



An Educational Video For Earthquake Disaster Preparedness In Students At St. Aloysius Weetabula Christian Middle School, Southwest Sumba

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ARTICLE INFORMATION

Received: August, 11, 2020

Revised: May, 17, 2021

Available online: May 2021

KEYWORDS

Disaster Preparedness, Education, Earthquake, Video

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A B S T R A C T

The earthquake has an impact on dangers and threats or losses to society. Efforts are needed to prevent and minimize the impact of earthquakes. This study aims to determine the effect of an educational video on earthquake disaster preparedness in students. It used the One-Group Pre-Post Test Design. It was conducted at St. Aloysius Weetabula Christian Middle School, Southwest Sumba, on February 25 - March 6, 2020. There were 338 population and 327 samples by simple random sampling. The variable independent was the educational video, while the dependent variable was the earthquake disaster preparedness. The questionnaire as a research instrument consisted of preparedness indicators. The data analysis utilized a marginal homogeneity test with a significance level (α) less than 0.05. The results showed that most respondents had a poor preparedness level before being provided with an educational video (59.9%). Meanwhile, they had high preparedness level after an intervention (54.1%). The result of the marginal homogeneity test showed $p=0.000$. In conclusion, an educational video affects earthquake disaster preparedness in middle school students. The use of video media in education could improve earthquake disaster preparedness.

INTRODUCTION

Natural disasters in Indonesia that often occur include volcanic eruptions, landslides, and floods. However, earthquakes are considered one of the biggest disasters in Indonesia that have a devastating impact. Earthquakes can cause damage because they have very strong vibrational properties and propagate in all directions so that all objects on the earth's surface also vibrate (Netrisa et al., 2018). Indonesia is ranked 4th globally as a country with many earthquakes. It has 1,312 events, especially in East Nusa Tenggara Province with 712 incidences, particularly in the Southwest Sumba Regency with 264 earthquakes (BNPB, 2017).

Earthquake disasters can impact hazards and threats or losses to society – its levels consist of small, medium, and large levels. It causes death, collapsing houses, damaging toll roads, and so on (Netrisa et al., 2018).. It can cause death, serious and minor injuries, as well as environmental damage. Therefore, preventive steps are needed to handle an earthquake disaster to minimize losses arising from an earthquake. Minimizing risks or losses due to earthquake disasters for humans requires knowledge, understanding, preparedness, and skills to prevent, detect, and anticipate various disasters, especially in earthquake-prone areas (Maryani, 2016).

Earthquake disaster preparedness can be obtained through a learning process both formally and informally. Learning in society can be carried out through informal education by independent learning activities.

Learning about disaster phenomena can be obtained through experience, family, health education, print, and video media on earthquake disaster preparedness, also training for the community on dealing with disasters from related institutions (Pawirodikromo, 2012).

Preparedness education by video media is very effective and efficient because most people already have electronic devices to play videos anytime and anywhere (Nurjanah, 2011). Previous research conducted by Dien et al., (2015) proved an effect of health education on earthquake preparedness at Kakaskasen Christian Middle School in Tomohon City. Furthermore, Emami (2015) research reported the effectiveness of earthquake preparedness education on students' knowledge at Muhammadiyah Elementary School of Trisigan, Bantul. In addition, Mongkau (2018) research proved the effect of health education on earthquake preparedness. A preliminary study on April 12, 2019, at St Aloysius Weetabula Christian Middle School, Southwest Sumba, with one of the teachers stated that an earthquake resulted in cracking school walls and collapsing several roofs in 2018. So, the ruins hit students and teachers during the learning process. Based on this background, this study aims to determine the effect of educational video on earthquake disaster preparedness in students at St. Aloysius Weetabula Christian Middle School, Southwest Sumba.

