

The Identification of Post-Earthquake Trauma Symptoms in SDK and SMPK ALT in Ampenan Lombok City and Its Effects in the Teaching Learning Process

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Abstract— In addition to causing loss of property and lives, earthquakes also result in prolonged trauma. The community in general and especially the teachers often are not aware of the presence of trauma after the earthquake, though post-earthquake trauma can hinder the teaching and learning process. The purpose of this study was to identify symptoms of post-earthquake trauma and their impact on the teaching and learning process. This research uses descriptive qualitative method to explain various phenomena using existing data so that the symptoms of trauma and their impact on the teaching and learning process can be revealed. The object of the study was 121 elementary school students in grades 4-6 at ALT School and 118 junior high school students at ALT School at Ampenan Lombok. The results of the study showed that there were trauma symptoms and significant impacts on the teaching and learning process. Based on this research the researcher provides a solution that can be used to overcome the problem of trauma and its impact on the teaching and learning process.

Keywords: *earthquake trauma, teaching learning process*

I. INTRODUCTION

A disaster is an unexpected event and it is beyond human's control. No one can avoid a disaster, even when the disaster has passed its effects can still be felt by the victims. The Indonesian Law in number 24 of 2007 defines disaster, events or a series of events that threaten and disrupt people's lives and livelihoods, caused by both natural and/or non-natural factors, as well as human factors, resulting in human casualties, environmental damage, losses property, and psychological impact. Sudarsono (2017) highlights the losses caused by disasters are not only property, environmental damage, loss of life, but also psychological effects. Seto Mulyadi as quoted by Antara News Agency reporter (2018) states that earthquakes can cause psychological trauma and the most vulnerable to suffer post-earthquake trauma are children. Nawangsing (2016) argues that earthquake victims often experience deep trauma as a result of the deep feelings of sorrow. This is then followed by the emergence

of a maladaptive reaction that can last for days or even years. Symptoms that often appear on the surface are feeling very restless which occur continuously, hard to calm down, feels worry/fear, and panic attacks. Panic attacks often cause intense anxiety reactions and the presence of physical symptoms that can be felt such as palpitations, rapid breathing and wheezing, sweating, the weakening body and dizziness (Nawangsing, 2016).

In addition, other than causing casualties, injuries, loss of property, and psychological trauma, it turned out that the earthquake in Lombok also affected the teaching and learning process in areas affected by the earthquake. The effects of earthquakes in the form of psychological trauma which ultimately disrupt the teaching and learning process are often missed, because all parties are more focused on handling emergency response. This study aims to identify various symptoms that arise after the earthquake in Lombok and the effects felt by the students in one school in the city affected by the earthquake. Based on observations and direct observations found that students experience fear after the earthquake so that parents do not allow them to attend school to study. In addition there are also other symptoms such as the students become sensitive to vibrations or loud sounds, the feeling as if an earthquake occurred again and others that make them lose focus in the teaching and learning process.

II. REVIEW OF LITERATURE

A. *Earthquakes in Indonesia*

Earthquakes are very common in Indonesian territory. Earthquakes are the events of the releasing energy that cause sudden dislocations (shifts) inside the earth (Sudrajat, 2016, p. 173). Based on the study of the National Earthquake Study Center Team (2017, p. 19) states that Indonesia occupies a very active tectonic zone because Indonesia is the meeting point of three large plates of the world, namely Eurasia, Indoaustralia and the Pacific, as well as several other small plates. The meeting

between the plates is what makes Indonesia very vulnerable to earthquakes. In addition, Indonesia is also located in the Ring of Pacific Fire which is a 'horseshoe' area along 40,000 km which often experiences earthquakes and volcanic eruptions that surround the Pacific Ocean basin. Research shows that about 90% of earthquakes occur and 81% of the largest earthquakes occur along this Ring of Fire (Aziz, 2018). This shows that Indonesia has a high seismic potential. Daryono, head of earthquake information and tsunami early warning, the Meteorology, Climatology and Geophysics Agency (BMKG) in Aziz (2018) said that, in all parts of Indonesia, there are very many active faults or faults found. More than 200 faults have been located, but many are not yet properly mapped. The faults include a large Sumatran fault which splits from Aceh to Lampung, then active faults in Java, Lembang, Jogjakarta, in North Bali, Lombok, West Nusa Tenggara, East Nusa Tenggara, Sumbawa, in Sulawesi, Sorong, Memberamo, in addition Kalimantan, and others (Aziz, 2018).

