The Mook-Up Metode for Disaster Education on the of People Improvement and Attitude in Landslide Preparedness

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Abstract: Indonesia is one of countries with the biggest risk of natural disasters in the world. One of most common disasters was landslides. In November 2003, there was a landslide happened in Bahorok River, North Sumatra which made victims as lot as 151 people death and 100 people missed. The purpose of this research was explain efficacy the mook-up metode for disaster on the people's improvement and attitude in landslide preparednes. The design used in this study was Quasy Experimental with pre-post test design. The samples were 150 respondents, consisting of 75 respondents on the treatment group and another 75 on the control group. The sampling used cluster sampling. The independent variable is disaster education with mock-ups method, while the dependent variable is the level of knowledge and attitudes of citizens in the preparedness of facing landslides. The technique for data analysis was using Wilcoxon Signed Rank Test and The Mann Whitney Test. Analysis result with the Wilcoxon test obtained p=0.000 in the treatment group, and p=1.000 in the control group. Analysis result with Mann Whitney test obtained the value of p=0.111 in pre-test, and p=0.000 in post-test (p<0.05). This result indicates that disaster education with mock-up method have the influences to improve knowledge and attitude in the preparedness of facing landslides. Further research needs to conduct the disaster education with another method which more attractive and focused on disaster-prone areas.

1 BACKGROUND

Southeast Asia includes a very high natural disaster risk area (ASEAN, 2015). The three countries incorporated in ASEAN, namely Indonesia, the Philippines, and Myanmar have extreme categories of natural disaster risk index (Maplecroft, 2010). Indonesia is one of the countries that are often hit by disasters, both natural and non-natural disasters. The recording of disaster data by BNPB shows that the average incidence of disasters from 2000-2014 is more than 1000 disasters. This data proves that disaster is a very real threat to the life of Indonesian society. The Indonesian government tends to ignore preparedness and the community still pays preparedness and mitigation to the government (Matsuda and Okada, 2006 in Dodon, 2013). Preparedness becomes a very important issue developed in the future, so that all the people are aware of the surrounding disasters and are able to reduce the risk. Investment in loyalty is expected to reduce the number of victims and damage in case of disaster (BNPB, 2015).

The average death toll from the disaster during the 200-2014 years is more than ten thousand inhabitants, this figure is quite large because in 2004 there was an earthquake and tsunami of Aceh that swallowed more than 100 thousand inhabitants (BNPB, 2015). The occurrence of natural disasters and the resulting losses, shows us that the impact of disasters can destroy or eliminate development outcomes in real time. In addition, pre-disaster and post-disaster development processes also have the potential to be "disastrous" due to large-scale exploitation of natural resources and a lack of attention to development impacts on environmental and ecosystem degradation leading to increased disaster risk (IABI, 2015).

Geologically Indonesia is passed by the ring of fire, formed by the Indo-Australian, Pacific, and Eurasian Plate. The situation thus forms the surface of the Indonesian land becomes uneven, there are many mountains and hills that mostly have a steep slope so that the slope very potential landslide disaster when the rainy season arrives. The condition of cover vegetation as a binder of land replaced by development causes the greater the landslide
potential. The occurrence of landslides reached 18% of all disasters (Hidayat, 2015).

In Indonesia there have been many landslide events in various areas that claimed lives and material loss. In November 2003 an avalanche occurred in the Bohorok River, North Sumatra, which killed 151 people and 100 missing, while in Pipir Village, Purworejo District, Central Java Province, 7 people were killed by landslides. In the rainy season of 2004, landslide occurred in Gowa regency of South Sulawesi, and killed 86 people (Karnawati (2005) in Hardiyatmo (2006)). The landslide that occurred during the rainy season on January 4, 2006 at around 5:00 pm, in Sijeruk Village, Banjarnegara Sub-district, Central Java District, resulted in fatalities of 58 people and 102 houses buried by landslides (Hardiyatmo, 2006). The latest events took place in Jemblhung Hamlet, Sampang Village, Karangkobar Sub-district, Banjarnegaras, Central Java on December 12, 2014 at around 17.30 WIB and became a major landslide disaster with 79 deaths, 29 missing, 5 seriously injured, 9 people were slightly injured, and 1,308 people were displaced in 10 refugee camp points (BNPB, 17/12).

