

Original Research Article

DISASTER-SAFE-SCHOOL BASED PROGRAM FOR THE PSYCHOLOGICAL PREPAREDNESS OF ELEMENTARY SCHOOL STUDENTS

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Abstract

Background: Earthquake and tsunami are high risk disasters in the coastal areas of Java. The lack of psychological preparedness in coastal areas poses a threat to risk groups, especially school-aged children. Prevention efforts that can be carried out are through disaster-safe school-based programs through disaster management educational vehicles

Objectives: The aim of this research was to analyze the influence of disaster-safe school-based programs on psychological preparedness in facing earthquake and tsunami disasters in school-aged children.

Methods: The method used was a pre-experimental design. The sampling technique used purposive sampling with a sample size of 54 respondents. The sample was school age children who lived on the coast of Malang Regency. The measuring tool used the Psychological Preparedness for Disaster Threat Scale (PPDTS) questionnaire. The statistical test used was the paired t-test

Results: The results showed that there were differences in psychological preparedness before and after school-aged children were given a school-based program that was safe from earthquake and tsunami disasters (0.000).

Conclusion: The conclusion is that there is an influence/impact of disaster-safe school-based programs on the psychological preparedness of school-aged children in facing earthquakes and tsunamis.

Keywords: *Disaster, Psychological Preparedness, Safe Schools, School Age Children*

INTRODUCTION

Indonesia is the largest archipelagic country in the world. It directly faces the Indian Ocean, which is the largest ring of fire in the world. This ring of fire can potentially cause earthquakes and tsunamis (Fakhrudin, 2022). The Meteorology, Climatology, and Geophysics Agency (BMKG) of Indonesia in

the year 2022 projected that the Java Island region would experience a megaton earthquake (Sutikno, 2016). Therefore, the current population is advised to remain vigilant, prepared, and on alert. Research conducted by BMKG in 2022 recorded a total of 2,283 earthquake events in East Java. Among them, 26 earthquake events were felt, with the highest

frequency occurring in December 2022 (BPS, 2022).

Disasters represent a significant threat to and disrupt the lives of communities (Panes, 2020). The causative factors can be of natural or non-natural origin. Non-natural factors experienced by disaster-affected communities, such as earthquakes, encompass financial losses, environmental damage, loss of life, and psychological issues. These psychological repercussions can become long-term challenges in an individual's life (Chowdhury, 2017). They can lead to feelings of anxiety, depression, cognitive disturbances, emotional instability, behavioral alterations, and post-traumatic stress. Several research studies have indicated that earthquake-related impacts have the potential to induce changes in human behavior and lifestyle, consequently affecting daily life and the surrounding environment (Lee, 2019).

Preparedness is a crucial element to be arranged prior to the occurrence of a disaster. This phase takes place in the early stages before a disaster unfolds. Preparedness encompasses a series of activities and applications conducted in anticipation of disasters or emergency situations, utilizing mitigation, response, and recovery efforts during a disaster scenario (Sholanke, 2020). Preparedness is the standard phase that precedes the onset of a disaster; hence, this condition must be harnessed by the community to identify issues and strategies to be prepared for in facing disasters. Preparedness encompasses not just physical aspects but also psychological aspects (Lokesh, 2016).

Earthquakes and other disasters can induce psychological issues (Zulch, 2019). Therefore, individuals should be psychologically prepared to cope with stress or abnormal situations during disasters. The abnormal atmosphere during disasters exerts psychological pressure, causing individuals to feel uncomfortable and have poor self-acceptance during such events. The importance of managing stress and psychological well-being during disasters presents an opportunity

to enhance effective coping mechanisms in times of crises. Psychological preparedness is an effort to manage and address an individual's emotional responses during disasters, leading to improved cognitive and behavioral responses. The effects of enhancing psychological preparedness include clear thinking, rationality, and the ability to reduce the risk of injury and death due to disasters (Setyawan, 2021).

One of the vulnerable groups to disasters is the school-age population, particularly children. Children, due to their developmental stage and dependence on adults, are considered a primary at-risk group during disasters (Lafortune, et al, 2021). Traumatic experiences, especially stemming from earthquakes, are often encountered by children. If psychological trauma in children is not appropriately addressed, it can have long-term mental and social implications in their adulthood (Powell, 2021). The participation of children in mitigation and preparedness efforts is of utmost importance. This involvement contributes to their survival, growth, protection, and active participation in disaster risk reduction initiatives (Koyama Y et al, 2022).

