Oktarina, M., et al. (2024). *Nurse and Health: Jurnal Keperawatan. 13 (1): 84-90*
http://ejournal-kertacendekia.id/index.php/nhjk/index

Original Research Article

INCREASING KNOWLEDGE OF MIDWIFERY STUDENTS ABOUT FLOOD DISASTERS USING THE JIGSAW LEARNING METHOD

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Article Info:
Received: May, 14th, 2024
Revised: June, 3rd, 2024
Accepted: June, 5th, 2024

DOI:
https://doi.org/10.36720/nhjk.v13i1.653

Abstract

Background: Not having had direct experience in dealing with disasters means that students are not ready to be prepared, so disaster education using a jigsaw learning method is needed.
Objectives: This research aims to study the effect of the jigsaw learning model on knowledge of flood disasters in level 3 students in the STIKES TMS undergraduate midwifery study program.
Methods: The research design used pre-experimental with one group pretest and post test design. The population of this study were all third year undergraduate midwifery students at STIKES TMS totaling 30 (total sampling) using the Wilcoxon test.
Results: The knowledge of third level midwifery students at STIKES TMS before the jigsaw method was known to be less than 6 people, 15 people were sufficient and 9 people were good. The knowledge of third level midwifery students of STIKES TMS after the jigsaw method was found to be 3 people lacking, 5 people sufficient and 22 people good
Conclusion: The p value = 0.000 means that there is an influence of the jigsaw learning method on knowledge of flood disasters in third year undergraduate midwifery study programs at STIKES TMS Bengkulu

Keywords: ***Disaster, Flood, Jigsaw, Knowledge, Students***

E-ISSN
2623-2448
P-ISSN
2088-9909

INTRODUCTION

Disasters according to the World Health Organization (WHO) (2007) are all events that cause losses, including economic disruption, loss of human life, and deterioration of health, as well as health services on a large enough scale, so that they require greater and further assistance from the local area. others who were not affected (Apriyani, 2022).

Indonesia which is located in the Pacific Ring of Fire, has a high potential for natural disasters. The country of Indonesia is located in an area that is vulnerable to various natural disasters. Almost all types of natural disasters occur in Indonesia. Disasters can happen at any time without predicting the right time.This can make our society always try to behave in a disaster response manner (Anies, 2017). Indonesia is ranked 37th out of 180

countries most vulnerable to disasters (The World Risk Index, 2019).

Throughout 2021, the National Disaster Management Agency (BNPB) recorded 3,092 incidents dominated by hydrometeorological disasters. The most frequently occurring disasters are floods with 1,298 incidents, followed by extreme weather with 804, landslides with 632, forest and land fires. In 2022 Indonesia experienced 717 flood disasters and during January 2023 there were 16 incidents (BNPB, 2023).

Bengkulu Province is prone to disasters, namely earthquakes, tsunamis, fires, floods, droughts, and typhoons. From January to 19 October 2022, 83 disaster events were recorded with the highest disaster event being floods with 38 events, followed by 28 landslides and then earthquakes. earth and tornadoes. In the city of Bengkulu in September 2022, it was recorded that 9 sub-districts in the city of Bengkulu including Selebar sub-district, Gading Cempaka sub-district and Ratu Samban sub-district were also flooded as a result of heavy rain accompanied by lightning and strong winds with 1,970 families affected by the flood (BPBD Bengkulu City 2022).

Flood disasters which still frequently occur can result in physical losses in the form of economic losses, difficulty in clean water and psychological losses in the form of post-traumatic stress disorder (PTSD), especially in vulnerable groups such as teenagers, so disaster mitigation in the form of disaster education is needed to reduce disaster risks. One form of education for students is by providing material using the jigsaw method about disaster preparedness using the jigsaw method. Through education, it is hoped that disaster risk reduction efforts can achieve broader targets and can be introduced earlier to all students. One of the disaster education materials can be integrated into learning (Raibowo, 2022).

