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INDRAPRASTA (*INDOOR DISASTER SIMULATION FOR INTERPROFESSIONAL EDUCATION) WITH TABLETOP DISASTER EXERCISE (TDE) IN DISASTER MANAGEMENT FOR HEALTH STUDENTS*

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ABSTRACT

This research aimed to explore the toles and responsibilites of each profession through active learning in order to prepare them for their roles as reserve personnel in disaster emergency reponse. One way to meet this demand is to increase disaster preparedness from an early age among health students through disaster management education. This study used a quasi experiment method that produced a product in the form of an INDRAPRASTA disaster map, whict has been tested for effectiveness. The sampling method used was total sampling with a T-Test data analysis. The research instrument used the Readiness for Interprofessional Learning Scale (RIPLS) questionnaire, which was assessed at the pretest and posttest. The results of the study showed that the T-test p=0,000 (p<0,05), which means that teha application of INDRAPRASTA with Tabletop Disaster Exercise through disaster map improve the disaster management preparedness of health students at the Poltekkes Kemenkes Yogyakarta.

***Keywords**: Disaster preparedness; Interprofessional Education (IPE); Tabletop Disaster Exercise (TDE)*

ABSTRAK

Penelitian ini bertujuan untuk mengeksplorasi peran dan tanggung jawab masing-masing profesi melalui pembelajaran aktif guna mempersiapkan peran sebagai personel cadangan dalam respon darurat bencana. Salah satu cara untuk memenuhi tuntutan ini adalah dengan meningkatkan kesiapsiagaan bencana sejak dini di kalangan mahasiswa kesehatan melalui pendidikan manajemen bencana. Penelitian ini merupakan penelitian quasi experiment dengan menghasilkan produk berupa peta bencana INDRAPRASTA dan telah diuji keefektifannya. Metode pengambilan sampel yang digunakan adalah total sampling dengan analisis data melalui T-test. Instrumen penelitian menggunakan kuesioner Readiness for Interprofessional Learning Scale (RIPLS), yang dinilai pada tahap pretest dan posttest. Hasil penelitian menunjukkan bahwa uji T-test p=0,000 (p< 0,05) yang berarti penerapan INDRAPRASTA dengan Tabletop Disaster Exercise melalui media peta bencana dapat meningkatkan kesiapsiagaan manajemen bencana mahasiswa kesehatan Poltekkes Kemenkes Yogyakarta.

***Kata Kunci**: Interprofessional Education (IPE), Kesiapsiagaan bencana; Tabletop Disaster Exercise (TDE)*

A. INTRODUCTION

According to the Institute of Medicine (IOM) in 2020, the number of deaths caused by preventable medical errors reached 98,000 in the United States. The results of the National Patient Safety Committee report show that Indonesia has experienced an increase in patient safety incidents to 7,465 cases. The root of the problem is poor collaboration among health workers, which causes delays in patient care (Sembe, 2024). Important aspects of health

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team collaboration are the decision-making process, mutual trust and respect, and effective communication. Ineffective communication arises when there are errors, omissions, or misinterpretations in the process of conveying information between healthcare professionals, which can lead to mistakes in patient care (Christina & Susilo, 2021). This problem is an example of poor collaboation between healthcare professionals.

Poor interprofessional collaboration practices are the most important factor in medication and treatment errors. In healthcare collaboration practices, problems such as imbalance of authority, overlapping roles, inappropriate workloads, and organizational structures often occur. These problems should be resolved by improving the implementation of interprofessional collaboration practices (Karaeng, 2024).

According to the World Health Organization (WHO) in 2013, Interprofessional collaboration (IPC) is collaboration between healthcare professional with difference profession to give good service quality in scope of clinical or healthcare services (Noviyanti et al., 2023). The best patient care cannot be separated from collaboration betweet healthcare professionals in providing integrited services, one of which is by nurses in providing quality nursing care.

The WHO stated at the 2014 Padjadjaran International Nursing Conference that interprofessional collaboration is assosiated with reduced mortality rates, complication rates, length of hospital stay, duration of treatment, and reduced healthcare costs, as well as increased patient and healthcare team satisfaction and reduced tension and conflict among healthcare teams (Maulana, 2014). The success of interprofessional collaboration certainly cannot be achieved in a short period of time. It must be instilled early on, especially in health students as future health workers, through Interprofessional Education (IPE). Interprofessional Education (IPE) is a learning system that involves several different professions to maximize the quality of health services and improve collaboration skills. Better results will be obtained if Interprofessional Education (IPE) is implemented during the academic period because early instillation of concepts will help avoid negative attitudes and perceptions when working between professions.

