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Research Article

The Effect of Future Time Perspective and Community Resilience on Disaster Risk Reduction in Disaster-prone Communities

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Abstract.
Indonesia routinely experiences disasters in various regions every year. To see that disaster management is currently disaster risk reduction oriented, individuals need to have a future time perspective to anticipate the potential impacts of disasters that will occur. In addition, as we know, community resilience in disaster management policies and practices is currently receiving greater attention. With the quantitative method and multiple linear regression test, this study tries to determine the effect of future time perspective and community resilience on disaster risk reduction in disaster-prone communities. The 57 subjects of this study were 20–45 year-old men and women who live in disaster-prone environments. The subjects were asked to fill out the Future Time Perspective Scale, Communities Advancing Resilience Toolkit, and General Disaster Preparedness Belief Scale. The three scales were disseminated via social media, where anyone could fill them in as long as they met the subject's criteria of the research. The results of this study indicate that there is an influence of the future time perspective on disaster risk reduction, however, there is no effect of community resilience on disaster risk reduction.

Keywords: community resilience, disaster, disaster management, disaster risk reduction, future time perspective

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1. BACKGROUND

Indonesia regularly experiences disasters in various regions every year. Some researchers give the name to Indonesia as the country of a ring of fire, due to Indonesia's geographical location which is between a cluster of volcanoes, as if there is a ring surrounding it [1]. Based on previous findings, as many as 81% of giant earthquakes occur within this ring of fire trajectory [2]. While the flood disaster itself is the most frequent natural disaster in Indonesia. Flood disasters can be predicted by observing the flow of water and rainfall. However, sometimes floods can also occur suddenly caused by levee leaks or storm winds. These floods are known as flash floods [3].

The impact of disasters can be classified into three categories, namely large impact, moderate impact, and small impact. Determining the category of disaster impact is taken

through an assessment of the severity level. The three impacts of the disaster included four aspects in the assessment, namely environmental damage, loss of property, psychological impact on post-disaster communities, and casualties. A new condition is said to be a disaster when it obtains at least one of the four aspects previously mentioned. The more aspects that are fulfilled and the more severe the impact resulting from these aspects, the greater the impact category of the disaster that occurs. Vice versa, the fewer aspects that are fulfilled and the lighter the impact resulting from these aspects [4].

The impact of the disaster mentioned earlier has the potential to weaken social welfare as a whole, even for a long period of time. The impact of the disaster that occurs usually exceeds the ability of the affected community or society to deal with the resulting impacts. There are four stages in the disaster management cycle namely; the preparedness stage, emergency response stage, rehabilitation-reconstruction stage, and mitigation stage [5]. In general, disaster management aims to reduce potential losses due to disasters and ensure that victims affected by disasters receive appropriate assistance and can recover quickly and effectively from the resulting impacts [6]. Presented by The United Nations Office for Disaster Risk Reduction's (UNISDR) Hyogo Framework for Action 2005–2015, the current disaster concept and approach has shifted from management oriented towards the emergency response and rehabilitation stages towards the prevention, mitigation, and preparedness stages, or hereinafter referred to as Disaster Risk Reduction [7].

In addition to disaster management carried out by official state institutions, each individual can also implement and develop various forms of disaster management according to their capacity. Especially if you see that disaster management is currently oriented towards Disaster Risk Reduction, then individuals need to have a view of the future to be able to anticipate the potential impacts of disasters that will occur. This view is related to the Future Time Perspective, which is a tendency that differs from one individual to another regarding thoughts about the future [8]. An individual who has a Future Time Perspective is someone who believes in himself and that he can optimize his abilities. In some previous findings, it was stated that individuals with a high Future Time Perspective experience less pressure and have more positive treatment models [9].

