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Disaster Preparedness Sumatra Barat Community the Relationship with Natural Intelligence, Self Efficacy and Disaster Literacy

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Abstract

West Sumatra is under the ring of fire and there are megathrusts, which come from two segments, namely the Siberut and Sipora-Pagai segments, earthquakes are part of people's lives, community preperedness in interacting and transacting with earthquakes is an unavoidable choice. This study seeks to examine, describe and analyze the relationship between variables of natural intelligence, self-efficacy and disaster literacy with disaster preparedness and analyze the dominant variables that influence disaster preparedness. The research method is quantitative associative correlation in analyzing the effect of one independent variable on the dependent variable. The results of the study found that first, there is a very significant positive relationship between natural intelligence and disaster preparedness; the second, there is a very significant positive relationship between self efficacy and disaster preparedness; the third, there is a very significant positive relationship between disaster literacy and disaster preparedness. From the findings of this study, it can be concluded that the community already has preparedness in dealing with earthquake disasters, but there is still a need for improvement, effective improvement by intervening on natural intelligence because this variable has proven to have a high influence on disaster preparedness.

Keywords
disaster preparedness; natural intelligence; self-efficacy; disaster literacy

I. Introduction

Some natural events that cause damage and loss to humans include earthquakes, tsunamis, floods, robb floods, landslides, hurricanes, hurricanes, all unscheduled and planned natural events, they come suddenly and are devastating. Everything in front of him. The earthquake in West Sumatra that occurred on September 30, 2009 with a magnitude of 7.6 on the ricter scale has caused hundreds of thousands of damage to buildings and claimed the lives of thousands of humans and livestock, material and immaterial losses are immeasurable. Earthquakes are natural events that occur naturally, not intended to destroy, destroy everything that exists, but they occur due to the rotation of the plates in the earth. Sumatra is known as an earthquake-prone area. Because it is under the ring of fire and the meeting of the Eurasian plate, Pacific plate, and Philippine plate, which will experience earthquakes, mild, moderate and heavy. Large earthquakes due to plate shifts can occur in cycles of hundreds of years, medium and small earthquakes always occur in weeks, months, years, tens of years and hundreds of years. Earthquakes and people's social life have become commonplace and

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always exist and always happen anytime and in the middle however. Preparedness is something that must remain in self, family and community, because earthquake events are something that must happen and are always felt by residents. Large earthquakes due to plate shifts can occur in cycles of hundreds of years, medium and small earthquakes always occur in weeks, months, years, tens of years and hundreds of years. Earthquakes and people's social life have become commonplace and always exist and always happen anytime and in the middle however. Preparedness is something that must remain in self, family and community, because earthquake events are something that must happen and are always felt by residents. Large earthquakes due to plate shifts can occur in cycles of hundreds of years, medium and small earthquakes always occur in weeks, months, years, tens of years and hundreds of years. Earthquakes and people's social life have become commonplace and always exist and always happen anytime and in the middle however. Preparedness is something that must remain in self, family and community, because earthquake events are something that must happen and are always felt by residents.

Regarding West Sumatra as an earthquake-prone area, several researchers have conducted many studies, research and in-depth studies, especially those related to earthquake-standard construction construction. Hendro Murtianto examined the activity of the fault zone of central Sumatra, found landsat images, linear fault maps, seismic history and population density in the study area.(Murtianto, 2016)Interesting findings from his study, first, the distribution of earthquake-prone areas due to the central Sumatra fault; Second, areas with potential damage, he emphasized that Padang has a high level of vulnerability to tectonic earthquakes from the convergent process of the Indian Ocean Plate and the Eurasian Continental Plate and waves. Raden Cecep Eka Permana researched the local wisdom of the Baduy community in disaster prevention. The results showed that: the Baduy area which is included in the earthquake-prone area of West Java, there was no damage to buildings due to the earthquake. Local wisdom in disaster mitigation owned by the Baduy community is actually based on pikukuh (customary provisions) which serve as instructions and directions in thinking and acting. (Permana et al., 2011)

