

RESILIENCE IN ADOLESCENTS TO DISASTER MANAGEMENT USING THE SIMULATION METHOD

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ABSTRACT

Introduction: The Unitary State of the Republic of Indonesia is one of the countries that has a high level of disasters, West Java is one of the disaster-prone areas. Lembang is one of the fault areas that has the threat of flooding, landslides, and strong winds. **Aims:** This research focuses on the readiness and participation of youth in disaster preparedness. The aim of the research is to analyze the readiness of youth for disaster management before and after the simulation method is carried out. **Settings and Design:** The study used quantitative analysis methods, with a Pre-Experimental Design to measure the Pre and Post resilience of students who received simulation exercises without a control group. **Sampling** used the Quota Sampling technique with the criteria of Grade 10 and Grade 11 students as many as 30 students at SMA Negeri I Parongpong, Lembang, West Bandung Regency. **Methods and Material:** The instrument used in the study used the Connor-Davidson Resilience Scale (CD-RISC) questionnaire. **Statistical analysis used:** Statistical analysis used dependent t-test. **Results:** The results of the study showed that there were differences in the value of resilience in adolescents towards disaster management with a mean value before 67.97 and after 73.97 the stimulation method was carried out with a p value of 0.000. **Conclusions:** The simulation method is a better learning model in increasing resilience to disaster management.

Keywords: Disaster, Resilience, Youth, CD-RISC

INTRODUCTION

Indonesia is a unitary state consisting of islands, and has a beautiful cultural and demographic characteristics. But in this beauty, Indonesia is a country that is vulnerable to various disasters. Indonesia is located at the confluence of three major earth plates namely the Eurasian plate, the Indo-Australian plate and the Pacific plate. The disasters that occur in Indonesia are earthquakes, landslides, volcanic eruptions, but not only disasters caused by shifting plates. Other disasters that threaten are floods, forest fires, strong winds, drought (Syahfudin, 2014). Geologically, geographically, biologically, hydrologically, climatologically, socially, culturally, economically and technologically, West Java is a disaster-prone area that can cause loss of life, loss of property and psychological impact, so that disaster management efforts are needed in a systematic, planned, coordinated and integrated (PERDA West Java, 2010).

Disaster is an event that threatens and disrupts people's lives caused by natural and non-natural factors. Based on the experience of past disasters, there are several problems related to people's understanding of disasters, especially the introduction of the impact of disasters on adolescents (Purwoko, 2015). The complexity of the disaster problems requires an arrangement or careful planning in handling them, so that they can be implemented in a directed and integrated manner. The countermeasures carried out so far have not been based on systematic and planned steps, so that there is often overlap and there are even important steps left unaddressed. Law Number 24 of 2007 concerning Disaster Management stipulates in articles 35 and 36 that each region in disaster management efforts has a disaster management plan. In more detail it is stated in Government Regulation Number 21 of 2008 concerning Implementation of Disaster Management (BNPB, 2011).

Lembang is one of the sub-districts in West Bandung Regency which has a high level of risk of ground movement because it is a plate meeting area or what is called a lembang fault (West Java Provincial Health Office, 2016). Lembang has an area of 95.55 km², has 16 villages, with a population density ratio of 2,068/km². The total population based on the age group 16-18 years is 10,112 people (Lembang Profile, 2021). So with an overview that needs to be prepared in preparedness for adolescents in Lembang District. The main factors that can cause the disaster to cause large casualties and losses, namely a lack of understanding of the characteristics of the hazard, attitudes or behaviors that result in a decrease in natural resources, lack of early warning information which results in unpreparedness, and powerlessness or inability to deal with disasters (Purwoko, 2015) . The impact of a disaster is different for everyone who experiences it.