METHOD

This study used One-Group Pre-Post Test Design. It was conducted at St. Aloysius Weetabula Christian Middle School, Southwest Sumba, on February 25 - March 6, 2020. There were 338 population and 327 samples by simple random sampling. Inclusion criteria were willing to be a respondent and presented throughout the research process. The variable independent was the educational video, while the dependent variable was the earthquake disaster preparedness. The questionnaire as a research instrument consisted of preparedness indicators, including knowledge, attitudes and practice, school policies, preparedness planning, and resource mobilization. Earthquake disaster preparedness can be divided into three categories high (score of 80 - 100%), moderate (score 60-79%), and low (score <60%) (Nurchayat, 2014). The data analysis utilized a marginal homogeneity test with a significance level (α) less than 0.05.

RESULT

Characteristics of respondents in this study included age, gender, and education levels as follows:

Table 1. Characteristics of Respondents

Variable	Category	Frequency	Percentage(%)
Age	13 years old	23	7.0
	14 years old	104	31.8
	15 years old	101	30.9
	16 years old	99	30.3
Gender	Male	105	32.1
	Female	222	67.9
Educational levels	Seventh (7 th) grade	127	38.8
	Eighth (8 th) grade	100	30.6
	Ninth (9 th) grade	100	30.6
Total		327	100

Table 1 shows that most respondents are 14 years old (31.8%), female (67.9%), and in the Seventh (7th) grade (38.8%).

Table 2. Earthquake Disaster Preparedness Before Being Provided with Educational Video

Preparedness Levels	Frequency	Percentage (%)
High	0	0
Moderate	131	40.1
Low	196	59.9
Total	327	100

Table 2 describes that earthquake disaster preparedness before being provided with educational video has low levels or score less than 60% in most respondents (59.9%).

Table 3. Earthquake Disaster Preparedness After Being Provided With Educational Video

Preparedness Levels	Frequency	Percentage (%)
High	177	54.1
Moderate	149	45.6
Low	1	0.3
Total	327	100

Table 3 explains that earthquake disaster preparedness after being provided with educational video has high levels or score from 80% to 100% in most respondents (54.1%).

Table 4. The Effects of an Educational Video on Earthquake Disaster Preparedness

Preparedness Level		After			Total	P
		High	Moderate	Low		
Before	High	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.000
	Moderate	83 (25.4%)	48 (14.7%)	0 (0.0%)	131 (40.1%)	
	Low	94 (28.7%)	101 (30.9%)	1 (0.3%)	196 (59.9%)	
Total		177 (54.1%)	149 (45.6%)	1 (0.3%)	327 (100%)	

Table 4 reveals that the Marginal homogeneity test obtains p-value = 0.000 ($\alpha < 0.05$). So that H_1 is accepted. Thus, an educational video affects earthquake disaster preparedness in middle school students at St. Aloysius Weetebula Christian Middle School, Southwest Sumba.

DISCUSSION

Earthquake Disaster Preparedness before being provided with educational video

Earthquake disaster preparedness before being provided with educational video had low levels in most respondents. It can be seen from the indicators in the questionnaire, which consisted of knowledge and attitudes towards earthquake disaster policies and guidelines, disaster emergency response systems, and resource mobilization. Knowledge and attitudes on earthquake disasters are the main factors in preparedness. According to (Hidayati, 2008) policies, guidelines, and a disaster emergency response system are carried out immediately during the disaster to deal with the bad impacts caused. They include activities to rescue and evacuate victims also property, basic needs fulfillment, protection, refugees management, rescue, and infrastructure and facilities recovery (Law Number 24 of 2007). Early warning is a series of activities to provide quick warning to the community, particularly students at St. Aloysius Weetebula Christian Middle School, about the possibility of a disaster occurring by an authorized institution.

According to Law Number 24 of 2007, resource mobilization is the available resources, including human resources (HR), funding, and essential infrastructure for emergencies. It can support or otherwise become an obstacle in natural disaster preparedness. Therefore, resource mobilization is a crucial factor (Hidayati, 2008).

Most respondents in this study were 14 years old. This age includes the adolescence phase – the transition between childhood and adulthood. During this period, the child experiences growth, physical and psychological development. They are not children - in body shape, way of thinking, or action - nor not adults with mature thinking. Age can influence knowledge and attitude in earthquake preparedness. Most respondents in this paper were female. There is an interesting difference in earthquake preparedness between females and males. Females tend to be more sensitive in dealing with a particular problem.