Schools serve as a vital learning environment for children and can also be utilized as a platform for interventions in enhancing the psychological preparedness of school-aged children (Gilchrist, 2019). Disaster risk reduction in schools has now become a mandated curriculum component for educational institutions to transform them into disaster-resilient institutions. The current disaster risk reduction curriculum within schools is envisioned to function as both a preventive measure and a disaster prevention promotion initiative. The National Disaster Management Agency (BNPB) has introduced an innovative curriculum for disaster risk reduction in educational institutions. One such innovation and intervention come in the form of a mobile disaster education unit, known as Mosipena. Mosipena serves as an educational medium for interventions and school-based empowerment. Several research initiatives

related to disaster-resilient school interventions are currently being developed to address preparedness challenges within the school environment. Additionally, these interventions include literacy programs aimed at enhancing disaster-related knowledge (Supriyanto, 2022).

School-based empowerment, as a preventive measure for disaster-related issues, should be incorporated into school curricula from an early age. An engaging disaster education for children can enhance their preparedness in facing disasters. Furthermore, psychological preparedness in children needs to be cultivated to enhance mitigation and address psychological impacts on them. Therefore, the objective of this study is to analyze psychological preparedness using a safe school-based program approach at the elementary school level.

Objective: The aim of this research was to analyze the influence of disaster-safe school-based programs on psychological preparedness in facing earthquake and tsunami disasters in school-aged children

METHODS

Study Design

This research employs a quantitative approach through a pre-experimental design.

Setting

This research conducted on August, 24-25 2023 located in Elementary School 1 the Bantur sub-district. Collaboration with BPBD East Java with Mosipena mobile unit, an abbreviation for "Mobile Education for Disaster Management." This mobile unit provided education in the form of disaster modules, a snake-and-ladder game, and disaster-related films.

Research Subject

The study population consists of primary school-aged children. The sampling technique utilized is purposive sampling, with a sample size of 54 respondents. Inclusion criteria encompass students from grades 5 and 6 who

have participated in the entire sequence of activities from beginning to end and have experienced or not experienced earthquake incidents within the past year.

Instruments

The measurement instrument employed in this study is the Psychological Preparedness for Disaster Threat Scale (PPDTS), with indicators that have been translated into Indonesian, including awareness, anticipation, and readiness.

PPDTS comprises four sub-indicators, namely, knowledge and management of environmental situations, emotional management and psychological responses, social environmental management, and coping with anticipation and emotional responses. The questionnaire consists of a total of 26 items, and its validity has been confirmed (Zulch, 2019). The questionnaire has a reliability value of 0.750. The questionnaire employs a Likert scale ranging from 1 to 4, with 4 indicating "very suitable" and 1 indicating "not suitable at all." The total score ranges from a minimum of 26 to a maximum of 104. The measurements were conducted both before and after participants filled out the questionnaire. The research intervention utilized the Mosipena mobile unit, an abbreviation for "Mobile Education for Disaster Management." This mobile unit provided education in the form of disaster modules, a snake-and-ladder game, and disaster-related films.

Data Analysis

Statistical analysis was performed using the paired sample t-test, and the data were processed using IBM SPSS Statistics 25. Ethical considerations were addressed by providing information to the school principal, seeking research approval, and obtaining consent to explain the research objectives and ethical issues through an approval form that ensured anonymity, confidentiality, privacy, and fair treatment.

Ethical Consideration

The implementation has received approval from STIKES WIDYAGAMA HUSADA with an assignment letter number 1562/A-1/STIKES/VIII/2023.

RESULTS

Table 1. Frequency Distribution of Respondents (n=54)

Characteristics	
Age (months, mean ± SD)	11±5,81
Gender	
Male	18 (33%)
Female	36 (67%)
Previously received Disaster Education	
Yes	12 (22%)
No	42 (78%)
Experienced disasters	
Yes	52 (96%)
No	2 (4%)
Types of disasters	
Earthquake	38 (72%)
Tsunami	0 (0%)
Earthquake and tsunami	0 (0%)
Flood	2 (4%)
Cyclone	12 (23%)

Table 1 illustrates that the majority of respondents were female, constituting 36 (76%) of the sample, with an average age of 11 years. Approximately 12 (22%) of the respondents had received disaster education. Moreover, 52 (96%) of the respondents had experienced a disaster, with earthquakes being the most prevalent type, affecting 38 (72%).

Based on Table 2, the total average scores of sub-indicators show that the average psychological preparedness of primary school children had a difference before and after participating in the safe school-based program, which was 15.78.