The jigsaw method is a type of cooperative learning consisting of several members in one group who are responsible for mastering parts of the learning material and are able to teach the material to other members in their group. Jigsaw learning brings innovative understanding concepts, and emphasizes student activity. Student activity can encourage identifying and overcoming problems (Fakhiroh & Zaina, 2021).

The Tri Mandiri Sakti College of Health Sciences (STIKES TMS) Bengkulu, located in the Gading Cempaka sub-district, Bengkulu City, has several study programs, one of which is a bachelor of midwifery program whose students are aged between 18-24 years, which is classified as late adolescence. The vision of STIKES TMS "to become a professional and superior health education institution in disaster management at the national and international levels by 2023" certainly has lessons that make this institution's characteristic, namely disaster management which is obtained at level 3 of the midwifery undergraduate study program to learn about disasters so that students students at STIKES TMS can be more responsive in dealing with disaster events.

Objective (s): To determine the effect of the jigsaw learning model on knowledge of flood disasters in level 3 students in the STIKES TMS undergraduate midwifery study program.

METHODS

Study Design

The design in this research is pre-experimental, using a one group pre-test and post-test design.

Setting

This research was conducted at Tri Mandiri Sakti High School of Health Bengkulu.

Research Subject

The population in this study were all undergraduate midwifery study program students at Tri Mandiri Sakti High School of

Health Sciences Bengkulu city, totaling 30 students from level 3. The sampling technique in this study used a total sampling technique of 30 students.

Instruments

The research instrument uses a knowledge questionnaire consisting of 20 question items. The results of measuring knowledge are grouped into three data groupings, namely good with a score of 75%-100%, sufficient if 56%-75%, poor if the knowledge score is <56%.

Intervention

The research was conducted in two meetings, the first meeting was held on June 14 2023 by taking initial data (pre-test) which was collected by filling out a knowledge questionnaire to obtain the level of knowledge of flood disasters among students before being given material about flood disasters using the jigsaw learning method. Next, respondents were given knowledge about flood disasters using the jigsaw learning method with the steps of forming 5 home groups with 6 members in each group, forming 6 expert groups from members of the home group by taking one member per home group with 6 different materials according to the flood disaster learning theme, guiding the expert group discussion, then assigning the expert group to understand the material at home within the time specified at the second meeting.

The second meeting was held on June 19, 2023. After finalizing the material at home, the expert groups were grouped back into their original groups to present the results of the discussion to their members, then carried out an evaluation by giving questions (posttest) to determine the level of students' knowledge after being given material about flood disasters using the jigsaw method. . After obtaining the final data, the researcher calculated the group scores to give awards in the form of small gifts to the groups with the highest scores, namely groups 5 and 1.

Data Analysis

Data analysis uses two methods, namely univariate and bivariate analysis. Univariate analysis was used to determine the systematic frequency distribution of each variable, namely the independent variable or the influence of the jigsaw learning method on knowledge of flood disasters in level 3 students in the STIKES TMS midwifery study program and the dependent variable or knowledge of flood disasters in level 3 students in undergraduate study programs. Midwifery STIKES TMS Bengkulu City. Bivariate analysis was carried out to see the influence between the independent and dependent variables in the form of a cross tabulation between the two tables. To determine the effect of the jigsaw learning model on knowledge of flood disasters, researchers will use the Wilcoxon test because the data is not normally distributed.

Ethical Consideration

This research received ethical approval from the Research Ethics Committee of STIKES Tri Mandiri Sakti Bengkulu with number 000390/KEPK STIKES TMS BENGKULU/2023.

RESULTS

Test Validity

The results of the validity test regarding the knowledge of 30 respondents showed that the calculated r was greater than the r in the table, so that the questionnaire could be declared valid with a significant value of 0.05%, namely 0.361.