The two previous studies represent research in general that the researcher cites in order to see reviews, studies, research and analysis related to natural disaster problems, in this case earthquakes. From the research, the researchers see that in general they carry out studies, analyze and deepen in aspects, first, scientific physics of earthquakes by geospatial mapping, identifying earthquake-prone areas and trying to recommend building standards that are appropriate for the area. Second, disaster management in the form of models planned and integrated work systems, development of disaster mitigation guidelines. Third, researching related to local wisdom in people who are already accustomed to earthquakes, this wisdom comes from the decree of the traditional elders. However, there has been no research that has tried to assess the readiness of oneself as a citizen to accept earthquake events in the form of self-rescue, family, local residents and the local environment. This seems to be the novelty or novelty in the research that the researcher is doing, which tries to analyze several variables related to disaster preparedness among the variables analyzed that have a relationship with disaster preparedness, natural intelligence, self-efficacy and disaster literacy.

II. Review of Literature

Earthquakes followed by tsunamis have occurred since the time of our ancestors, such as in Sangihe (1856), West Sumatra (1861), Sumbawa (1820), Bengkulu (1833), Krakatau (1883), Seram (1965), Southeast Sulawesi (1968 and 1996).), South Sulawesi (1969), Flores (1992), Banyuwangi (1994), Biak (1996), Sumba (1997) and Bengkulu (2000). (Hidayati, 2008)This fact has clearly shown that Indonesia is a disaster-prone country and is on the ring of fire that always shakes the archipelago at any time, in accordance with natural processes that occur in the bowels of the earth. Indonesia, which consists of thousands of islands, is very earthquake-prone because it is located on more than one earth plate (Eurasia plate, Pacific plate, and Philippine plate) which is adjacent to the Australian plate. These plates are Earth's tectonic plates that are still active that collide with each other, and in addition there are approximately 129 active volcanoes that have the potential for earthquakes.(Roemaf, 2013)

In the Sumatra region, the Indo-Australian plate, the Eurasian plate, and the Pacific plate, there is the potential for large earthquakes to occur with shallow depths that will cause a tsunami so that the Sumatra region is included among tsunami-prone areas, especially on the west coast. Mentawai is one of the regions in Indonesia which is located in*ring of fire*world. Based on its tectonic setting, the Mentawai earthquake that occurred on October 25, 2010 was due to the interaction between the Indo-Australian subduction plate boundary and the local Sunda subduction.(Sari, Hapsari and Agustan, 2014) This picture shows how Sumatra, especially West Sumatra, is very vulnerable to earthquake disasters.

The potential for Sumatran earthquakes generally comes from megathrust, which comes from two segments, namely the Siberut and Sipora-Pagai segments. Both of these segments have a major earthquake return period every 200 years. Earthquake which happened many times to remind themselves and their families about the need to prepare themselves and their families to face them, so that risks can be minimized. Earthquake disaster preparedness is a series of actions taken to effectively anticipate the risk of an earthquake disaster to oneself and the surrounding environment. In a more operational sense, it can be defined that earthquake disaster preparedness is a series of actions taken by students who are the object of research to anticipate the risk of an earthquake disaster to themselves and the surrounding environment effectively, with indicators; (1) preparation of safe zones; (2) not panic in the face of disasters; (3) avoid the debris of solid and hard objects; (4) protect the head with safety; (5) move towards the open space.

Intelligent in the sense expressed by the expert is skill, ability, reliability, ability and expertise in something. People who are intelligent towards nature, those who are able to read nature correctly, precisely and accurately and are able to take advantage of the things that exist in nature truly, without destroying, without disturbing, without breaking the link between the components of nature. This was expressed by Febriani, naturalist intelligence in Islam, making people fully aware that, humans are actors in charge of managing the universe, may take advantage of it, but still have to maintain and preserve it.(Febriani, 2013)

From the experts' understanding of intelligent, it can be concluded that the key words are capable, able, trained, educated and skilled in doing something. Intelligence in humans is a potential bestowed by God to be developed appropriately and correctly continuously, continuously and sustainably so that it becomes self-strength in interacting with real life that is being faced, things that can be observed and measured related to naturalist intelligence, among the indicators are: (1) act quickly and reflectively on the problems that befall them; (2) calm and not panic about the situation being faced; (3) do something measurable to escape the problem.