From the data of BPBD (Regional Disaster Management Agency) Mojokerto regency recorded there are 21 villages in four sub-districts which are prone to landslides and flash floods, namely District Trawas, Pacet, Ngoro, and Jatirejo. Four sub-districts are located near the slopes of Mount Penanggunan and Mount Arjuna-Welirang. However, the vulnerability and risk of landslide disaster are not matched by knowledge and education on disaster so that it can affect community preparedness (Tempo, 2014).

The result of preliminary study that has been done by the researcher in June 2016 by using questionnaires about the knowledge of landslide disaster in Trawas villagers is from 10 people, 1 person (10%) have knowledge about good landslide disaster, 4 people (40%) enough, and 5 people (50%) are less aware of the landslide disaster. The attitude of Trawas community preparedness is still lacking, 6 out of 10 have negative attitude toward self-rescue and 4 out of 10 people already have positive attitude but still lack in doing emergency preparation. The data shows that there are still many people in Trawas village who do not know what efforts can be made to reduce the impact of landslides. Knowledge of lack of preparedness can be due to several factors such as less informed society, little socialization about.

Preparedness is an activity that shows a response to disaster. Factors that play a role in disaster preparedness are the Community and decision makers. Society has Knowledge, Attitude, and Behavior to measure the level of preparedness. Preparedness is an integral part of sustainable development. If development is well implemented, disaster preparedness efforts will be less labor (Kharisma, 2009). Community participation in disaster risk reduction efforts can be realized with Disaster Education. Through disaster education, people living in disaster prone areas have knowledge, attitudes, and skills on disaster preparedness and emergency response (Suryanti et al, 2009).

The government needs people who have knowledge and preparedness in dealing with a disaster to reduce the risk of disaster (Matsuda and Okada, 2006). Community preparedness will make people more prepared when disaster strikes. This community readiness will minimize the negative impacts arising from a disaster (Dodon, 2013). Preparedness plans are organized on an institutional level. Preparedness plans should be practical and appropriate to the context of each community or institution. BPBD is an agency / organization of service providers should be able to identify the vulnerability of the region to disaster (Purnamasari, 2013).

In the process of community education, of course, can not be done only by relying on books or brochures only. It needs an interesting medium and can be viewed in three dimensions and can describe the shape of its territory significantly even the occurrence of landslide disaster even though only a simple simulation. It is expected that with the media, people not only imagine but get a picture of how the landslide occurred and what effects on the environment and their lives, so that information can be transferred easily to the public. (Susanto, 2016). In this study, researchers interested in using learning media soil contoured maket to help the community play an active role in the learning process. In Big Indonesian Dictionary, (2010) the model is “a small artificial object with a shape (exact) exactly as it is copied”. While maket is an artificial form (building, ship, airplane and so on), it is included in three dimensional media. Maket is a miniature, model, or an artificial form of an object that has been transformed into a small one by a certain scale (Madjid, 2003). Based on research conducted by Gita (2015) on “Utilization of Media Landscape Contoured Magazine For Public Preparedness in Facing Landslide” obtained result that media maket have a significant positive effect to knowledge and preparedness in facing disaster. Media maket can be used as an alternative to support the success of learning (Gita, 2015). The use of media will also make it easier for the community to understand the information and more interesting, so that the learning process can take place effectively and
efficiently. Learning that was initially considered difficult because the illustrations are only sketches and images, through the media maket able to give a concrete picture because it has a 3-dimensional view, is also considered more interesting so it is expected to improve understanding of learning (Sunaryo, 2009). Therefore, the author took the initiative to apply media soil contoured maket in the learning of landslide disaster preparedness in the community, so it can know how big a media play a role in the process of disaster education success in the community and the use of this model will later describe the evacuation points as well as areas prone to landslide disaster, the authors conducted a study entitled "The Influence of Disaster Education Maket Method on Increasing Knowledge and Attitudes of Citizens in Landslide Face Preparedness in Trawas Mojokerto"