Based on the topography shows that the territory of Indonesia is very prone to earthquake disasters. Aziz (2018) said that earthquakes can occur more than 10 times a day. Even so, no one can know for sure when the earthquake will occur and how big the wave and its impact on the community.

B. Earthquakes in Lombok

The island of Lombok in West Nusa Tenggara Province was rocked by a series of earthquakes in the period July to August 2018. The first shock occurred on July 29, 2018 with an earthquake of 6.4 on the Richter scale. The Center for Disaster Risk Reduction Technology called the earthquake a foreshock or the beginning of a series of earthquakes that occurred in Lombok (Pradono, 2018). The mainshock or the main earthquake itself only occurred on August 5, 2018 with twice as much force, namely 7.0 on the Richter scale and ten hours later at 6.9 on the Richter scale. The next several aftershock earthquakes occurred which were smaller in scale. Permata (2018) said that within a month there were 814 aftershocks. Map of the earthquake distribution can be seen in Fig 1.

Based on the deformation pattern on the map, the scientists concluded the shifting of the fault plane due to the earthquake occurred on the fault under the northwestern part of Lombok Island and caused land surface rise to 10 inches or 25 centimeters (Aziz, 2018). Hidayati (2018) revealed that this fault caused a deadly earthquake and is likely to recur in the future. The evidence is in fact several times the earthquake that occurred was very destructive and deadly because the earthquake's characteristic was shallow with great magnitude.

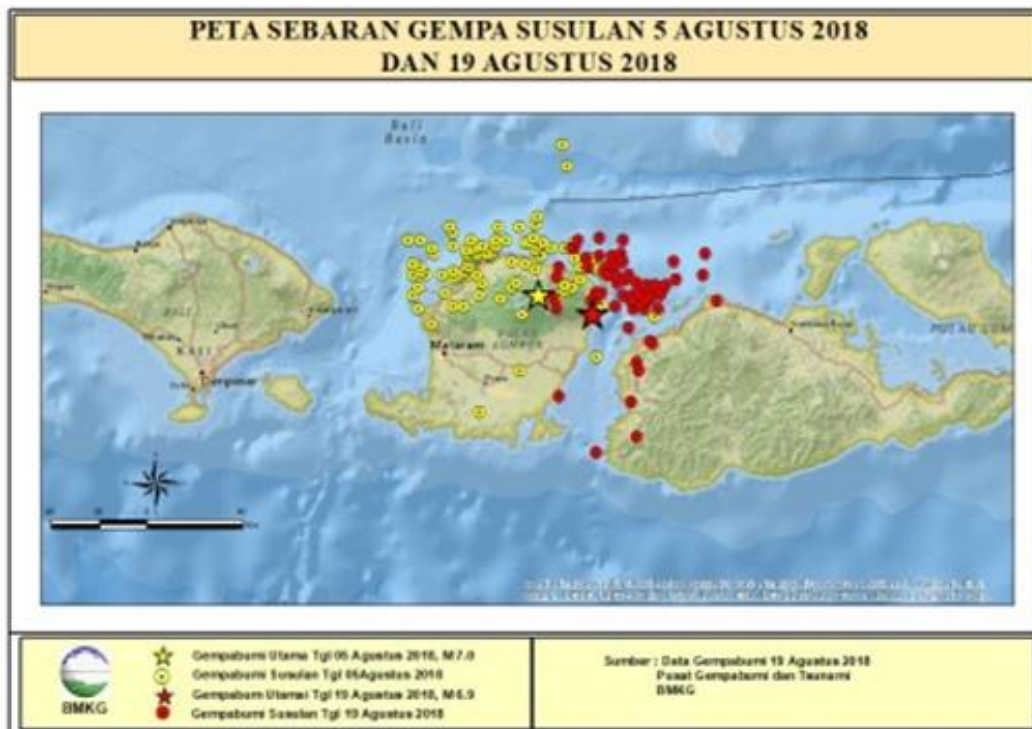


Fig 1. Map of the earthquake distribution in Lombok Island, 5th and 19th August 2018