The social changes that have taken place in the city of Banda Aceh can be identified by comparing the conditions of the community before and after the tsunami. The process of change in society occurs because humans are creatures that think and work. Social change is a change in the interaction relationship between people, organizations or communities, it can involve social structures, values and norms and roles. According to Sukowati (2011: 3) Social Change is "the process by which changes in the structure and function of a social system. These changes occur as a result of the inclusion of renewal ideas adopted by members of the relevant social system". Whereas Moore in Sukowati (2011: 7) "social change is a part of cultural change. Changes in culture include all parts which include art, science, technology, philosophy and so on". (Ismail, et al. 2019)

From the literature review related to disaster preparedness (*disaster preparedness*), Naturalist Intelligence (naturall Intelligence), Confidence (self efficacy) and Disaster Literacy (disaster literacy). Previous experts and researchers have seen and stated that these variables have a positive effect on disaster preparedness. First, natural intelligence has a positive effect on disaster preparedness, this can be seen in Putu's statement that develops disaster education innovation. Disaster preparedness needs to be educated, taught, and trained to be skilled in preparing for disaster. The intelligence developed in this case is natural intelligence, so that someone is familiar with nature, already understands nature's instructions for the occurrence of something that can harm all parties. Humans who have natural intelligence, can surf in the midst of nature,

Second, self-confidence has a positive effect on nature, this is also in line with what was stated by Mukhid who developed Bandura's theory of social cognition, in which people who have self-confidence, are ready and able to become *leader*in the midst of a social community, ready to mobilize and have the ability to solve social problems and natural exposure. The earthquake disaster that comes is faced as a challenge that must be resolved as well as possible. People, who have high self-confidence, are fast, precise, accurate, systemic, programmatic in solving earthquake disaster problems, so people who have high self-confidence have high readiness for the possibility of an earthquake disaster risk that befalls them. Third, disaster literacy has an effect on disaster preparedness, along with the findings of the mukhtaf which says that disaster literacy in the form of the ability to observe, observe, analyze, and map disaster problems will make a person have preparedness in dealing with disasters.

III. Research Method

The survey conducted on the people of the city of Padang related to several variables that affect disaster preparedness is a bivariate correlational associative quantitative study (Walter R. Borg, 2007), to see a picture of the community's ability in four variables, (Norman E. Wallen, 2001)Earthquake Disaster Preparedness, Natural Intelligence (natural intelligence), Self Efficacy (self-confidence) and disaster literacy. To do descriptive analysis (Supardi, 2017) on the four variables mentioned above and perform an independent analysis (Agus Irianto, 2007) related to the relationship of each independent variable with the dependent variable. (Latan, 2014)

IV. Result and Discussion

Scoring of the Disaster Preparedness variable which has been successfully carried out with descriptive analysis with the help of *Statistical Package for the Social Sciences*(SPSS) N=81, Mean=58,98; Standard Error of Mean=1.33; Median=58.33; Mode=53.00; Standard Deviation=11.95; Variance=142,70; Range=57,00; Minimum=33.00; Maximum=90.00. Scoring of Natural Intelligence variables that have been successfully carried out descriptive analysis with the help of*Statistical Package for the Social Sciences*(SPSS) N=81, Mean=68,35; Standard Error of Mean=1.49; Median=69,23; Mode=75.00; Standard Deviation=13.41; Variance=179.83; Range=52.00; Minimum=48.00; Maximum=100.00. Scoring of the Self Efficacy variable which has been successfully carried out by descriptive analysis with the help of*Statistical Package for the Social Sciences*(SPSS) N=81, Mean=80,34; Standard Error of Mean=0.97; Median=78.57; Mode=75.00; Standard Deviation=8.77; Variance=76.89; Range=43.00; Minimum=57,00; Maximum=100.00. Scoring of the Disaster Literacy variable that has been successfully carried out descriptive analysis with the help of*Statistical Package for the Social Sciences*(SPSS) N=81, Mean=60,50; Standard Error of Mean=1.36; Median=58.33; Mode=50.00; Standard Deviation=12.23; Variance=149.49; Range=53.00; Minimum=39.00; Maximum=92.00.

To meet the requirements of the analysis, researchers conducted a normality test, linearity test and homogeneity test. Normality test using kolmogorove-smirnove on variable*Disaster Preparedness*the results obtained significance of 0.53> 0.05 concluded that the data is normally distributed. On the Natural Intelligence variable obtained a significance result of 0.24> 0.05, it is concluded that the data is normally distributed. In the Self Efficacy variable, the results of the significance of 0.10> 0.05 were concluded that the data was normally distributed. In the Disaster Literacy variable, a significance result of 0.051>0.05 was obtained, it was concluded that the data was normally distributed.