2 METHODS

This study used pre experimental research design using a one group pre-post test design. Large population reached in this study as much as 310 families with research sample is 75 people. The sampling technique used in this research is cluster sampling. Independent variable in this research is disaster education with maket method. Dependent variable in this research is level of knowledge and attitude of citizen in preparedness to face landslide. Instruments in this study using questionnaires. Knowledge used understanding level questionnaire was adopted from Gita aprilia Hidayat on landslide disaster material (Learning stage), and preparedness. Multiple Choice Test to facilitate research sample to answer questions, analyze data, and streamline time in filling instrument. Consisting of 20 questions to see whether or not there is an effect of intervention, the scoring criteria are correct: 1, false: 0. Measurement of attitude using the attitude questionnaire consists of 13 questions to see if there is any effect of the intervention or not. Adapted from Gita aprilia Hidayat.

This research was conducted in the Trawas sub-district precisely in the village of penanggungan and seloelamean village in May-June 2016. Respondents were given intervention. Respondents will be divided into two groups: experimental and control groups. Grouped treatment, data-taking through door to door for the first meeting on 15-16 July 2016, furthermore the researchers gave informed consent for approval and willingness to be respondents. The researcher gave pre test of knowledge and attitude of preparedness. After doing pre test the researcher gives little intervention to the respondent about landslide disaster. The research group was conducted extension training on landslide disaster and using contour medium maket media 1 times. Counseling was held on 25 July at Penanggungan village hall. And as a keynote speaker invited representatives from BPBD Mojokerto regency.

In the control group, taking the data through door to door for the first meeting, furthermore the researcher gives informed consent to be asked for approval and willingness to be the respondent. The researcher gave pre test of knowledge and attitude of preparedness. This activity was conducted for 2 days on July 18-19, 2016. At the next meeting, after the 26-27 July 2016 counseling, the researcher conducted a post test to obtain data on the change of the group's cohesive level of intervention and the group that was not given intervention. Conducted one day after the intervention. This activity was conducted on two groups, both the intervention group and the control group.

3 RESULTS

Based on table 1 above, the respondent's characteristic is that the age of respondents in this study is mostly in the age range 30 - 55 years, ie 35 people (47%) in the treatment group, 50 people (67%) in the control group.

Based on table 2 above, the results obtained in the treatment group were mostly 32 primary schools (43%) and control group mostly were SD (35%).

Based on table 3 above, it was found that at junior high school level level before disaster education was given 19 people (76%) in enough category and 3 people (12%) in good category and after being given disaster education increased to 23 people (92%) in good category.

From table 4, the result of pre test of knowledge level of landslide disaster prevention on treatment group is sufficient category, that is 55 people (73%) and knowledge level in the control group are 43 categories (43%). The result of post test in treatment group given disaster education with media of soil contoured maket shows that knowledge level mostly is good category that is 45 people (60%) and in control group which is not given disaster education with media maket shows level of knowledge which is fixed or not experienced the most change that is the category Enough number of 43 children (57%). Results of Wilcoxon test analysis in the treatment group obtained p value = 0.000 while in the control group obtained p = 1.000. The result of Mann
Whitney test analysis at pre test is obtained p value = 0,111 whereas when post test is obtained p value = 0,000 so p <0,05 means there is difference of level of knowledge experienced by citizen during pre test and post test as well as in group of intervensi and control group then p > 0,05 means there is no significant difference in the level of knowledge.

From table 5, the result of pre-test attitude on the preparedness of landslide disaster in the treatment group is negative that is 50 persons (67%) and the attitude in the control group mostly negative is 48 people (64%). The result of post test on treatment group given disaster education with media of soil contoured maket show positive attitude that is 60 people (80%) and in control group which is not given disaster education with media maket shows attitude which remain or not change most of attitude negative number of 48 people (64%). Wilcoxon test analysis results in the treatment group obtained p value = 0,000 so p <0,05 which means there are significant differences in attitude during pre test and post test. While in the control group obtained p = 1 so p > 0,05 which means there is no significant difference in attitude experienced by the child during pre test and post test. Result of Mann Whitney test analysis at pre test obtained p value = 0,732 so p > 0,05 meaning there is no significant difference of attitude between treatment and control group before treatment permberian, while result of Mann Whitney test analysis at post test obtained p value = 0,000 so p <0,05 which means there is a significant difference of attitude between treatment and control group after giving treatment.