The data shows that most of the earthquakes that shook Bali, NTT and NTB were caused by back activity of Ark Thrust and only a small portion caused by plate infiltration activity (Hidayati et al., 2018). The National Earthquake Study Center Team (2017) said that Lombok Island is included in Bali, Nusa Tenggara and the Banda Sea in the complex tectonic zone with the Indo-Australian Ocean crust transition zone with Australian continental crust in the west and Banda arc in the east (Tim National Earthquake Study Center, 2017). The 2017 National Earthquake Sources and Danger in Pradono (2018) states that Lombok Island which is located within the active tectonic zone is surrounded by several earthquake sources, including the Back Arc Thrust Zone in the North, megathrust in the South, and the sliding fault system on the side West and East. Hidayati (2018) states: "The western segment fault is the Flores Thrust Fault that extends from Northeast Bali to North Flores. Flores Thrust is known as a generator of destructive earthquakes that will continually threaten to shake the archipelago. "Thus it can be concluded that based on the location of the existing fault, the group of islands in Nusa Tenggara has significant seismic potential.

C. *Earthquake and Trauma*

A disaster certainly leaves a trauma. An earthquake is a disaster that comes without warning, causing deeper trauma. Permata (2018) argues that trauma cases caused by earthquakes have little difference compared to other natural disasters. One of the differences is because earthquakes always happen suddenly, there is no prior warning, and there is no technology that is able to predict the time, so that in general, earthquake victims are not mentally prepared to deal with it.

The negative impact of the earthquake proved not only to cause material losses, but also had a negative impact on the psychological condition of the victim. The results of research conducted by psychologists at the University of Canterbury showed the adverse effects of earthquakes on the human brain. The research project was carried out after the 7.1 magnitude earthquake struck New Zealand in 2010 (Permata, 2018). The results showed that the average student experienced cognitive decline in the same task after they faced an earthquake. This fact proves that disaster can reduce the mental competence of victims (Permata, 2018). In addition, this trauma can remain for years and continue to divert their minds to focus doing their activities. Even aftershocks that occur more frequently can be more disruptive to the mental health and brain abilities of residents. This keeps the brain awake, preparing for an earthquake that will occur and maybe when there is no earthquake, even hallucinations appear that make the brain feel as if it feels an earthquake's shocks. (Permata, 2018).

D. *Symptoms of Post Trauma Stress Disorder (PTSD)*

The symptoms of Post Trauma Stress Disorder or PTSD are the stress experienced by someone after passing a shocking

experience, scary or dangerous event. A person has PTSD if he/she feels stressed or scared even though he is not in a dangerous situation at least a month after the incident (Bryant, 2017).

According to the Diagnostic and Statistical Manual of Mental Disorder (DSM-IV, 1994) in Safaria & Ekasaputra (2009: 66) there are three classifications of symptoms of Post Trauma Stress Disorder, namely: intrusive re-experiencing, avoidance, and arousal (Masril, 2012). Masril (2012) explains thus:

"First; Intrusive re-experiencing is the continuously return of traumatic events in the patient's memory. The symptoms are as follows: (1) feelings, thoughts, and perceptions about events occur repeatedly; (2) nightmares about the events; (3) thoughts about traumatic always appear in the form of illusions, hallucinations, and experience flashbacks about the events; (4) a very strong psychological disorder when witnessing something reminiscent of a traumatic event; (5) physical reactivity occurs, such as chills, heart palpitations, or panic when meeting something reminiscent of an event. Second; Avoidance, which is always avoiding something related to trauma and feeling divided. The symptoms are as follows: (1) trying to avoid situations, thoughts or activities related to traumatic events; (2) lack of attention or participation in daily activities; (3) feeling alienated from others; (4) limiting feelings, including feelings of affection; (5) feelings of surrender and fear in the future, including not having hopes for a career, marriage, children, or normal life. Third; Arousal, namely excessive awareness. Symptoms include the following: (1) experiencing sleep disturbance, or persisting to always sleep; (2) irritable and explosive; (3) difficulty in concentrating; (4) hyper-arousal awareness; (5) nervous and easily shocked. "

E. *Teaching and Learning Activities*

In general, schools in Indonesia carry out teaching and learning processes in accordance with Ministerial Regulation (Peraturan Menteri) No. 41 of 2017. The Ministerial Regulation requires learning to take place interactively, inspirational, fun, challenging, motivating students to actively participate, as well as providing sufficient space for initiatives, creativity, and independence in accordance with the talents, interests and physical and psychological development of the students. This learning model is student centered. Arends (2008, p. 1) mentions there are three learning-to-teach models that are student-centered namely cooperative learning, probability-based learning, and classroom learning. The three models encourage interaction between students and teachers and between students and students. In addition, each model encourages the excavation and exploration of ideas by students, and demands a learning environment that is free of threats and characterized by

autonomy and support (Arends, 2008, p. 1). Related to the use of learning methods, Ministerial Regulation no. 41 of 2017 states the methods that are used must be adapted to the character of students and the character of their subjects. This can be done through a process of exploration, elaboration, and confirmation.

The following is an explanation of the National Education Standards Agency (2017, p. 15) about the process of elaboration, exploration, and confirmation in teaching and learning activities. Exploration activities, a teacher involving students to look for broad and deep information about the topic or theme of the material to be learned by applying the principles of nature without borders and learning from various sources. It also facilitates the interaction between students as well as between students and teachers, the environment, and other learning resources such as conducting experiments in the laboratory, field and studio and actively involving students in every learning activity.

In the elaboration activities a teacher accustoms students to read and write in variety through specific meaningful tasks. Teachers are expected to be able to facilitate students through assignments, discussions, and others to come up with new ideas both oral and written; providing opportunities to think, analyzing, solving problems, and acting without fear; facilitate students in cooperative and collaborative learning; facilitate students to compete in a healthy manner to improve learning achievement; facilitate students to make exploratory reports both oral and written, individually and in groups; facilitate students to present the results of individual and group work; facilitate students to conduct exhibitions, tournaments, festivals, and products produced; facilitate students to do activities that increase pride and self-confidence of students (National Education Standards Agency, 2017, p. 16).

In the confirmation activity, a teacher gives feedback to students. The feedback can be in the form of oral, written, a sign, or giving gifts to the success of students. In addition there is a process of providing confirmation of the work of students and providing opportunities for reflection on the learning experience that has been done. In addition, teachers also become facilitators for students who experiencing difficulties and facilitate students who are less active (National Education Standards Agency, 2017, p. 17).

The last part is the closing activity. In this section the teacher and students make a summary of the lesson, assess and reflect on the activities that have been carried out. It also provides feedback on the learning process, the results and the plans for further activities that can be realized in remedial learning, enrichment programs, counseling services and / or provide assignments both individually and in groups according to the learning outcomes of students. Eventually the teacher will present the learning plan at the next meeting (National Education Standards Board, 2017, p. 18).

Thus the teaching and learning process requires collaboration between teachers and students as well as a learning atmosphere that supports each other. Besides that, there is also a need for supporting learning facilities. When an earthquake shook the island of Lombok, these were learning and teaching activities that encountered obstacles.