Variable linearity test *Disaster Preparedness*with Natural Intelligence performed using Pearson correlation analysis or linear regression, the results of the test for linearity output were 0.00 < 0.01, it was concluded that the relationship between X_1 and Y was linear. Variable Disaster Preparedness with Self Efficacy was carried out using Pearson correlation analysis or linear regression, the results of the test for linearity output were 0.00 < 0.01, it was concluded that the relationship between X_2 and Y was linear. Variable Disaster Preparedness with Disaster Literacy was carried out using Pearson correlation analysis or linear regression, the results of the test for linearity output were 0.00 < 0.01, it was concluded that the relationship between X_3 and Y was linear.

Homogeneity test using Barlet test between variables *Disaster Preparedness*with Natural Intelligence obtained test output of homogeneity of variances of 0.45> 0.05 concluded that the data distribution has the same variance. Between the variables of Disaster Preparedness and Self Efficacy, the output of the test of homogeneity of variances is 0.33> 0.05, it is concluded that the distribution of data has the same variance. Between the variables of Disaster Preparedness and Disaster Literacy, the output of the test of homogeneity of variances is 0.78> 0.05, it is concluded that the distribution of data has the same variance.

The correlation coefficient between *Disaster Preparedness*with Natural Intelligence is very significant which is indicated that the significance is 0.00 < 0.01 with a correlation coefficient rcount of 0.79 including the category of high and strong relationship. The regression coefficient is drawn as =11.10+0.70X1 which means that the increase in the score on natural intelligence will affect the addition of 0.70 to the disaster preparedness score at the constant 11.10. The contribution of natural intelligence to disaster preparedness is seen in the

calculation of the coefficient of determination of 62.41%, meaning that sixty-two point four one percent changes in disaster preparedness is determined by natural intelligence.

The correlation coefficient between *Disaster Preparedness*with a very significant Self Efficacy which is indicated that the significance is 0.00 < 0.01 with a correlation coefficient rcount of 0.38 including the category of low, weak but definite relationship. The regression coefficient is drawn in =16.93+0.52X2, meaning that the increase in self-efficacy scores will affect the addition of 0.52 disaster preparedness scores at a constant of 16.93. The contribution of self efficacy to disaster preparedness can be seen in the calculation of the coefficient of determination of 14.40%, meaning that fourteen point forty percent changes in disaster preparedness are determined by self-efficacy.

The correlation coefficient between *Disaster Preparedness*with a very significant Disaster Literacy, which is marked by a significance of 0.00 < 0.01 with a correlation coefficient rcount of 0.50 including a significant relationship category. Regression coefficient is drawn in $=29.19+0.49X_3$ which means that the increase in score in Disaster Literacy will affect the addition of 0.49 score to disaster preparedness at a constant 29.19. The contribution of Disaster Literacy to disaster preparedness can be seen in the calculation of the coefficient of determination of 25.00%, meaning that twenty-five percent of changes in disaster preparedness are determined by Disaster Literacy.

The frequency distribution of disaster preparedness data comes from eighty-one samples taken at random. The average value is in the fourth class in the interval class, the data distribution is between 57-64 and the absolute frequency is collected on the interval line 20 (twenty) respondents with a relative frequency of 24.69% (twenty four point sixty nine) percent. Meanwhile, the cumulative frequency is below the average of 44.40% (forty four point forty) percent, while those above the average are 30.91% (thirty point ninety one) percent. Disaster preparedness (disaster preperedness) residents of the city of Padang in the face of an earthquake is still relatively low.

The distribution of community values on the natural intelligence variable (*natural intelligence*), the average value is in the fourth grade in the interval class, the distribution of data is between 69-74 with an absolute frequency of 13 (thirteen) respondents with a relative frequency of 16.04% (sixteen point zero four) percent. Meanwhile, the cumulative frequency is below the average of 44.43% (forty four point forty three) percent, while those above the average are 39.53% (thirty nine point fifty three) percent. The natural intelligence of the residents of the city of Padang in dealing with the earthquake disaster is still relatively low.

