RPCPE
ISSN 2613-943X (print)
ISSN 2620-5572 (online)
Journal Homepage:
https://jurnal.ugm.ac.id/rpcpe
Review of Primary Care Practice and Education
(Kajian Praktik dan Pendidikan Layanan Primer)

Evaluation of Community Based Disaster PreparednessTraining for Universitas Gadjah Mada Health Study Program Students in 2016

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To cite this article:
Kuntjoro I, Claramita M, Istiono W. Evaluation of community based disaster preparedness training for Universitas Gadjah Mada health study program students in 2016. Rev Prim Care Prac and Educ. 2019; 2(1): 15-19.

ABSTRACT

Background: Disasters are events that destroy infrastructure, take casualties, disrupt lives and systems, damage social order, health, and security, and occur on a global scale. Various places in the world have begun to include disaster management in their doctors' education curricula, including Indonesia, which is geologically located in disaster-prone areas that have the potential to be continually harmed by disasters that always occur. **Objective**: To see whether the disaster management training in Universitas Gadjah Mada for semester 7 study program students have properly increased the students' knowledge and attitude towards disaster preparedness. **Methods**: The study used quantitative research design and quasi-experimental methods, without control, with pre-test and post-test instruments. The population of this study was students of medical education study programs, nutrition study program, and nursing study program, with a sample of 175 students. The independent variable measured was community-based disaster management training. Collecting research data used an instrument in the form of a questionnaire that was analyzed by a paired T-test. **Results**: There was an increase in the scores of knowledge and attitudes about disasters after receiving training, but the achievement of the mean value of each question was still close to the median. The highest increase in scores achieved in each study program was a value of 6. **Conclusion**: There was an increase in knowledge about disasters and disaster preparedness attitudes in 2016 health study program students who attended Disaster Preparedness training.

Keywords: *Disaster, Preparedness, Knowledge, Attitude, Indonesia*

INTRODUCTION

Indonesia has a very high hazard potential (hazard potency) so that Indonesia is placed as the second largest disaster risk country in the world. In the past 15 years, from 2000 - 2015, Indonesia experienced various major natural disasters that affected many people's lives. Disasters not only cause casualties and result in many injuries for victims that can cause disability but disasters also damage existing infrastructures such as roads, buildings for public services, including schools and hospitals[1]. One of the main factors causing the emergence of many victims due to a disaster is a lack of public knowledge about disasters and their readiness to anticipate the disaster. Knowledge of disasters is one of the factors that influence disaster preparedness. Disaster preparedness is an important factor that reduces the risk of disaster[2].

According to Huntington and Gavagan, when disasters occur, doctors and nurses who live around the disaster area will usually be in front of leading the rescue and seek treatment of injured victims and prevent the occurrence of diseases that often arise after a disaster[3]. They also said

that the knowledge of how to conduct disaster emergency response with other institutions or organizations is needed by doctors because doctors often have never been prepared to carry out disaster response and work under pressure with the team in the field.

However, Daily et al. found that during the disaster, health workers who were expected to be able to play a role and be actively involved in the front line to help disaster victims appeared confused, and did not know what to do because they had never been prepared to deal with disasters[4]. The ability of health workers to handle emergencies during a disaster is still poor[3]. Health workers still have not been able to understand the function of their presence when they carry out disaster emergency response[5]. Huntington and Gavagan mentioned that in the event of an earthquake in Haiti, doctors do not know what to do and how to coordinate with other institutions in the event of a disaster because doctors are a group that has never been prepared for natural disasters and has no experience in facing natural disasters. Providing information about disasters from an early age to people who are vulnerable to disasters and growing their preparedness attitude must be done for people living in disaster-prone areas. This preparedness must also be owned by the health system and health workers so that they can provide first aid assistance and coordinate in carrying out disaster management in the community especially for health problems during disasters.

Likewise, the UGM Faculty of Medicine is aware of this problem and accordingly designs disaster training to prepare students or prospective health workers in the face of disasters. The UGM medical faculty which has three study programs, namely Medical Study Program, Health Nursing, and Nutrition, has inserted disaster management and disaster preparedness training programs into the Community and Family Health Care curriculum with Interprofessional Education (CFHC-IPE). Through this community-based disaster management training activity, students are expected to be able to live out the disaster situation so that they are able to fulfill their role as expected when disaster strikes. This community education-based curriculum has been provided since the first year and is loaded with Primary Services. Since the first-year students have received a built-in family that must be continuously connected through family empowerment activities and in the fourth year they are assigned to be with the community to be alert to disasters and emergencies in the community.

Based on the above background, research is needed to find out the level of the knowledge and attitudes of health faculty students before and after the IV-year CFHC-IPE learning activities on emergency management and disasters in the community.

RESEARCH METHODS

This research used a quasi-experimental method, which is often referred to as pre-post intervention. The study was conducted at the Faculty of Medicine UGM and data collection was done during disaster simulation activities under the CFHC-IPE IV year program in Huntap Pager Jurang, Kepuharjo, Cangkringan Sleman in September 2016.