A program that can be developed to create an IPE culture from an early age is through INDRAPRASTA (Indoor Disaster Simulation For Interprofessional Education) with Tabletop Disaster Exercise (TDE). Providing early education to health students is expected to increase their knowledge in terms of managing victims in actual emergency responses.

The TDE (Tabletop Disaster Exercise) simulation method is a simulation method that uses media in the form of disaster event maps on a flat board or table (tabletop) accompanied by disaster scenarios and supplemented with role play by all participants to resolve issues related to victim management in disaster emergency response (Wirmando et al., 2022). The earliest disaster mitigation education introduced to students is IPE (Interprofessional Education). TDE (Tabletop Disaster Exercise) was chosen as an effective learning model in disaster mitigation.

TDE (Table Disaster Exercise) was chosen because it makes it easier for respondents to understand the material to be acted out in the field through descriptions of the disaster-affected areas and scenarios discussed together, thereby helping to stimulate the imagination. In addition, TDE (Table Disaster Exercise) is also an interactive medium for collaboration and coordination through effective communication. During this process, respondents independently conduct simulations by playing roles. This repetitive action will further increase the knowledge, skills, and preparedness of the community in facing disasters (Wirmando et al., 2022).

This study aims to develop a disaster management learning model through tabletop disaster simulation exercises to improve disaster preparedness among health students at the Poltekkes Kemenkes Yogyakarta in 2025. The results of this study are expected to describe the disaster preparedness of health students in the pre, during, and post disaster phases within the scope of interprofessional education. Through the tabletop disaster exercise method, it is hoped that understanding, commitment, and communication between professions will improve.

B. MATERIALS AND METHODS

The research was conducted in October-November 2025 as period 2 research. Period 1 research was conducted in 2024. This research used the quasi experiment method. Quasi experiment is a research method conducted through experiments to determine the effect of each variable. The variables in this study consist of two variables, namely independent variables and dependents variables. Independent variables is INDRAPRASTA (Indoor Disaster Simulation For Interprofesional Education) dengan Tabletop Disaster Exercise (TDE). Dependent variables is InterProfesional Education (IPE). There were two meetings held in this study. The first meeting was conducted online and the second meeting was conducted offline. This study was conducted as an effort to increase respondents' knowledge about rapid assessment, emergency status, search and rescue, evacuation, fulfillment of basic

needs, involvement in vulnerable groups, and recovery of vital facilities and infrastructure in disaster emergency situations.

The indicators assessed were disaster preparedness, which was measured through pre-test and post-test. Research participants also practiced disaster management using INDRAPRASTA disaster map. The sample for this study was determined using a total sample of 140 students from various departments at the Poltekkes Kemenkes Yogyakarta. The data obtained was then analyzed using a T-test.