Resilience is not an easy concept to define and as a consequence there are several definitions of resilience. These definitions broadly take three different approaches: some researchers propose that resilience is located in the person (trait), others propose resilience as an outcome or behaviour, and others understand it as a process (Gras et al., 2019). The Connor-Davidson Resilience Scale - CD-RISC (Connor & Davidson, 2003) is one of the most common instruments to assess resilience amongst adults. Each item is rated on a five-point scale (0 = not at all true to 4 = true nearly all the time). The total score ranges from 0 to 100, with higher scores corresponding to higher levels of resilience. The original research reported that the scale included five factors: factor 1 describes the notion of personal competence, high standards, and tenacity; factor 2 relates to trust in one's instincts, tolerance to negative affect and the strengthening effects of stress; factor 3 was related to the positive acceptance of change and secure relationships; factor 4 refers to control; and factor 5 concerns spiritual influences. The scale had good psychometric properties (Cronbach's alpha = .89; test-retest reliability: intraclass correlation coefficient = .87), but the reliability of the factors was not reported (Gras et al., 2019). The condition of resilience, positive adaptation or competence, typically involves displaying normal functioning, lacking negative symptoms or pathology associated with the trauma or adversity, and/or reaching tasks that are developmentally or contextually salient (Gucciardi et al., 2011).

Preparedness is a series of activities carried out to anticipate disasters through organizing and through effective and efficient steps (Iman, Hanny Rasni, Rosdhianto, 2014). Disaster events that have been experienced by individuals are accepted as a stimulus that provides experience and influences the level of one's preparedness in dealing with disasters. Disasters will provide a learning process that will shape preparedness behavior (Ariviyanti & Pradoto, 2014). Simulation is an effort to increase preparedness. Simulation is an imitation of the actual state of operations in the real world. Simulation actions basically require a model, this model reflects the behavior of the actual situation. Simulation is used in many contexts, such as technology simulation for performance optimization, safety engineering, testing, training, education, and video games. Simulation is also used with scientific modeling of natural systems or human systems to gain insight into their functioning.

Simulation can be used to show the real effects resulting from a certain condition. Simulation is also used when an event is very difficult to accept and explain, because it is inaccessible, or it may be dangerous or unacceptable to be involved, so there is a need for an approach in the form of a simulation of the incident. (Sri Setiawati Tumbol & Poli, 2018). Simulation is the behavior of people in doing something to obtain a goal so that someone can feel and directly experience an event based on existing reality. The frequent occurrence of disasters lately has made many people often carry out vulnerable disaster simulations in their respective regions (Khatimah et al., 2015).

METHOD

Researchers chose to use quantitative research methods. The problem to be studied by researchers is a dynamic problem. Thus, using this method to determine how to find, collect, process and analyze research data. This study is to measure the ability of adolescents in disaster management and resilience. Researchers chose young high school students who were in the Lembang area. The research design is Pre-Experimental by measuring the resilience of Pre- and Post-Experimental adolescents who receive disaster simulation training without a control group.

Quantitative research methodologies begin by establishing a specific object of study, eliminating it from the totality or context of magnitude so that it becomes explicit or the object of study is clear. After that, a new theoretical framework is prepared according to the specific object of study. so, it can generate research hypotheses or problems, data collection instruments, sampling techniques and analysis techniques, quantitative methods also produce other methodological designs such as setting limits of significance, adjustment techniques if there are deficiencies or errors in terms of data, administration, analysis, and sort of. In other words, everything is designed and planned carefully before researchers go into the field to carry out their research activities. Research location at State Senior High School I in Lembang.

Participant characteristics and research design

Research subjects are subjects intended to be studied by researchers. The object of research is the object that is used as research or which is the point of attention of a research. In this study, the subjects of the study were students from Parongpon 1 Public High School in Lembang, representatives from grades 10 and 11 who were active in school activities. The total population for grades 10, 11 and 12 is 1157 people. The sampling technique used by the researchers was Quota sampling, so that the samples that would become the research subjects were respondents who took part in the simulation and filled out the resilience questionnaire,

Sampling procedures

Procedures for selecting participants, including: The sampling method is Quota Sampling, Inclusion with the criteria of active student status at SMAN 1 Parongpong.

Sample size, power, and precision

Sample size Students who received simulation method training 30 Representative students.