Natural intelligence relationship (*natural intelligence*) with a very significant disaster preparedness, which can be seen in the inffrenential analysis of the correlation coefficient X1 with Y of 0.79 (zero point seventy-nine) with a significance level of 0.00<0.01 which means that the correlation coefficient of X1 with Y very significant. Likewise, in the regression analysis, it can be seen that the value of a = 11.06 and the value of b = 0.70 which can be symbolized by the regression equation = 11.06 + 0.70 X_1 which means that the addition of one score to X1 (natural intelligence) of the community will affect the the increase in Y score (disaster preperedness) was 0.70 at a constant of 11.06, with a significance level of 0.012 <0.05, meaning that the regression coefficient was significant.

Rita Istiana in her research on naturalist intelligence with responsible environmental behavior also found that her determination was 43.56%. (Istiana et al., 2020)Several previous studies have also found that naturalist intelligence has an influence on environmentally responsible behavior. The form of environmental responsibility is readiness in dealing with several natural disasters that will befall themselves, their families, communities and the surrounding environment. Furthermore, Rita explained the theory from the experts which stated that the naturalist intelligence started from the habit of being with nature, paying

attention to nature, being responsible for nature conservation, so that togetherness with nature became a characteristic of a citizen, which was realized by caring, empathetic, friendly, and personalize. love, care, and responsibility towards nature.

The central government and local governments are trying to do with national policies and regional policies by trying to collect the values of local wisdom in the form of disaster mitigation. Suryandari defines mitigation in the form of sustainable actions taken to reduce or eliminate long-term risks to property and human life.(Suryandari & Wijayani, 2021)Negligence, carelessness, delay and carelessness in responding to and preparing matters related to disaster risk will be able to harm themselves, their families, communities, nations and countries in the event of an earthquake. Self-management, family, community and government are highly demanded to free citizens from the threat of the disaster. Self-discipline and local wisdom are needed in dealing with disaster risks, especially earthquakes.

Real forms of local wisdom that have been exemplified by predecessors in Minangkabau include: ***first***, the architecture of the Minangkabau gadang house which has resistance to earthquakes. Building construction and building materials are prepared to reduce the risk of damage to earthquake shaking. Rumah Gadang building is often called a vernacular building, which has the following characteristics: 1) the building is not supported by correct building principles and theories; 2) adapt to the environment; 3) according to the ability of the community (technology and economy); 4) describe the culture of the people (as markers, symbols, etc.); 5) open to the natural resources around it.(Novio, 2016)A building structure with an elastic foundation, ready for earthquake shaking, a sharp building ready for the current of rainwater that falls on the building, building pillars that are high above the ground to the floor ready to channel the storms that come unexpectedly. All building materials come from nature around the environment, none are imported, almost one hundred percent do not contribute to global warming, all building materials absorb solar heat. This is a solution to reducing global warming that causes climate change.

Second, many stories, legends, saga, proverbs, petitih, dendang, songs, poetry, picola whose diction and narration are inspired by nature and natural events. Folklore that develops in Minangkabau is generally a story composed of a dialectic of nature and the social environment. Its philosophical meaning is deep, broad and sharp, touching reason and taste to give a message to the generation who are playing a role in learning with nature. The Minang proverb which says that nature is a teacher, means learning from nature, using nature as learning to organize life. Natural events need to be studied, explored, studied and developed into conceptions, theories in carrying out policies for the development of community welfare.

Third, rational, natural, cultural, and Minangkabau primordial values are transformed by the manjujai method, a process carried out with oral traditions to stimulate children's intelligence in interacting with nature. The choice of diction is very subtle, the background of the story comes from natural events and the socio-cultural atmosphere. Menjujai is a learning media for babies in value internalization education, given to children, stimulating their natural, social and cultural intelligence so that they can preserve social life and bio diversity which is the wealth of Minangkabau.(Asfi Yanti We, 2020).

The distribution of community values on the self-confidence variable (*self efficacy*), the average value is in the fourth grade in the interval class, the distribution of data is between 75-81 with an absolute frequency of 30 (thirty) respondents with a relative frequency of 37.03% (thirty seven point zero three) percent. Meanwhile, the cumulative frequency is below the average of 16.03% (sixteen point zero three) percent, while those above the average are 46.94% (forty six point nine recovered four) percent. The self-efficacy of Padang residents in dealing with earthquake disasters is quite high.