4 DISCUSSION

Based on Table 4 the Wilcoxon test results and Mann Whitney test analysis obtained p <0,005 which means that there is a difference between the intervention group and the control group, as well as the pre test before intervention and post test after the intervention showed there is a difference. This proves that disaster education with media maket has a significant influence on the level of knowledge experienced by the citizens.

According Soekidjo Notoadmojo (2003) age affects the ability of catch and someone. The more ages the more will develop the ability to catch and the mindset so that knowledge gained better. At middle age individuals will play an active role in society and social life and more to do preparation for the success of efforts to adapt to old age. In general middle age or middle age is seen as the age between 35-60 years (Mappiare, 1983). This resulted in an increase in post test values in the treatment group.

This is also in accordance with the submitted by Maulina (2012), that the age of a person greatly influences the knowledge factor because in this study researchers researched in the adult age group, reproductive age in the theory Notoatmotjo (2005), said that someone will be easier to take the time to follow all the activities.

Knowledge is influenced by formal education factors. Knowledge is closely related to education, where it is expected that with a high education then the person will be more knowledgeable too. A person's knowledge of an object contains two aspects, namely the positive and negative aspects. These two aspects that will determine the attitude of a person more and more positive aspects and objects are known, it will lead to a more positive attitude towards a particular object (Dewi & Wawan, 2010). This is in line with what was submitted by Priyanto (2006), that in a highly educated society better able to reduce risk, increase ability and reduce the impact on health so that will participate either as an individual or society in preparing to react to disaster. However, it should be emphasized that a person with a low education does not mean an absolute lack of knowledge. Increased knowledge is not absolute from formal education but can be obtained from non-formal education. In this study shows that education of respondents with junior high school education prior to given kebencaan education 19 people in enough category, after given disaster education has increased, 23 people in good category which initially only 3 people in good category. Non-formal education one of which is to follow the counseling. If the information provided is unclear, the learning results obtained are also not optimal. With the media, the information provided will be easy to be accepted and understood by the respondents. Disaster education with media maket affects the improvement of knowledge of citizens. The results of this study reinforced the results of previous research by Sunaryo (2009), that media maket positive effect on increasing knowledge and student achievement.

In this study knowledge is influenced by the learning process with the media. Health education is also a learning process in order to achieve educational goals (Notoatmodjo, 2007). The media used are maket, maket included in the group of three dimensional visual learning media. The existence of this media maket can describe a real object, because an object can be interpreted by masnusia because sensory nerves owned by the human brain can interpret a form. The process begins with the reception of external stimuli by the eye, through the receptor nerve (conical and rod cells of the eye rectangle) sensitive to light energy of different intensities. These differences are recognized by the
eyes as citizens. This energy source stimulates nerve cells and is called sensation. The brain receiving the source of the stimulus translates a visual form which is then associated with memory and experience. Starting from the experience and memory of the activity to recognize the object (maket), there is the role of the model as a stimulant (stimulant) in the presentation of the material and the purpose to be conveyed is, disaster education about landslides. Media maket this can increase the knowledge of the citizens because the researchers in information conveying information. Therefore, media maket can be used as an alternative to support disaster education in Trawas Mojokerto. Based on table 5 Wilcoxon test analysis results in the treatment group obtained p value = 0.000. Mann Whitney test analysis results when the post test obtained p value = 0.000 so p <0.05 which means there are significant differences in attitude between treatment and control groups after and before treatment is given. This proves that disaster education with media maket have a significant influence tehadap attitude that is experienced by the citizens.