Earthquake Disaster Preparedness After Being Provided With Educational Video

There was an increased level in earthquake disaster preparedness after being provided with an educational video. Students had a better understanding of how to take proper shelter and evacuation in the earthquake disaster. Disaster preparedness can be improved through disaster management training. According to the Ministry of Health (2013), there are eleven training methods: question and answer lectures, group discussions, small study groups, role play, case studies, brainstorming, demonstrations, assignments, games, simulations, and field practice. Disaster management training builds disaster preparedness in students. As a result, they have a safe and healthy culture, risk awareness, and a well-established plan (before, during, and after a disaster). Furthermore, they are ready to respond in times of emergencies and disasters.

Health education is a component of health and medical programs, consisting of planned efforts to change behavior in individuals, families, and communities in thinking, behaving, and acting. Its goals are helping

treatment, rehabilitation, disease prevention, and promoting a healthy life (Nursyam, 2011). Indicators of preparedness before a disaster include: knowing disaster preparedness, understanding building construction (resistant to shocks or not), comprehending the location of residence (prone to earthquake or not). In addition, its indicators during a disaster include: take shelter under a table, avoid earthquake-prone buildings, follow the instructions of assisting officers, avoid crossing roads, following the direction of the evacuation route to the gathering points. Furthermore, its indicators after a disaster include: assemble at the gathering points and waiting for help from the medical team.

Effect of Educational Video on Earthquake Disaster Preparedness in Students at St. Aloysius Weetebula Christian Middle School, Southwest Sumba

The Marginal homogeneity test obtains $p = 0.000$ ($\alpha < 0.05$). So that H_1 is accepted. Thus, there was an effect of an educational video on Earthquake Disaster Preparedness in Students at St. Aloysius Weetebula Christian Middle School, Southwest Sumba. Knowledge, attitudes and practice, school policies, preparedness planning, and resource mobilization influence preparedness. Therefore, providing education about earthquakes increases the preparedness of students to face these disasters.

This study is in line with Wulandari (2018) research it reported that educational videos positively impact students in increasing preparedness to face earthquakes. In addition, a theory explains that good knowledge in preparedness will form good practice or attitude (Supriyono, 2014). Knowledge has an important role in changing and strengthening predispose, support, and drive factors in behavior, resulting in positive behavior. In addition, knowledge is also a cause of individual behavior (Maulana, 2009). Knowledge regarding disaster preparedness can be reflected in understanding the environmental conditions. The definition of environmental conditions is the likelihood of a disaster occurring in the area, and its impacts, particularly in the school building vulnerability.

Students should comprehend the action when a disaster occurs and respond to disasters quickly and appropriately (Nurchayat, 2014). As a part of the community, students have a big role in disaster preparedness in the school. Preparedness education on students must be given early to build a safe culture and resilience to disasters (Daud et al., 2015). According to Notoatmodjo (2015), age, education, experience, information, and facilities can affect preparedness. This paper indicated that education could affect disaster preparedness, particularly in middle school students. In line with Afandi (2014) research, it showed that training with simulation methods effectively increased students' knowledge of earthquake disaster mitigation at Muhammadiyah 1 Surakarta Senior High School. In addition, (Hely, 2013) reported that disaster management training had a significant effect on the health workers' preparedness at the Bunda Thamrin Hospital in Medan. Sari (2014) investigated the effect of disaster simulations on preparedness in grade 7th students at Gantiwarno State Madrasah Tsanawiyah, Klaten. Research revealed that earthquake

disaster preparedness before the simulation was in the ready category and after the simulation was very ready. Thus, there was an increase in the preparedness level.

CONCLUSION

In conclusion, most respondents have a poor preparedness level before being provided with an educational video, while they have high preparedness level after an intervention. Thus, an educational video affects earthquake disaster preparedness in middle school students at St. Aloysius Weetebula Christian Middle School, Southwest Sumba. Management of educational institutions should install evacuation directions in strategic areas and provide educational videos to students at the beginning of the academic year.

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