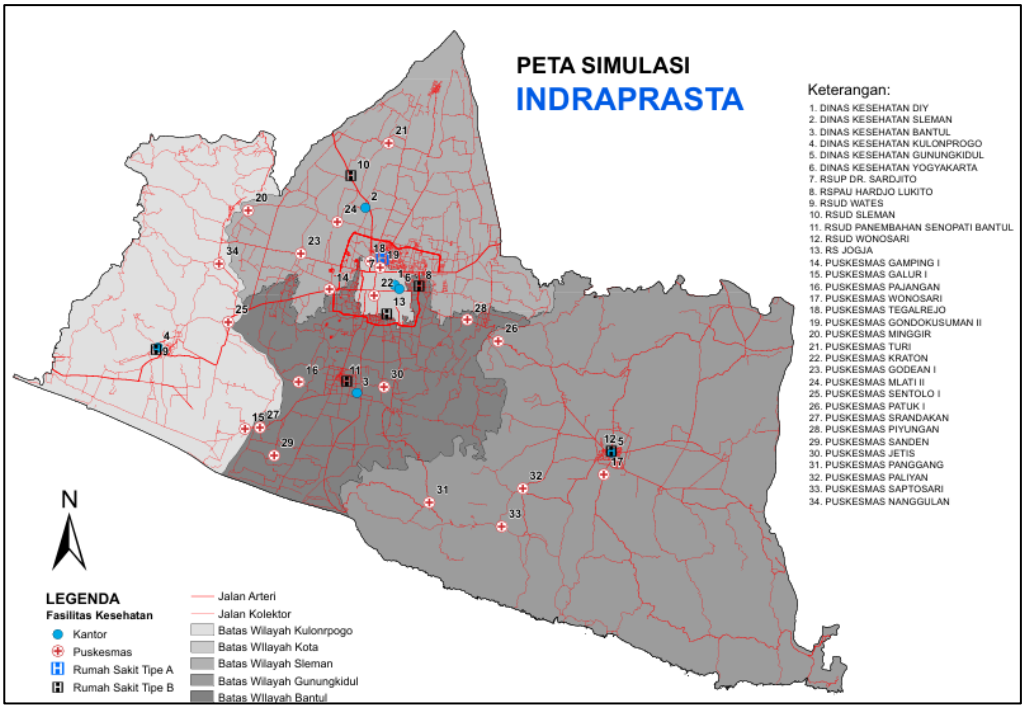


Figure 1. Disaster Simulation Map "INDRAPRASTA"

This study used INDRAPRASTA disaster map. Figure 1 shows an image of Disaster Simulation Map "INDRAPRASTA". The map contains information about disaster affected areas, making it easier to analyze the disaster risk of each area disaster affected. This map specifically depicts the map of the Yogyakarta region. Learning through TDE media using Disaster Simulation Maps is an interesting and effective way to improve students' knowledge and preparedness in health crisis management during disasters using an IPE approach. In addition, the application of the TDE method with Disaster Simulation Maps can be used as a new simulation method and as supporting material for student learning, especially in the health crisis management in disasters course.

C. RESULTS AND DISCUSSION

a. Respondent Demography

Table 1. Respondent Frequency Distribution

Character of Respondent	(n=140)	
	Frequency	%
Gender		
Male	14	10.0
Female	126	90.0
Total	140	100.0
Study Program		
Midwife	53	37.9
Nursing	14	10.0
Dental Health	73	52.1
Total	140	100.0
Semester		
Fourth Semester	53	37.9
Sixth Semester	73	52.1
Eighth Semester	14	10.0
Total	140	100.0

Source: Researcher Data Analysis Results for 2025

Table 1 shows a respondent frequency distribution of this study. The results showed that the majority of respondents were female with 126 students, form the dental health study program are 73 students, and in their sixth semester are 73 students. The total sample used in this study was 140 students. The total of respondents in this second period of research was fewer than in the first period of research. The total of responds in the first period for 2024 are 200 students.

b. The Effect of INDRAPRASTA (Indoor Disaster Simulation for Interprofessional Education) with Tabletop Disaster Exercise (TDE) in Disaster Management for Health

Students as Optimization of Interprofessional Education (IPE) on the Level of Preparedness of Health Students.

Table 2. Frequency Distribution of Pre-test and Pos-test Readiness Levels

	Frequency	**Mean**	**Std. dev**
Pre-test	140	72.56	7.189
Post-test	140	83.78	9.991

Source: Researcher Data Analysis Results for 2025

Table 2 shows a frequency distribution of pre-test and post-test readiness levels of this study. There was an increase in the mean post-test score, from 72.56 to 83.78, an increase of 11.22 points. These results indeicate a significant increase in the level of preparedness among respondents.

Table 3. Resulth of the INDRAPRASTA (Indoor Disaster Simulation for Interprofessional Education) Test with Tabletop Disaster Exercise (TDE) on Readiness Levels

	t	**df**	**Sig**
Pre-test	119.426	139	0.000
Post-test	99.213	139	0.000

Source: Researcher Data Analysis Results for 2025

The results of the readiness level analysis were calculated using a T-test of the responses to the RIPLS (Readiness for Interprofessional Learning Scale) in Indonesian version, which had beed tested for validity and reliability by Dwi Tyastuti, Hirotaka Onishi, Fikayanti & Hiyoshi Kitamura. The RIPLS questionnaire consists of 16 questions in 3 domains, there are namely cooperation and collaboration, negative professional identity, and positive professional identity. The scorring system used is a five point likert scale (5=strongly agree, 4=agree, 3=unsure, 2=disagree, 1=strongly disagree) (Milutinović *et al*., 2018). Table 3 contains the results of the T-test data analysis. The results of T-test showed p-value= 0.000 (p-value <0.05), which means that there is an effect of INDRAPRASTA on disaster preparedness levels. Then, the calculated t-value of the pre-test was 119.426 and for the post-test was 99.213.