The research instrument is a tool used to collect data. The instrument used in this study was a questionnaire or questionnaire. Questionnaires or questionnaires are defined as a list of statements that are well-organized, mature, where respondents only give certain signs (Notoadmodjo, 2012). The instrument used uses the Connor-Davidson Resilience Scale (CD-RISC) questionnaire (Connor & Davidson, 2003; Gras et al., 2019).

Data analysis

The data analysis techniques used in the study skewness test for Normality test. Bivariate analysis used in study dependent t-test

RESULTS AND DISCUSSION

The results of the disaster simulation method research on adolescents which become a general description are as follows:

General information of the respondent

Table 1 Frequency Distribution of Respondents to Students of SMAN 1 Parongpong

No	Characteristics	Frequency	(%)
1.	Gender		
	Male	21	70
	Female	9	30
		30	100
2.	Class		
	Class XI	11	36.7
	Class XII	19	63.3
		30	100
3.	Age		
	15 Years	1	3.3
	16 Years	17	56.7
	17 Years	10	33.3
	18 Years	2	6.7
		30	100

Based on the table above, the majority of respondents were male, 21 people (70%), 12th graders (Class 12) 19 people (63.3%), and 16 years old 16 years old (56.7%).

Normality Test

The results of the data normality test are said to be normal, judging by the symmetrical histogram. The test is seen from the Skewness Value / Standard error of Skewness with a result that is less than or equal to 2.

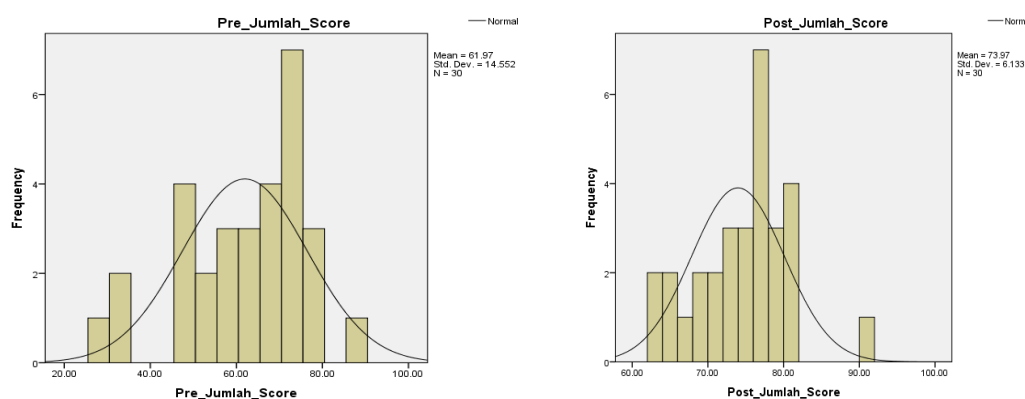


Figure 1. Skewness Normality test

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- a. Improving Resilience Using Youth CD-RISC Against Disaster Management Before the Simulation Method

Table 2 Frequency Distribution of Resilience Building Disaster Management Before the Simulation Method

No	Score Range	Value	Frequency	(%)
1.	Lowest Value	28	1	3.3
2.	The highest score	88	1	3.3

b. Improving Resilience Disaster Management After the Simulation Method

Table 3 Frequency Distribution of Resilience Disaster Management After the Simulation Method

No	Score Range	Value	Frequency	(%)
1.	Lowest Value	63	2	6.7
2.	The highest score	90	1	3.3

Based on the univariate results, it showed that there were differences in the perspective of the Resilience Level of High School Students' Youth towards disaster management before and after the simulation was carried out.

Bivariate Analysis

Table 4 Resilience Disaster Management Before and after the Simulation Method

No	Resiliensi	Adolescent Perspective With Simulation Methods			
		N	Mean	SD	Sig. (2-tailed)
1.	Pre-Simulasi	30	61.97	14.56	.000
2.	Post-Simulasi	30	73.97	6.14	

Bivariate analysis data were tested using a paired t-test to compare the resilience values before and after the simulation. This test method was chosen after fulfilling several conditions including normal distribution. The statistical test results obtained a p value of 0.000, so it can be concluded that there is a significant difference between the first and second measurements.

