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Efforts To Prepare A Disaster-Ready Campus By Improving Nursing Students' Readiness By Implementing The Tabletop Disaster Exercise Method

Rismala Kesuma¹, Imam Subiyanto²

GATOT SOEBROTO Army Hospital Health College

E-Mail: kesumayulius35@gmail.com, imamsubiyanto5@gmail.com

ABSTRACT

Indonesia is a country with a high risk of disasters; therefore, efforts to improve community preparedness from an early stage are essential, including within higher education institutions. Nursing students, as future healthcare professionals, need adequate knowledge and skills to respond effectively to disaster situations. One educational method that can be used to improve preparedness is the Tabletop Disaster Exercise (TDE). This study aimed to analyze the effect of implementing the TDE method on nursing students' disaster preparedness. This study employed a pre-experimental design using a one-group pretest-posttest approach. The sample consisted of all fourth-semester students of the Diploma III Nursing Program at STIKES RSPAD Gatot Soebroto, totaling 52 respondents selected through total sampling. Data were collected using a disaster preparedness questionnaire administered before and after the TDE intervention. Data were analyzed using a paired statistical test. The results showed an increase in students' preparedness scores after the TDE intervention. Preparedness scores before the intervention ranged from 58 to 75, while post-intervention scores increased to 68–89. Statistical analysis revealed a significant difference between preparedness scores before and after the intervention ($p = 0.000$; $p < 0.05$). The study concludes that the Tabletop Disaster Exercise method is effective in improving nursing students' disaster preparedness and can serve as an educational strategy to support the development of a disaster-resilient campus.

Keywords: disaster preparedness, nursing students, Tabletop Disaster Exercise, disaster-ready campus

INTRODUCTION

Disasters are events that seriously threaten human life if not properly anticipated or responded to [1]. According to [2] almost all regions in Indonesia are at high risk of disasters. Jakarta and its surrounding areas also frequently experience natural disasters. Throughout 2023, the Regional Disaster Management Agency (BPBD) recorded 1,258 incidents, including 864 fires, 234 fallen trees, 65 floods, 14-22 landslides, and 4 strong winds. These incidents undoubtedly impact the communities they affect.

The high incidence of disasters in Jakarta indicates the need for community preparedness to minimize the impact of disasters. A study by [3] stated that preparedness is very difficult to develop and cultivate in everyone, with the average level of community preparedness

remaining low. Based on the case study above, early disaster education is necessary through subject matter specifically to improve disaster preparedness.

A preliminary study conducted among fourth-semester DIII Nursing students at Gatot Soebroto Army Hospital (RSPAD) Health College in January 2024, using interviews, found that only 3 (30%) knew about preparedness, while 7 (70%) had little understanding of it. Furthermore, only 1 of them had participated in a disaster simulation on campus. The above discussion demonstrates the need for disaster education to increase awareness. This also aligns with research by [4] which states that disaster education in Indonesia needs to be incorporated into the campus curriculum to enhance awareness and preparedness. One method that can facilitate the educational process on campus

is the Tabletop Disaster Exercise. Based on this explanation, this study was conducted to analyze the improvement of disaster preparedness through the application of the TDE method [10].

METHOD

This study employed a pre-experimental design with a one-group pre-post test design. The sample consisted of all 52 fourth-semester students of the Diploma III Nursing program at the Gatot Soebroto Army Hospital (RSPAD) Health College. The sampling technique used was the total population. Data collection used a questionnaire to assess disaster preparedness. This research has passed ethical approval at the Gatot Soebroto Army Hospital (RSPAD) Health College. Data analysis used paired t-tests.

RESULT

Table 1. Distribution of Respondents' Characteristics (n = 52)

Characteristics	Frequency (n)	Percentage (%)
Age		
19 years	15	29
20 years	16	31
21 years	15	29
22 years	6	11
Gender		
Male	13	25
Female	39	75
Volunteer Experience		
Ever participated as a volunteer	6	11
Never participated as a volunteer	46	89

Based on Table 1, it shows that the majority of respondents are aged 20 years, namely 16 respondents (31%). Meanwhile, regarding gender, it shows that women are more numerous, namely 39 respondents (75%). Meanwhile, participation shows that the percentage of students as disaster

volunteers is the highest, namely 46 respondents (89%) who have never participated.