Table 2. Description of the Average Psychological Preparedness of Elementary School-Aged Children Before and After

Being Provided with a School-Based Disaster-Resilience Program

Sub-Indicators	Group	
	Pre-test	Post-test
Indicator 1 (Knowledge and Management of Environmental Situational Awareness)	38.4	42.0
Indicator 2 (Emotional Management and Psychological Response)	15,9	20.2
Indicator 3 (Social Environment Management)	6.0	7.7
Indicator 4 (Anticipation Coping with Emotional Response)	5.12	8.01
Total Average Difference	63.5	79.28
	15,78	

Homogeneity test results indicated that the significance value for post-test psychological preparedness was 0.678, which is greater than 0.05, suggesting that the data is homogeneous. The normality test using the Kolmogorov-Smirnov test revealed results of 0.118 for the pre-test and 0.121 for the post-test, indicating a normal distribution.

Table 3. The Difference in Psychological Preparedness Before and After the School-Based Disaster-Resilience Program in Elementary School-Aged Children

Categories	n	Mean	SD	p
Psychological Preparedness Before	54	63.50	10,10	0,000
Psychological Preparedness After	54	79,28	11,45	

DISCUSSION

The school-age period is a vulnerable stage and is prioritized in disaster management (Adeoya, 2022). School-aged children are considered a vulnerable group that requires protection. Cases of both natural and non-natural disasters most frequently involve school-aged children (Mizuki et al, 2021). Therefore, it is of utmost importance to ensure the protection of children, particularly in saving

their lives during a series of disasters that may affect them. Psychological issues are often a significant consequence of disaster conditions (Hakim, et al, 2022).

Psychological problems pose a primary concern (John, et al, 2019). The effects of these issues can persist for years. Post-traumatic disturbances in children can lead to anxiety disorders, paranoia, depression, feelings of loss, and sleep disturbances. If left unaddressed from now, the consequences may be even more significant in the future (Majali, et al, 2019) These issues can be mitigated through psychological preparedness programs based on safe school approaches. Disaster-resilient schools can provide both physical and mental protection for children, ensuring they feel safe and comfortable while learning at school (John,et al, 2019).

The enhancement of psychological preparedness should commence from an early age (Pfefferbaum B, et al., 2020). Disaster education should also be promoted within the school environment (Wijayanti DP,et al., 2022). Schools serve as venues for learning and knowledge transfer, with the expectation that they can alter students' behavior and knowledge related to mitigation and disaster preparedness. Numerous learning models are associated with disaster-resilient schools, such as watching films, playing puzzles, engaging in snake-and-ladder games, and fostering literacy through collections of disaster-related books (Putri LTK,et al. 2023). Through enjoyable media and learning methods, students can readily embrace disaster literacy.

Psychological preparedness can also be achieved through therapeutic modalities in nursing (Anggraeni Y, et all., 2021). Health and disaster education can now be effectively delivered using technology. Films have become a highly favored model of health education among the current generation (Susanto T, et al., 2020). Research has shown that the use of short films as a health education model can reduce the risk of sexual behavior among adolescents. Additionally, this education model is easily

comprehensible by all individuals as it primarily relies on audio and visual components (Alfianto AG, et al., 2023).

The development of disaster-resilient schools is currently undertaken by the Ministry of Education, Culture, Research, and Technology. These schools can be integrated into the curriculum through both the school program and the Merdeka Belajar independent learning curriculum. Comprehensive analysis, particularly in various Pancasila student projects, can be translated into the establishment of disaster-resilient schools. This is because the values of Pancasila can be practically realized through models such as mutual cooperation in disaster management. As a result, this implementation can be further advanced as a comprehensive approach to disaster-resilient schools.

CONCLUSION

A disparity is observed in the preparedness levels among elementary school-aged children prior to and following their involvement in a school-based disaster resilience program aimed at mitigating potential disasters. This program encompasses diverse components, encompassing disaster education delivered through disaster literacy, interactive snake-and-ladder disaster games, along with the presentation of films, all with the overarching objective of enhancing children's comprehension and readiness to confront a range of disaster situations.

SUGGESTIONS

This program could be applied on vary population in further study.

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DECLARATION OF CONFLICTING INTEREST

This research does not involve any conflicts of interest. Ethical approval for this study has been obtained from the school principal as well as consent from the participants who willingly agreed to be research subjects. Furthermore, this research has received financial support from the Cluster of Mental Health, Community, and Gerontology Nursing as well as the Research and Community Engagement Institution of STIKES Widyagama Husada Malang.

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AUTHOR CONTRIBUTION

Ahmad Guntur Alfianto: data collector, article writer, and data analyst

Dini Prastyo Wijayanti: acts as a translator and data analyst

Ari Dwi Sulaksono: responsible for data collection and article writing

Alvin Huda Choirullah: data collection and support manuscript

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