Test Reliability

Table 1. Reliability test

Croncbach's Alpha	Standard CA	Information
1,033044	0,7	Reliable

After the validity test results were declared valid, a reliability test was then carried out on the knowledge questionnaire using Chronbach's alpha, the result was

1.033044, meaning it was greater than the 0.7 that had been determined, so the questionnaire was said to be reliable.

Univariate Analysis

The respondents in this study were 30 students who met the criteria desired by the researchers and had various characteristics. In accordance with the research results, data on the characteristics of respondents were obtained as follows:

Table 2. Knowledge of Respondent Before Learning the Jigsaw Method

Knowledge	Frequency	Precentage
Good	9	30%
Enough	15	50%
Not enough	6	20%
Total	30	100%

From the data above, it was found that 3 respondents had insufficient knowledge, 5 people had sufficient knowledge and 22 people had good knowledge after being given disaster education using the jigsaw learning method

Table 3. Knowledge of Respondent After Learning the Jigsaw Method

Knowledge	Frequency	Precentage
Good	22	73,3%
Enough	5	16,7%
Not enough	3	10%
Total	30	100%

From the data above, it was found that 3 respondents had insufficient knowledge, 5 people had sufficient knowledge and 22 people had good knowledge after being given disaster education using the jigsaw learning method.

Bivariate analysis

This analysis was carried out to determine whether there was an influence between the independent variable (jigsaw learning method) and the dependent variable (knowledge of flood disasters) on Tri Mandiri Sakti High School of Health Sciences students in Bengkulu City.

a. Data Normality Test

The normality test is a test carried out to determine whether the data is normally distributed or not. This research uses the sapphirowilk normality test because the number of samples is less than 50.

Table 4. Normality test

	Kolmogorov-Smirnov			Shapiro-wilk		
	Statistics	Df	Sig	Statistics	Df	Sig
Before the jigsaw	.212	28	.002	.887	28	.003
After the jigsaw	.261	28	.00	.796	28	.000

The data above shows that the significance value is 0.003. Basic decision making: If the sig value is > 0.05 then the value is normally distributed. If the sig value <0.05 then the value is not normally distributed. Based on this decision making, the data is not normally distributed, so the Wilcoxon test (non-parametric test) is used.

b. Wilcoxon test

Table 5. Wilcoxon Test and Statistics Test

		N	*Mean*	*Sum of Ranks*	*Z*	*Asym p.sig.(2.tailed)*
After the jigsaw-Before the jigsaw	*Negatie*	0[a]	.00	.00	-4.228[d]	.000[e]
	Positive	23[b]	12.00	276.00		
	Ties	7[c]				
	Total	30				

From the table above, it can be seen that knowledge: 23 people increased, and 7 people remained if presented with an increase of 76%. The Wilcoxon test results obtained a value of Z = -4.22 or the average distribution after and before the jigsaw learning method was applied with P-value = 0.000 <0.05, then Ho was rejected and Ha was accepted, which

means: There is an influence of the jigsaw learning method on knowledge flood disaster among undergraduate midwifery study program students at Tri Mandiri Sakti High School of Health Sciences Bengkulu City.

DISCUSSION

The results of this analysis show that the respondents' knowledge before being given the jigsaw learning method was found to be 6 people with insufficient knowledge, 15 people with sufficient knowledge and 9 people with good knowledge before being given disaster education using the jigsaw learning method.

Based on the results of filling out the questionnaire that the researcher provided, there were 3 questions that were often answered incorrectly, namely numbers 15 and 20 which contained preparedness and number 6, only 55% of students answered correctly, where the questionnaire contained a false statement but many students were trapped by this statement.

This shows that some students have insufficient understanding or knowledge. Knowledge is the result of knowing and this is after people sense certain objects. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste and touch. Most human knowledge is obtained through the eyes and ears (Suwanti and Aprilin, 2017).