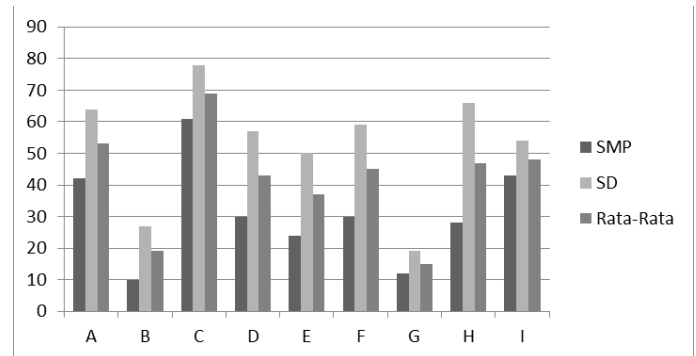
III. METHOD

This study used descriptive qualitative method. According to Suryana (2010, p. 20) this method is used to search for the elements, characteristics, and characteristics of a phenomenon. In accordance with this definition, this study will begin by collecting data through documentation, behavioral observation, and interviews with participants, in addition to that the researcher also distributes questionnaires to respondents (Creswell, 2012, p. 261). The next step is to analyze and interpret the data, and describe it coherently.

IV. RESULTS AND DISCUSSION

Based on the data in the form of a questionnaire distributed to SDK students grades 4-6 and MPT ALT in the city of Ampanan, Lombok, they showed some symptoms as a result of the earthquake disaster. Researchers analyzed the impact of the earthquake in four categories, they are re-experience, avoidance, arousal, and its impact on teaching and learning.

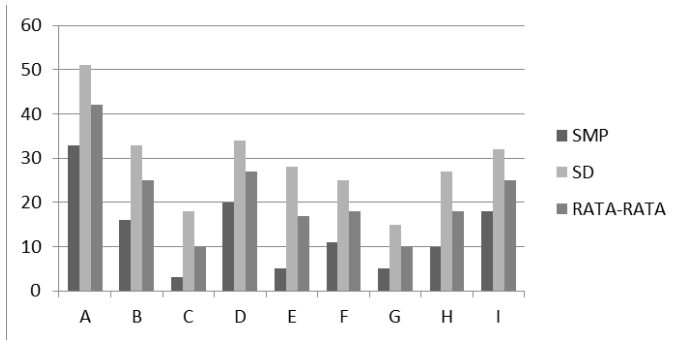
Re-experience Symptoms



Graph 1. Symptoms A, Re-experience

Graph 1 above illustrates Symptoms A: re-experience. Based on the graph 1 shows that there are some significant re-experience symptoms experienced by both junior and middle school students in grades 4-6, they are the feeling like there was an earthquake even though it did not occur (SMP A = 42%, SD A = 64%), the reasoning repeatedly about earthquakes (SMP C = 61%, SD A = 78%), and the feeling of anxious (SMP I = 43%, SD A = 53%). In addition there are 66% of elementary school students who show significant symptoms of fear (H).

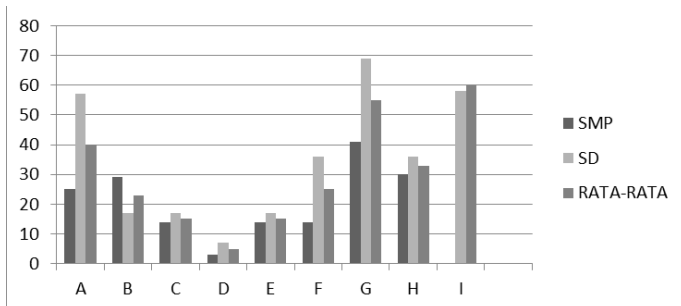
Avoidance Symptoms



Graph 2. Symptoms B, Avoidance

Graph 2 above illustrates symptom B: avoidance. Through the graph, there is a significant avoidance symptom experienced by both middle and middle school students in grades 4-6, which is trying to avoid situations, thoughts or activities related to earthquakes (SMP A = 51% and SD A = 42%). In addition to elementary school students there are symptoms of avoiding interactions that manifest in the lack of attention or participation in daily activities (B = 34%) and difficulty expressing feelings (D = 34%).