Another interesting variable to compare with Disaster Risk Reduction is Community Resilience. The role of Community Resilience in disaster management policy and practice is currently receiving greater attention. Community Resilience itself is the ability of the community to continuously survive and carry out rehabilitation from the impact of

the disaster that has occurred [10]. Community Resilience is not only oriented towards the rehabilitation-reconstruction stage but also prevention and mitigation. Community Resilience is also seen as a social process in which local communities carry out collective actions that are independently aimed at survival and social welfare [11]. CARRI (Community and Regional Resilience Institute) describes Community Resilience as the ability to monitor threats and reduce the negative impact of disaster threats through effective response and adaptation [12]. In other words, a community can be called a disaster-resilient community when it can carry out mitigation and prevention actions against disaster threats.

By being oriented towards a future time perspective, individuals can increase their awareness regarding disaster risk reduction. It could happen because individuals assess the actions they take today which can have consequences in the future, including in the context of actions to reduce disaster risks, especially for individuals who live in disaster-prone areas. Likewise, community resilience is considered to be able to increase disaster risk reduction, because the community carry out the movement of disaster mitigation and prevention together.

Based on the explanation above, it can be assumed that both Future Time Perspective and Community Resilience can influence individual sensitivity to carry out disaster management, especially Disaster Risk Reduction. However, not many studies in Indonesia have examined these variables, even though Indonesia itself is a country that has a high potential for disasters. Therefore, this study aims to determine the effect of Future Time Perspective and Community Resilience on Disaster Risk Reduction in disaster-prone communities.

2. RESEARCH METHODS

2.1. Future time perspective

Future time perspective is interpreted as an individual's perception of how many opportunities and limitations there are in his life [8]. In addition, Bagrationi and Thurner [13] define the Future Time Perspective as individual perceptions that differ from one another regarding their future. There are two factors that build Future Time Perspective; the first is the focus on opportunities, which refers to the individual's belief that he has a long future with new goals and many possibilities, and the second is the focus on limitations, which refers to the limitations in the individual's life and the belief that he has limited time in the future so that it has the potential to raise constraints and limited possibilities.

2.2. Community resilience

Community resilience is the ability or capacity of a community potentially affected by a disaster to adapt by surviving or changing to achieve or maintain a certain level of function and structure of the community itself [14]. Community Resilience is determined by the level of the community's ability to organize and learn from previous disasters, better and more effective protection against possible future disasters, and improve disaster risk reduction efforts. According to Ellis [15], there are five factors referred to by him as livelihood assets that affect Community Resilience namely; natural resource capital, physical capital, human capital, financial capital, and social models.

2.3. Disaster risk reduction

Disaster is defined as an event or series of events that includes the role of nature, humans, and/or both, resulting in an impact on human suffering, loss of property, damage to the environment and facilities, as well as causing disruption to the order of social life [4]. Because disasters can occur anytime and anywhere, monitoring of disaster threats and early warning systems is important to do [10]. Disaster threats are events that can lead to certain disasters. Disaster risk is the amount of loss that is likely to result, including environmental damage, loss of property, psychological impact on the community after a disaster, and loss of life.

Meanwhile, prone-disaster is the magnitude or size of the potential for a community, building, public facility, or area to be damaged or disrupted due to the impact of the disaster [5]. Vulnerable communities are considered to have a greater potential for disaster risk. However, through sufficient knowledge of disasters that have occurred before, disaster risks can be mapped and measured. This activity is referred to as Disaster Risk Reduction or an approach to identify, assess, and reduce disaster risk which includes disaster management, disaster mitigation, and disaster preparedness [7]. If you want to realize sustainable development, then Disaster Risk Reduction must be carried out [16].

2.4. Sampling Method

This research used a probability sampling method, where the scale was distributed using a Google Form and subjects were obtained randomly. The entire population had

the same chance of being selected. Of all the subjects who filled out the scale, only those who met the subject's criteria of the research were taken.

2.5. Research subject

The research subjects were individuals with an age range of 20-45 years who live in disaster-prone environments. The total sample in this study was 57 men and women who were later recruited via social media or incidentally.