DISCUSSION

Resilience is a process or result of positive adaptation which is the result of interactions between individuals and their external environment (Nian Afrian Nuari, 2016). Resilience is an individual's response in responding to everything, when facing difficulties or trauma, in managing the pressures of everyday life and a set of thoughts that make it possible to seek new experiences and view life as progress (Satria & Sari, 2017).

Based on the results of CD-RISC bivariate analysis data were tested using a paired t-test to compare the resilience value of the Mean before 61.97 and after the simulation was 73.97, with a mean difference of 12 indicating an increase in resilience. This test method was chosen after fulfilling several conditions including normal distribution. The statistical test results obtained a p value of 0.000, so it can be concluded that there is a significant difference in the level of resilience of adolescents with the disaster management simulation method.

This study has similarities in the results of Khatimah et al., 2015, students or adolescents who have a prepared attitude in dealing with earthquake disasters are closely related to the knowledge possessed by these students. In this study the results obtained from the attitude of preparedness when an earthquake occurs, I must be able to avoid dangerous objects such as bookcases, glass windows, and flagpoles through an experimental or treatment process. This is because knowledge, experience through simulations given to students on preparedness places more emphasis on the experimental class. Vigilance is very important, if the large number of victims and loss of material is always the main thing in every disaster. So, disaster preparedness training is needed for youth using simulation. The role of simulation in disaster management can measure a person's readiness in dealing with disasters (Indriasari, 2018).

Simulation is a training method using learning experiences to present situations that mimic certain concepts, principles and skills like real situations. The simulation uses a learning process that is carried out directly on objects that are designed to look like the actual situation (Sri Setiawati Tumbol & Poli, 2018). With the simulation method for emergency and disaster preparedness, the results showed that the resilience capabilities before and after the intervention were carried out, there were differences in the Perspective of High School Teenagers on Disaster Management with the Simulation Method in Improving Resilience with the results of the Mean Pre Simulation with a score of 61.97 and Post Simulation with Mean 73.97. This shows that disaster preparedness education and training using the simulation method gives good results. In this study also used the role playing method, namely the learning method as part of a simulation aimed at increasing creativity and critical thinking in taking action and making decisions about actual events or events that may arise. The involvement of adolescents in carrying out disaster preparedness simulations shows that all children are active in carrying out every action of the simulation, after 3 exercises and carrying out 3 actions carried out indoors or outdoors. Apart from teaching media, media training includes phantom dolls and tools that support the post-disaster evacuation and trauma training process. The use of teaching media is based on the right selection so as to increase the ability of youth to be more effective and efficient in training and simulation methods. This approach using the simulation method is very effective for ordinary people because the source of knowledge about the threat of death due to disasters comes from the environment they encounter every day (Salasa et al., 2017). In this study the environment used in this study was a school located in a disaster-prone area, namely Lembang District, West Bandung Regency. Potential disasters that can occur include earthquakes, landslides, floods, tornadoes, Mount Eruptions, which we know as the Lembang fault and Mount Tangkuban Perahu (Lembang Profile, 2021).

LIMITATION OF THE STUDY

The limitation of this research is that there are no similar activities, especially in disaster management simulations in high schools, so there needs to be simultaneous activities so that resilience is better formed.

CONCLUSIONS AND SUGGESTIONS

The resilience of young high school students using CD-RISC has increased results by using the emergency simulation method and disaster management and has had a positive impact so that the youth are able to deal with unexpected situations. This difference can be seen from the average value before and after the disaster simulation.

ACKNOWLEDGMENT

The researcher thanks the principal and teachers who have given permission and provided a place to carry out the research. high school students participating in the simulation program. The students who have been enthusiastic about participating in research with the simulation method until the activity is complete.

ETHICAL CONSIDERATIONS

Before carrying out the research, it had gone through an ethical test at the Faculty of Technology and Health Sciences, Jenderal Ahmad Yani University with Number: 02/KEPK/FITKES-UNJANI/IV/2022

FUNDING STATEMENT

Financial support from Universitas Pendidikan Indonesia, Funding from LPPM in 2022.

CONFLICT OF INTEREST STATEMENT

There is no Conflict of interest

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