Relationship confidence (*self efficacy*) with a very significant disaster preparedness, which can be seen in the inffrenential analysis of the correlation coefficient of X_2 with Y of 0.38 (zero point thirty eight) with a significance level of 0.00 < 0.01 which means that the correlation coefficient of X_2 with Y very significant. Likewise, in the regression analysis, it can be seen that the value of a = 16.93 and the value of b = 0.52 which can be symbolized by the regression equation = 16.93 + $0.52X_2$, meaning that the addition of one score to X2 (self-efficacy of citizens will affect the increase in Y scoring (disaster preperedness) was 0.52 at a constant of 16.93, with a significance level of 0.14> 0.05, meaning that the regression coefficient was not significant.

The experience of success in doing something, the capital for building self-confidence, most of the respondents have experienced an earthquake, and they survived the disaster. In addition, verbal information about disasters is in the form of short lectures, general information on the media*meinstrem*and social media, the views and directions given by teachers, lecturers, experts, officials to convince, motivate, and provide guidance, all provide additional knowledge to citizens. The knowledge possessed related to disasters contributes to community members in increasing their self-confidence. So that they do not panic, stay calm in a disaster situation, have tactics and tricks, have the readiness to escape from the dangers that will be caused by the earthquake disaster. Disaster education has an influence on the formation of self-confidence.(Kılıç & imşek, 2019)

But what is interesting in this finding is that it is natural and provable that self-confidence is positively related to self-preparedness in dealing with earthquake disasters, but the relationship is not consistent. Not with*automaticly*People who have confidence will always have readiness in dealing with disasters, because disaster preparedness is related to the system, but someone who has confidence will always have readiness, because disaster situations are known to him according to the level, level, and scope of his understanding. In fact, sometimes being overconfident can have negative consequences by somewhat ignoring the impacts, risks and consequences of an earthquake. The self-confidence variable, in addition to low correlation, also has insignificant regression, it is not always the addition of self-confidence scores that contributes to disaster preparedness, in contrast to natural intelligence, which is always consistent in contributing to disaster preparedness.

Distribution of community values on disaster literacy variables (*literacy*), the average value is in the fourth grade in the interval class, the distribution of data is between 60-66 with an absolute frequency of 10 (ten) respondents with a relative frequency of 12.34% (twelve point thirty four) percent. Meanwhile, the cumulative frequency is below the average of 56.78% (fifty six point seventy eight) percent, while those above the average are 30.88% (thirty point eighty eight) percent. Disaster literacy (disester literacy) of residents of the city of Padang in dealing with earthquake disasters is relatively low.

Disaster literacy relationship (*literacy*) with a very significant disaster preparedness, which can be seen in the inffrenential analysis of the correlation coefficient X3 with Y of 0.50 (zero point fifty) with a significance level of 0.00<0.01 which means that the correlation coefficient of X3 with Y is very significant. significant. Likewise, in the regression analysis, it can be seen that the value of a = 29.19 and the value of b = 0.49 which can be symbolized by the regression equation = 29.19 + 0.49X3, meaning that the addition of one score to X3 (disester literacy) of the community members will affect the the increase in Y score (disaster preperedness) was 0.49 at a constant 29.19, with a significance level of 0.00 <0.01 with the meaning that the regression coefficient was very significant.

Sasmita Misra's research in India related to the effect of anxiety on disaster preparedness proves that anxiety can reduce self-preparedness in dealing with disasters. Education in the form of literacy about disasters makes a person have high self-preparedness

in dealing with disasters. As he pointed out, disaster education and resources are partial mediators between anxiety and flood preparedness and full mediators between anxiety and heatwave preparedness.(Sasmita Mishra, 2011) literacy that is carried out in the form of direct reading from various written sources, literature, mass media, social media, hearing explanations from digital media, hearing information from officers, teachers, lecturers, experts and interactive discussions between residents who talk about the earthquake disaster, will be able to increase knowledge and reduce anxiety levels, and increase awareness of self, family, local residents and the surrounding environment.