The subjects of the study were the fourth year Faculty of Medicine students consisting of 3 study programs, namely nursing study programs, nutrition study programs, and general medical study programs that took part in the training activities.

The research instrument used a questionnaire distributed just before and after field activities. There are 10 questions that have been adapted to the objectives of community-based disaster management learning for health workers, which are competencies that must be possessed by health workers in carrying out disaster emergency response[6].

The independent variable in this study was the method of community-based disaster management learning training, while the dependent variable in this study was the knowledge and attitudes of students.

Quantitative data were analyzed using a paired T-Test so that it was known whether or not there was significant increase in knowledge before and after students received disaster management learning.

RESULTS

1. Change of Knowledge

This study aimed to see whether disaster training provided to seventh-semester medical students could improve the knowledge and attitudes of health workers' preparedness towards disasters. Table 1 below shows the changes in knowledge before and after the activity.

Table 1. Average answers to knowledge about disasters before and after

No Question	Mean Before	SD Before	Std Mean Before	Mean After	SD After	Std Mean After	N	Sig
1	3.02	1.501	.113	4.15	1.189	.143	175	0.00
2	2.38	1. 611	.112	3.71	2.076	.157	175	0.00
3	3.34	1.388	.105	4.57	1.563	.118	175	0.00
4	3.10	1.457	.110	4.43	1.737	.131	175	0.00
5	2.23	1.122	.085	3.42	1.773	.134	175	0.00
6	3.25	1.645	.124	4.61	1.758	.133	175	0.00
7	**5.65**	1.728	.131	**6.61**	1.335	.101	175	0.00
8	3.93	1.690	.128	4.97	1.935	.146	175	0.00
9	2.07	1.461	.110	3.53	2.87	.158	175	0.00
10	3.73	1.749	.132	5.79	1.837	.139	175	0.00
Mean Total	**3.27**	8.489	.642	**4.57**	10.405	.787	175	0.00

The questions used are as follows:
1. What do you think is a disaster?
2. Explain about disaster management for the health sector?
3. In your opinion, what are the roles and attitudes of each health professional profession in disaster management?
4. What is meant by ICS (Incident Command System)
5. How is the health sector involved in ICS in disaster management?
6. How do you do risk analysis in the community?
7. What and who are vulnerable groups in the community?
8. What is the disaster family kit?
9. What is the disaster management system in Sleman Regency?

The total mean of the pre-test answers Knowledge about disasters was 3.27 when compared with the value of post-test knowledge about disasters after students received training, the mean results were 4.57, showing that there was an average increase of 1.30 and the sig value of 0.00 so that it can be concluded that there are significant differences.

2. Change of attitude

These are the questions that are used to see student attitudes:
1. What is your attitude if there is a disaster, what will you do as a student / prospective health worker?
2. If there is coordination regarding disaster management, what are your attitudes and contributions as health workers?
3. In your opinion, what should be the attitude of each health professional profession in disaster management?
4. If there is disaster preparedness training, what is your attitude as a health worker?
5. How should the health sector be involved in the ICS for disaster management?
6. If you are assigned to an area what is your attitude in preparing for disaster preparedness in these vulnerable areas?
7. What is your attitude in managing vulnerable groups in the community?
8. What is your attitude in preparing for disaster preparedness families?
9. What do you think about the disaster management system in Sleman Regency?
10. How do you help victims in disaster situations?

Table 2. Average answers to knowledge about disasters before and after

No Question	Mean Before	SD Before	Std Mean Before	Mean After	SD After	Std Mean After	N	Sig
1	4.12	2.004	.151	5.75	1.940	.124	175	0.00
2	3.52	1.639	.124	5.02	1.972	.149	175	0.00
3	3.931	1.467	.111	5.57	1.707	.129	175	0.00
4	**4.35**	1.287	.97	**5.94**	1.630	.123	175	0.00
5	2.87	1.507	.114	4.42	1.898	.114	175	0.00
6	3.29	1.712	.129	5.17	1.892	.143	175	0.00
7	3.21	1.367	.103	4.87	1.791	.135	175	0.00
8	3.35	1.339	.101	4.98	1.744	.132	175	0.00
9	2.99	1.358	.103	4.49	1.777	.134	175	0.00
10	3.90	1.787	.134	5.78	1.826	.616	175	0.00
Mean Total	**3.55**	8.154	.616	**5.19**	10.821	.818	175	0.00

The mean total pre-test of student attitudes was 3.55 and the average total post-test of students was 5.19. The increase in attitude is 1.64. Significant changes occurred (sig 0.00). Table 2 shows the results of attitude changes before and after the training activity.

DISCUSSION

In general, there has been an increase in student knowledge before and after training. It turns out that medical education students have an intermediate score among the scores of Nursing and Nutrition study program students in their knowledge and attitude.