2.6. Research Instruments

Three instruments that used in the research were developed-in-house from the existing one. The instrument used to measure the Future Time Perspective is the Future Time Perspective Scale (FTP) with a coefficient of 0.892 [17]. FTP uses a Likert scale, where there are four format choices with the ranges Very Unsuitable (STS), Unsuitable (TS), Appropriate (S), and Very Suitable (SS). The instrument used to measure Community Resilience is the Community Advancing Resilience Toolkit (CART) with a coefficient of 0.8712 [18]. CART uses a Likert scale, where there are four choice formats with the ranges Strongly Unsuitable (STS), Unsuitable (TS), Appropriate (S), and Very Suitable (SS). The instrument used to measure Disaster Risk Reduction is the General Disaster Preparedness Belief Scale (GDPB) with a coefficient of 0.80 [19]. GDPB uses a Likert scale, where there are four choice formats with a range of Strongly Unsuitable (STS), Unsuitable (TS), Appropriate (S), and Very Suitable (SS).

2.7. Research design

The approach in this research is quantitative that aims to determine the effect of future time perspective and community resilience on disaster risk reduction in disaster-prone communities.

2.8. Data Collection Procedures

First, the researchers distributed the scales via google form which then obtained 60 participants within three months. Of the 60 participants, only 57 could be used in the research. Second, researchers tested the quantitative data using SPSS.

2.9. Data analysis technique

In the process of data analysis, researchers use the SPSS with multiple linear regression test. The first independent variable in this study is the Future Time Perspective. The second independent variable in this study is Community Resilience. The variable dependent in this study is Disaster Risk Reduction. The results of the data analysis are presented in the form of a table of statistical test values related to the variables used in the study.

3. RESULT

In the process of data analysis, researchers use softwareSPSS with multiple linear regression test. The x1 variable in this study is the Future Time Perspective. The x2 variable in this study is Community Resilience. The variable y in this study is Disaster Risk Reduction. The results of the data analysis are presented in the form of a table of statistical test values related to the variables used in the study.

TABLE 1: Linear Regression Test X1 against Y.

Variable	Regression Coefficient	tcount	Sig.
Constant	20,466		
X1	0.319	2,944	0.005
Fcount	= 8.670		0.005
R Square	= 0.136		

Based on the value of Sig. from the Anova output, it is known that the value of Sig. is equal to 0.005. Because of the value of Sig. 0.005 <0.05, it can be concluded that X1 (Future Time Perspective) affects Y (Disaster Risk Reduction). In addition, based on a comparison of the calculated F value with F table, it is known that the calculated F value is 8.670. Because the calculated F value is 8.670 > F table 4.016, it can be concluded that X1 (Future Time Perspective) affects Y (Disaster Risk Reduction). Based on the SPP output table, it is known that the coefficient of determination or R square is 0.136. The R square number is 0.136 or equal to 13.6%. This figure means that the variable X1 (Future Time Perspective) affects the variable Y (Disaster Risk Reduction) by 13.6%. While the remaining 86.4% is influenced by other variables outside the variables not examined.

However, based on the value of Sig. from the Anova output, it is known that the value of Sig. is equal to 0.079. Because of the value of Sig. 0.079 > 0.05, it can be concluded that X2 (Community Resilience) does not affect Y (Disaster Risk Reduction).

TABLE 2: Linear Regression Test X2 against Y.

Variable	Regression Coefficient	tcount	Sig.
Constant	27,236		
X1	0.056	1,793	0.079
Fcount	= 3.214		0.079
R Square	= 0.055		

In addition, based on a comparison of the calculated F value with F table, it is known that the calculated F value is 3.214. Because the calculated F value is 3.214 < F table 4.016, it can be concluded that X2 (Community Resilience) does not affect Y (Disaster Risk Reduction). Based on the SPP output table, it is known that the coefficient of determination or R square is 0.055. The magnitude of the R square number is 0.055 or equal to 5.5%. This figure means that the variable X2 (Community Resilience) affects the variable Y (Disaster Risk Reduction) by 5.5%.