From the correlation of these four variables can be drawn as follows:

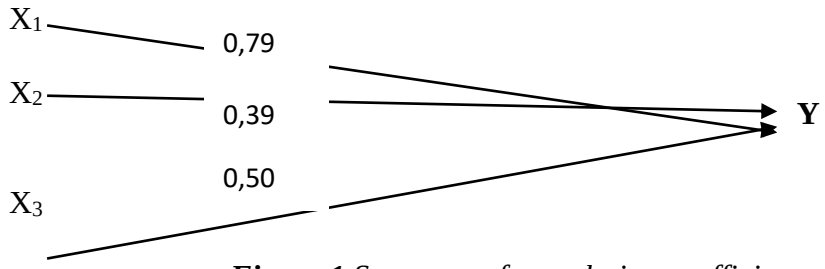

Figure 1.*Summary of correlation coefficient*

The three variables that affect Y disaster preparedness (*disaster preparedness*) shows that naturalist intelligence is higher than disaster literacy and self-efficacy. Presumably this natural intelligence needs to be considered for planned, programmed, systematic, continuity, patterned, structured, and measurable interventions in the form of, first, providing environmental education (environmental education) from an early age to students, so that they are awakened, formed, embedded self-awareness that humans and the environment are an inseparable unit. Humans are not environmental rulers who can act and behave exploitatively with nature, but humans need to maintain the balance of nature and preserve nature so that it remains sustainable throughout the ages from generation to generation. Second, Environmental education may be carried out in monolithic form into a special subject that is interconnected with existing subjects, Natural Sciences (IPA) and Geography, may also be carried out in an integrated form with existing subjects, but ensure environmental learning content live is entered and evaluated on an ongoing basis. Third, education in schools, education in the family and education in the community, has immediately ensured that the values of responsible environmental behavior are planted, built, developed, and maintained as well as possible in the souls of the younger generation, especially school-age children today. The value of responsibility and behavior that has become a habit of children, automatically becomes natural intelligence. Fourth. provide an example of environmental concience from adult humans to children, so that children have personal modeling that will be nurtured and imitated as a source of value. And fifth, get used to bringing children to play in areas with natural, cultural and social backgrounds. Prioritizing bringing children in family events to the beach, mountains, zoos, instead of going to malls and places that seem capitalistic and exploitative in nature. And fifth, get used to bringing children to play in areas with natural, cultural and social backgrounds. Prioritizing bringing children in family events to the beach, mountains, zoos, instead of going to malls and places that seem capitalistic and exploitative in nature. And fifth, get used to bringing children to play in areas with natural, cultural and social backgrounds. Prioritizing bringing children in family events to the beach, mountains, zoos, instead of going to malls and places that seem capitalistic and exploitative in nature.

In addition to naturalist intelligence intervention, disaster literacy is something that cannot be ignored in influencing the readiness of citizens in dealing with earthquake disasters, so in intervening disaster literacy that needs to be considered, ***first***, a cultural approach based on local wisdom in the form of jujai in infants with a very localistic choice of diction and rhythm is important to develop to instill as early as possible self-preparation in the face of earthquake disasters. Second, education packages, disaster management training for school children, students, youth, youth, housewives and fathers based on mosques, surau, majlis taklim and nagari offices need to be carried out by the government, community organizations, traditional organizations. , and non-governmental organizations. Third, books, mainstream media and social media need to talk a lot and provide education related to preparedness in dealing with earthquake disasters. Earthquake is not something that will damage, but policies, actions, behavior and human actions that make damage from the effects of the earthquake. Fourth, education, protocols, disaster management are not only carried out in special training, but can take advantage of community activities in the form of taklim assemblies, recitations at mosques, studies at surau, PKK activities, social gathering activities at residents' homes, and posyandu activities. Fifth, multiply literature related to the earthquake disaster in mosque libraries, youth libraries, and wali nagari office libraries and in other public reading rooms.

V. Conclusion

The traditional Minangkabau community has preparedness in dealing with earthquake disasters, by preparing buildings made from local sources, environmentally friendly, elastic construction against earthquake shaking, and layouts that anticipate wind, storms and typhoons. Urban society that has been contaminated with modern life has begun to experience value erosion, so that the disaster preparedness of the community has decreased. Research findings prove that natural intelligence has a strong and very significant relationship with disaster preparedness.

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