Post-test results showed an increase in preparedness levels after the INDRAPRASTA intervention, which is in line with research conducted by Andi Wahyuni in 2025, which stated that disaster preparedness levels increased among elementary school students in Makassar after the Table Top Disaster Education (TDE) intervention (Wahyuni et al., 2025). Based on previous research, students feel that they are more useful and better able to collaborate when working in a team (Salih et al., 2019). A study conducted by Aye in 2019 stated that students were well prepared in the domain of cooperation and collaboration because they understood the importance of collaborating with other health workers (Aye et al., 2020).

Another study that supports the results of this study is the one conducted by Ibrahim Suleman & team in 2022, which shows a significant increase in healthcare workers' knowledge after education using tabletop disaster exercises. After receiving education using TDE, health workers are able to collaborate, and determine communication in strategies for disaster management so that it will have an impact on improving emergency response in accordance with their roles (Suleman et al., 2022).

Student preparedness for IPE can be influenced by several factors, namely internal factors such as cognitive abilities, skills, abilities, interests, and motivation, while external factors include interprofessional relationships, social life, the hospital environment, and culture (Akhmad et al., 2019). Cognitive ability is one of the influencing factors, because higher cognitive capacity will make health students more prepared to face the IPE learning provided (Lestari et al., 2016). Through the IPE approach, the target group in this disaster simulation activity was able to identify problems, find the root causes, develop alternative solutions, and make decisions. This was demonstrated by the target group's ability to share tasks and responsibilities during the disaster simulation (Suleman & Yusuf, 2023).

IPE preparedness among students is very important, because health students will face a working world that requires collaboration between health professions. The best way to implement IPE is as early as possible, which needs to be introduced at the beginning of the semester (Damayanti & Bachtiar, 2020). In addition, readiness can also be improved by developing a curriculum concept that raises awareness of the need for IPE (Salih et al., 2019).

One method that can be used in IPE learning is the Tabletop Disaster Exercise (TDE) method, which is a form of disaster training conducted through simulation on a table or in a room, without involving physical action or actual evacuation. Participants involve representatives from various functions or parts of the organization, and they coordinate to identify problems, make decisions, and design responses and plans for the emergency situation faced. Each individual involved has their own role and task in making decisions based on their knowledge and skills (Addiarto, 2016).

The results of research by Fitriani, Anisa Assafira in 2023 show that providing knowledge through disaster management training using simulation methods can improve students' preparedness behavior in facing disasters. It is important for students to interact in an environment where the ability to interact is key to enriching their personal experiences (Fitriani et al, 2023).

Knowledge about positive readiness will result in positive readiness behavior or attitudes, according to Green's hypothesis (1980). For positive behavior to emerge, knowledge plays an important role in modifying and enhancing behavioral characteristics (predisposition, support, and motivation) (Erviana&Azinar, 2022).

The difference in the total of respondents occurred because some students didn't participate in the all research step. There were several students who were doing clinical practice, didn't take the pre-test or post test. This resulted in suboptimal research results, as not all students benefited from the research.

The results of the first and second period study both have a p-value= 0.000 (p value < 0.05). what distingushes the results of first and second period study is the t-value form pre-test and post-test, total respondents.

D. CONCLUSIONS

Researchers concluded that the INDRAPRASTA (Indoor Disaster Simulation for Interprofessional Education) Test with TDE (Tabletop Disaster Exercise) can be a method to improve disaster preparedness, especially among health students. By implementing INDRAPRASTA, which involves interprofessional education, it was found that every process before, during, and after a disaster can be carried out optimally to minimize the impact of a disaster and accelerate the recovery process for disaster victims. The recommendations and follow-up actions from this study are to expand the dissemination of

information on interprofessional collaboration so that resource mapping can be carried out to the fullest extent possible.

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