4. DISCUSSION

This study aims to examine the role of Future Time Perspective and Community Resilience in Disaster Risk Reduction in individuals living in disaster-prone areas. Based on the result, it is known that Future Time Perspective affects the Disaster Risk Reduction by 13.6%. The research results support hypothesis 1 which states that the Future Time Perspective affects the high and low of Disaster Risk Reduction. This influence explains the high Disaster Risk Reduction, and conversely, the low Future Time Perspective explains the low Disaster Risk Reduction in the subject. The implication of this infusion of affect in everyday judgment is vast. Not only may judgments be affected when the affect is considered relevant, such as the perceived risk of living in disaster-prone areas, but also perhaps affected are everyday decisions concerning consumption, health, social and financial domains.

However, in the case of affect elicited by an event that is important or relevant for a whole society or country, the impact of affect on individual decisions as well as societal decisions may be much more homogenous and far-reaching. The current research does not speak directly to this issue since we did not directly assess this type of national mood change in a whole population. Instead, we studied a sample of people who experienced the aftermath of natural disasters. Although it is difficult to conclude with certainty that the approach used here is representative of the effects on

a whole population, a comparison with others data suggests that the reactions of our participants resembled that of the larger population.

The above results are consistent with the findings of Milfont et al. [20] that the Future Time Perspective has an important role in influencing individual attitudes and behavior toward the environment, and the Future Time Perspective has a very strong relationship with the environment in which the individual lives. In this case, Disaster Risk Reduction can be classified as an individual's attitude and behavior to carry out mitigation actions against potential disasters and post-disaster damage. In addition, Bagrationi and Turner [13] mentioned that a working individual is very connected to his job and worries about things that might happen in the future because he wants to maintain his productivity. This means that readiness to change is one of the factors that influence individual perceptions, especially those at work.

However, the same result does not occur in hypothesis 2 which it is known that Community Resilience affects the Disaster Risk Reduction by only 5.5%, while the remaining percentage may be influenced by the other variables. The results of the study reject hypothesis 2 which states that Community Resilience affects the high and low of Disaster Risk Reduction. The results of this study indicate that there is no influence from Community Resilience on Disaster Risk Reduction on the subject, both positive and negative influences. However, these results can be explained more or less by the research of Norris et al [21], where it is stated that the time perspective does not produce a certain impact because these conditions are to some extent influenced by individual subjective judgments of their environment. It was further stated that it is possible that information about time was not involved by the subject during the assessment process, so only the risk aspect was considered by the subject, but not the aspect of morality or in this case its relationship with the community.

Overall, this research suggests that major environmental events may send psychological ripples globally, with the consequence that individuals and societies remote from the actual disaster may change their everyday decision behavior. The findings reported here may be used to better understand public risk perception and decision behavior in the aftermath of natural disasters. Further, the present research is a first step towards developing better understanding of the dynamics of the formation of disaster risk reduction in society.

5. CONCLUSION

Based on the results of this study, it can be concluded that hypothesis 1 in the study is accepted, while hypothesis 2 in the study is rejected. The results of this study indicate that there is an influence from the future time perspective on disaster risk reduction, but there is no effect from community resilience on disaster risk reduction.

The implication of this research is material that can be used by humanitarian workers, especially in the disaster sector, to design and carry out disaster risk reduction interventions in disaster-prone areas. Moreover, the results of this study stated that the future time perspective has a positive effect on disaster risk reduction. Of course, this result needs to be followed up in the form of a mitigation intervention program.

While recommendations for further research can be viewed from the significance value of R Square on variable X1 (Future Time Perspective) which is equal to 0.136 or 13.6%. This figure means that 86.4% of the potential variable Y (Disaster Risk Reduction) is influenced by other variables outside the variables not examined. And for the variable X2 (Community Resilience), the R square value is 0.055 or equal to 5.5%. This figure means that 94.5% of the potential variable Y (Disaster Risk Reduction) is influenced by other variables outside the variables not examined.

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Ethics Policy

None.

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