pharmaceutical Federation (FIP), (2015). *Interprofessional education in a pharmacy context: Global report*. International Pharmaceutical Federation.

Maharajan, M. K., Rajiah, K., Khoo, S. P., Chellappan, D. K., De Alwis, R., Chui, H. C., Tan, L. L., Tan, Y. N., & Lau, S. Y. (2017). Attitudes and Readiness of Students of Healthcare Professions towards Interprofessional Learning. *PloS One*, *12*(1), e0168863. https://doi.org/10.1371/journal.pone.0168863

Mobalen, O., Faidiban, R. H., & Parlaungan, J. (2021). Interprofessional Education (Ipe) Dalam Meningkatkan Persepsi Dan Kesiapan Kolaborasi Mahasiswa. *Jurnal Ilmu Keperawatan Jiwa*, *4*(3), 495–500.

Nelson, S., White, C., Hodges, B., & Tassone, M. (2017). Interprofessional Team Training at the Prelicensure Level: A Review of the Literature. *Academic Medicine*, *Vol. 92*(5), 709–716. https://doi.org/10.1097/ACM.0000000000001435

O'Donoghue, G., & Cusack, T. (2012). The introduction of an interprofessional education module: Students' perceptions. Qual Prim Care. 2012;20(3):231–8. *Quality in Primary Care*, *20*(3), 231–238.

Rasmita, D., Timiyatun, E., & Pramitaresti, I. G. A. (2018). Gambaran persepsi dan kesiapan mahasiswa terhadap implementasi ipe (interprofessional education) di stikes surya global yogyakarta. *Jurnal Keperawatan Priority*, *1*(2), 28–37.

Reeves, S., Perrier, L., Goldman, J., Freeth, D., & Zwarenstein, M. (2013). Interprofessional education: Effects on professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, *Issue 3*. https://doi.org/10.1002/14651858.CD002213.pub3.

The Canadian Interprofessional Health Collaborative. (2010). *A National Interprofessional Competency Framework*. University of British Columbia.

Tyastuti, D., Onishi, H., Ekayanti, F., & Kitamura, K. (2014). Psychometric item analysis and validation of the Indonesian version of the Readiness for Interprofessional Learning Scale (RIPLS). *Journal of Interprofessional Care*, *28*(5), 426–432. https://doi.org/10.3109/13561820.2014.907778

WHO. (2010). *Framework for Action on Interprofessional Education & Collaborative Practice*. http://www.who.int/hrh/nursing_midwifery/en/, .

Yune, S. J., Park, K. H., Min, Y. H., & Ji, E. (2020). Perceptions of the interprofessional education of the faculty and the level of interprofessional education competence of the students perceived by the faculty: A comparative study of medicine, nursing, and pharmacy. *Korean Journal of Medical Education*, *32*(1), 23–33. https://doi.org/10.3946/kjme.2020.150