The results of data analysis showed that 3 respondents had poor knowledge, 5 people had sufficient knowledge and 22 people had good knowledge after being given disaster education using the jigsaw learning method. This means that even though there are 3 people who are knowledgeable, this is still lacking, this is influenced by several things, such as students not actively participating or lacking focus in the learning process. High learning outcomes meet indicators of learning concentration including being able to analyze the knowledge gained and being able to express ideas/opinions (Setyani and Ismah 2018).

However, 3 people experienced an increase in learning outcomes. Learning outcomes are the level of mastery achieved by students in following the learning program in accordance with the set learning objectives (Abdullah, 2017).

Increasing knowledge of flood disasters in third year students is expected to make them ready to face disasters, which is in line with research by Bila (2020) that the development of jigsaw lapbook media with material on the impact of seasonal changes can increase preparedness attitudes in 6th grade students at elementary school N01 Garum.

From the results of the table analysis, it is known that from the Wilcoxon test results, the value obtained is Z = -4.22 or the average distribution after and before the jigsaw learning method is applied, meaning that there is a difference in scores/knowledge before and after the implementation of the jigsaw method with P-value = 0.000<0, 05, with P-value = 0.000 <0.05, then Ho is rejected and Ha is accepted, meaning that there is an influence of the jigsaw learning method on knowledge of flood disasters in undergraduate midwifery study program students at Tri Mandiri Sakti High School of Health Sciences, Bengkulu City.

The influence of jigsaw learning is in line with research from Nisa (2019) entitled the application of the jigsaw learning model on student learning outcomes in the concept of types and mitigation in natural disaster class in class XI Social Studies MAN 2 Ciamis that the application of the jigsaw model can be used and has an effect on learning outcomes students on material regarding types and management of natural disasters.

The jigsaw cooperative model, shows an increase in student achievement, the class average score increased from 64.22 to 76.09 (Kusumahandari, 2018). By increasing knowledge and achievement, it is hoped that preparedness in facing disasters can be increased, which is in line with Rusiyah's (2017) research, which shows that there is a positive relationship between knowledge and

preparedness in facing disasters. The frequent provision of education about disasters makes a person better prepared to face natural disasters. Researchers assume that the better a person's knowledge will influence a person's attitude in acting. In line with research by Purwoko et al. (2015), the knowledge possessed by a person can influence attitudes and concern to be ready and alert in facing disasters.

CONCLUSION

The knowledge of third-level midwifery students at Tri Mandiri Sakti High School of Health Sciences, Bengkulu city before the jigsaw learning method was implemented, it was found that 6 people had insufficient knowledge, 15 people had sufficient knowledge and 9 people had good knowledge before being given the learning method. Meanwhile, the knowledge of third-level midwifery students at Tri Mandiri Sakti High School of Health Sciences Bengkulu city, after using the jigsaw learning method, showed that there was a lack of knowledge, 5 people had sufficient knowledge and 22 people had good knowledge. There were 23 students who experienced an increase in learning if the percentage was 76%. Thus, there is an influence of the jigsaw learning method on knowledge of flood disasters in third year students in the Tri Mandiri Sakti High School of Health Sciences, Bengkulu undergraduate midwifery study program.

SUGGESTIONS

It is hoped that students can increase their knowledge and preparedness after carrying out disaster education.

ACKNOWLEDGMENT

Thank you to Tri Mandiri Sakti High School of Health Sciences, the research site, respondents, and related parties who have helped a lot with this research.

DECLARATION OF CONFLICTING INTEREST

There is no conflict of interest in this research.

FUNDING

This research was funded by author.

AUTHOR CONTRIBUTION

Mika Oktarina: Concepts, design, literature search, data analysis, manuscript preparation, manuscript editing, and manuscript review

Choralina Eliagita: Data collection, and manuscript preparation.

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Cite this article as: Oktarina, M., et al. (2024). Increasing Knowledge of Midwifery Students about Flood Disasters Using the Jigsaw Learning Method. Nurse and Health: Jurnal Keperawatan, 13 (1), 84-90. https://doi.org/10.36720/nhjk.v13i1.653