Based on the theory proposed by Myen (1996), cited Saam and Wahyuni (1996), attitude is a fun or unpleasant reaction to an object in the form of beliefs, feelings or expected behavior. The existence of good knowledge and good attitude will make it possible for someone to act toward a healthy lifestyle. To realize the attitude into a real action required supporting factors or a condition that allows, among others, facilities. Facilities can be books, leaflets, or brochures in addition to non-physical facilities can be a provision of health education to increase public knowledge such as media counseling (Kurniawati et al, 2014). It needs an interesting medium and can be viewed in three dimensions and can describe the shape of its territory significantly even the occurrence of landslide disaster even though only a simple simulation. It is expected that with the media, people not only imagine but get a picture of how the landslide occurred and what effects on the environment and their lives, so that information can be transferred easily to the public. (Susanto, 2016). Rayandra (2011), states that Maket is a group of media without projections that are visually three dimensional representation, this media group can be tangible as original material both live and dead, and can also form as a replica representing the original. This research is in line with the proposed Wulansari (2013), mentioning that the use of media model has a significantly better result to improve the knowledge and attitude of students in learning.

This study found that the attitude of the citizens before the disaster education with media maket mostly negative attitude, because the public lack of information about the disaster, a little socialization about landslide preparedness, and the limitations of the community who attend disaster training. After disaster education, the attitude of citizens in the preparedness to face the landslide disaster increases. This is because the knowledge of the people increases so that the attitude of preparedness becomes positive. According to Notoatmodjo (2010), Knowledge is a very important domain for the formation of one's actions. Much of a person's knowledge is acquired through the sense of hearing (ears) and the sense of sight (the eye). Knowledge involves changes in ability and thinking patterns, skills in addressing a problem objectively, the way the individual gains knowledge of the environment of his activities and tells the experience is a cognitive process and the development of a person's knowledge attitude. This research is in line with the WHO in Notoatmodjo (2007), one of the strategies for behavior change is the provision of information to increase knowledge so that the awareness arises that people will behave in accordance with their knowledge. One effort to provide information that can be done is counseling.

Disaster education with media maket influential to increase attitude of citizen in preparedness to face landslide disaster. This result is known from the level of knowledge and attitudes of citizens after receiving a higher education disaster than before the disaster education and the level of knowledge and attitudes of citizens who received higher education disaster than those who did not receive disaster education. Residents after the disaster education was increased knowledge that had an effect on attitude change. The source of the disaster education message delivered can also influence the change of attitude. Disaster education carried out by BPBD with competence in accordance with the material then it can affect attitude score. The use of disaster education media with maket can overcome the attitude of passive citizens initially to environmental conditions become more active to maintain it because it can show the whole object both construction and the process of landslide disaster and the danger that will be caused. Learning media with maket can influence one's attitude because citizens can describe the location of the inhabited place is a landslide-prone area and visualized significantly in a smaller form, so that citizens understand how to determine the points of evacuation and evacuate themselves and family in case of disaster Avalanche. Another factor that may affect the attitude in research is the institution or organization in this village such as youth cadets, youth mosques, and PKK is quite active to hold events every month. The existence of activity-activity activities make an interaction between

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residents, there is a reciprocal relationship that affect the behavior patterns of each individual as a member of society.

5 CONCLUSIONS

5.1 Conclusion

1. The knowledge of the people about the awareness of landslide disaster increased after the disaster education intervention was given with the media maket. Meket as a three dimensional visual media of real objects, therefore very helpful in communicating information so easy to understand.

2. The attitude of the residents to the landslide disaster preparedness increased after being given disaster education intervention with media maket. Disaster education with media maket makes residents more active again to maintain the environment because people can understand the whole object either construction or the process of landslide disaster and the danger that will be caused.

5.2 Suggestions

1. For nurses are expected to apply to be one health education using media maket to increase knowledge and attitude in conducting extension activities or other activities.

2. For related institutions such as BPBD (Regional Disaster Management Agency) and puskesmas can use media model to improve the ability to give special information to the community.

3. For the village head and his staff can use this media maket in developing into a disaster prepared village and further improve the knowledge of preparedness.

4. Further research is expected to increase the frequency to implement intervention in the treatment group to give maximum results

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