Question number 2 is an essential question for disaster knowledge, "What do you understand about health sector disaster management?". The correct answer about disaster management is efforts to manage resources, facilities and responsibilities related to disasters, both before (disaster risk reduction and mitigation efforts, measuring preparedness) and after a disaster in the form of efforts to achieve a quick and effective recovery. For this question, the answers of students who received the highest scores were nursing study programs (score 5), followed by medical study programs (score 3.39) and nutrition study programs had the lowest scores (score 3.14).

Question 4 and the 5th question about ICS (Incident Command System), where the value of the answers to both the 4 and 5 knowledge questions for the 3 study programs have a value that is less than 6 in the answers from the three study programs. Overall the questions about ICS, both knowledge and attitudes in the three study programs are low. This is also in line with other findings that say that health workers are less capable of approaching leadership and coordination when disaster management[7,8,9].

Question 7 concerning disaster preparedness in preparing vulnerable groups, the average value of medical education is 6.59; above the value of the nursing study program, but under the Nutrition study program which scored 6.90. In fact, as a primary service doctor, doctors have an obligation to prepare each family in the area they are developing in the event of a disaster, where doctors together with their families develop a disaster family plan, which is different

for each family. Doctors together with each family agree on the steps to save each family in the event of a disaster, determining who is the weakest among the families in favor of those who are stronger, in their family or environment.

On the number 7 score obtained by the Nutrition study program, since it is better than the score of the doctoral education study program, it seems that the Nutrition study program has a better understanding in disaster preparedness. especially in terms of preparing vulnerable groups, because the students in the nutritional study programs were high scorers. They understand how to group vulnerable groups, how to assess the risk of vulnerability of everyone in the family, train those who are less vulnerable to helping vulnerable people in groups and in families. Nutrition Study Program also has the highest average value in attitude: has an initiative to immediately join in helping (question no. 1), attitude: willingness to help those who are suffering (question number 2), attitude: is more willing to cooperate (question number 3), leadership attitude and problem coordination (no. 5), and attitude of wanting to be prepared in an area that he will be placed in (question no. 6)

Nursing Study Program has a higher average score among the 3 study programs in question number 7 knowledge, which is about how to prepare vulnerable groups in the face of disasters, and in question no. 10: Knowledge about how to provide emergency measures. Also, on the question about the attitude, the nursing study program also has the highest score on the question no. 4, with a score (6.06) while the doctoral education study program only has a score of 5.76 and the lowest is the nutrition study program 5.71.

Ariani and Donna[10] in their research on Disaster Learning Methods Based on Problems, found health workers (doctors, nurses, nutritionists, radiographers, laboratories) were still unable to handle disasters as expected, and they quoted May, Omron, Piller, Haile-Mariam and Scott's opinions, who said that health workers have a willingness to participate and intermediate ability in handling disaster cases found in all phases of the disaster, especially the disaster preparedness phase[11,12]. The same finding about the weak ability and participation of medical students in the Disaster Training was revealed in the research of Hsu, Thomas, Bass, Whyne, Kelen, and Green showing the low participation of medical education students in disaster preparedness training. There are also challenges for some students in medical education in disaster preparedness training, and the reason is that medical students after the 4th year find it difficult to make time to do extracurricular activities because medical students are busy with clerical activities in the clinic[13]. Medical and health students who are interested in volunteering in the event of a disaster are those who have attended training or have been volunteers before and also it has been confirmed that only health workers who know about disasters are willing to be involved in handling disasters[14,15].

Cultural training is urgently needed to prepare physicians in primary services to become leaders and field initiators when disasters occur in their service areas. Medical emergency training becomes very important to support their role as the spearhead in disaster emergency response (disaster medicine) and at the same time as the spearhead they must be an expert leader coordinating with the field commander (BPPD), community and humanitarian institutions that respond in disasters, and be able to set priorities. Accordingly, it appears that doctors must master disaster medicine and disaster management at the same time. Also, health workers must be trained in Health Disaster management that teaches teamwork, coordination and understanding of their role in disaster management along with other health professionals in a strong system providing disaster medicine[16]. Since understanding interprofessional collaboration in a team requires strong coordination skills, the role of ICS needs to be better understood for subsequent disaster training.

CONCLUSION

This study shows that there is an increase in the score of Disaster Knowledge and the attitude of students' preparedness between before and after receiving disaster training. In other words, the methods and materials for the training provided have been able to provide differences in the scores of students in Knowledge and attitudes between before being given training and after being given training.

It is recommended to the medical faculty to be able to consider the methods, the timing of the implementation of training and the facilities used for students with large numbers conducted in the community. Besides that, additional research can be conducted to further develop the perceptions of students and managers (lecturers) on this important learning program.

Acknowledgments

Sincere thanks to dr. Mora Claramita, MHPE., PhD and Dr. Dr. Wahyudi Istiono, M.Kes. as a supervisor and to all parties who have helped the author in the process of writing this thesis that the author cannot mention one by one.

Ethical Approval and Informed Consent

This research has approved by the Medical and Health Research Ethics Committee (MHREC) Faculty of Medicine, Public Health and Nursing at Gajah Mada University

Funding

Self-funding.

Availability of Data and Material

Data and material can be accessed via corresponding author.

Conflict of Interest

None.

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