Table 2. Wilcoxon Test Analysis of Differences in Disaster Preparedness Sub-variable Scores Before and After the Tabletop Disaster Exercise (TDE) Intervention

Preparedness Sub-variable	Group	n	Median (Min–Max)	SD	95% CI	p-value
Early Warning System	Pre-test	52	45 (40–70)	7.226	45.97–49.99	0.000*
	Post-test	52	72.5 (50–90)	10.140	68.91–74.55	
Environmental Preparedness	Pre-test	52	85 (60–95)	11.048	79.42–85.58	0.000*
	Post-test	52	95 (70–95)	7.442	87.83–89.98	
Human Resources Preparedness	Pre-test	52	60 (60–95)	8.703	59.60–64.44	0.000*
	Post-test	52	75 (55–90)	7.881	74.92–79.31	
Family Preparedness	Pre-test	52	65 (55–85)	3.868	64.40–66.56	0.000*
	Post-test	52	80 (65–90)	7.427	77.45–81.59	

Table 2 shows that all preparedness sub-variables experienced significant increases before and after the intervention, compared to their respective median values. Furthermore, the differences before and after the intervention were significant, as evidenced by the statistical analysis results showing a p-value for all sub-variables (p=0.000).

Table 3. Descriptive Analysis of Preparedness Variables Before and After the TDE Intervention

Group	n	Median (Min–Max)	SD	95% CI	p-value
Pre-test	52	64 (58–75)	3.725	63.62–65.69	0.000*
Post-test	52	80 (68–89)	5.056	78.25–81.06	

In table 3 above, data on the respondent's readiness variable before being given the TDE intervention was presented. The

results showed that the minimum pre-test score was 58 while the maximum pre-test score was 75. Meanwhile, for the respondent's preparedness score after being given the TDE intervention, the results showed that the minimum post-test score increased to 68. The same thing also happened to the maximum post-test score which increased to 89 compared to the pre-test score before being given the intervention. In addition, the table above showed that there was a significant difference in the respondent's preparedness before and after being given the TDE intervention with a p value of 0.000 ($p < 0.05$).

DISCUSSION

Based on the research results, there was a significant difference in respondents' preparedness before and after the TDE intervention, with a p-value of 0.000 ($p < 0.005$). Preparedness can be defined as a series of activities undertaken to anticipate disasters through organization and appropriate and effective steps. Within this paradigm, each individual and community in a region is introduced to the various threats in their area, how to reduce hazards, identify their vulnerabilities, and increase the community's capacity to respond to each threat [5].

The research results indicate that, in general, TDE learning can effectively illustrate how each respondent's preparedness process can be improved. Before the TDE intervention, respondents only understood disasters through their prior knowledge, making them less able to describe the conditions they would face when faced with a sudden disaster. After the TDE intervention, students' preparedness scores for disaster response increased. This is because the TDE media indirectly provides respondents with a fairly clear picture of how good disaster management is, even though it does not use a real place setting but rather through indoor simulations in the TDE media [9].

During the research, respondents were asked to take on roles including community members, village officials, medical personnel, BPBD, SAR team, Polri, TNI, and Rapid Response Team. Each respondent was exposed to how all relevant parties in the disaster actively participated in responding to the disaster together through a single command from the Incident Commander System (ICS). The existence of cross-sector communication built by each respondent during role-playing was considered to increase preparedness in responding to disasters that occurred with the scenario description in the TDE media. In addition, the existence of a clear enough description in the TDE media made it easier for respondents to understand the roles and tasks that must be carried out in responding to disasters when they occur. According to [6] simulation is a way of presenting learning experiences using artificial situations to understand certain concepts, principles, or skills. Simulation can be used as a teaching method with the assumption that not all learning processes can be carried out directly on actual objects.

The results of this study are in line with the theory that, in general, increased preparedness will impact the readiness of institutions to create disaster-ready campuses. A disaster-ready campus is a term for institutions that have the willingness to manage disaster risks in their environment. Students are considered one indicator of preparedness. It is hoped that student readiness will increase the readiness of other academic communities to contribute to disaster management so that disaster risks can be anticipated as early as possible. If human resources have high preparedness, it will be easier to prepare other things that support the disaster preparedness dictionary, for example: medical equipment, first aid kits, infrastructure, cross-sectoral communication tools and adequate modes of transportation in case of a sudden

disaster. Where these facilities also require cooperation from various parties so that they influence the policies of educational institutions to transform knowledge and practices of disaster risk management and reduction to the entire academic community on campus.

CONCLUSIONS AND SUGGESTIONS

CONCLUSIONS

Based on the research results, it was found that the preparedness score before the TDE intervention was a minimum of 58 and a maximum of 75, while the preparedness score after the TDE intervention was a minimum of 68 and a maximum of 89. Furthermore, there was a significant difference in preparedness scores ($p=0.000$) ($p<0.005$).

SUGGESTIONS

Early preparedness is absolutely essential for students because they will become part of society after graduation. Cultivated and enhanced preparedness will consistently impact the institution, namely the creation of a disaster-sensitive culture that will ultimately lead to the formation of a disaster-ready campus, in accordance with the curriculum of the Diploma III Nursing study program at STIKES RSPAD Gatot Soebroto.

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