Arousal Symptoms



Graph 3. Symptoms of C, Arousal

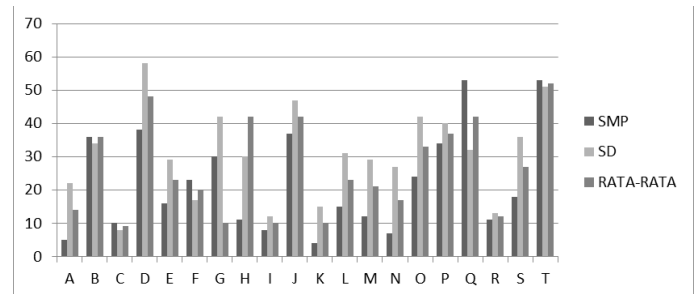
Graph 3 above illustrates the symptoms of C: arousal. Through the graphs, there are symptoms of significant arousal symptoms experienced by both middle and fourth grade students, namely, they are easily shocked (SMP G = 41%, SD G = 69%) and tend to be alert SMP I = 63%, SD I = 58%). For elementary students there are other symptoms that are also significant namely not being able to sleep (A = 57%), difficulty concentrating (36%) and being nervous (36%). Based on this identification, it appears that elementary school children have more varied arousal symptoms, meaning that elementary school children tend to suffer more trauma from the earthquake than adults.

Based on the identification above, it appears that elementary school grades 4-6 tend to have more variable symptoms. This is similar to what Sarwono said in Mulyadi (2012), that earthquake

victims from the group of children most vulnerable to trauma. In general, they are difficult to save themselves and slow in the process of recovery from trauma. As a result, this group often suffers on an ongoing basis. Seto in Adimaja (2018) argues, as a victim who witnessed the disaster firsthand, his soul was shaken. In the end, children feel less confident, irritable, easily explosive, full of problems, unable to work together, unable trust people, so that the potential possessed will be overcast. Mulyadi (2012) states that deeper trauma will be experienced by disaster victims' children with the accumulation of several traumas at once, they are physical trauma, psychological trauma due to losing one or both parents or losing their place of residence, and others. The accumulation of trauma can cause physical reactions and psychological symptoms such as nausea, moodiness, reticence, nightmares, anxiety, feeling threatened, and loss of life expectancy. Benseler in Mulyadi (2012) said that disaster victims who experience psychological trauma if not handled properly can experience post-earthquake trauma or Post Traumatic Stress Disorder (PTSD).

Complaints at school

Complaints in schools are symptoms that can interfere with the learning process. These symptoms appear in graph 4 below:



Graph 4. Complaints in Schools

Graph 4 illustrates student complaints at school as victims of the earthquake or the direct impact of the earthquake on the teaching and learning process. The graph shows that there are some significant complaints in school experienced by both middle and middle school students in grades 4-6, namely the anxiety of missing a lesson because the school had some time off (SMP T = 53%, SD T = 51%), difficulty concentrating because they tend to worry about earthquakes / tend to be alert (SMP J = 37%, SD J = 47%), they become lazy to move (SMP Q = 53%, SD Q = 32%), feel easily tired (SMP P = 34%, SD P = 40%) and learning motivation decreases (SMP B = 36%, SD B = 35%). Eventhough there are positive symptoms that make them able to get back up. They try to keep the spirit of attending to school (SMP D = 38%, SD D = 58%), try to focus (SMP G = 30%, SD G = 42%) and able to work together with their friends (SMP O = 24%, SD O = 42%). They also continue to participate in class, work on existing tasks and keep trying to get good grades. This will be the basic capital for students to be able to rebuild their enthusiasm for learning after an earthquake.

V. CONCLUSION

The earthquake has devastated the lives of its victims. They not only lost property, physical injuries, and lives, but what was even more severe was prolonged trauma. The effects of the earthquake on the island of Lombok left a trail of deep trauma, especially in children. Researchers used three categories, namely re-experience, avoidance, and arousal to identify post-earthquake trauma symptoms in SDK and SMPT ALT students in Ampenan City, Lombok. The results showed significant post-earthquake trauma symptoms. Researchers also found that SDK students showed symptoms of trauma that were more varied than SMPK students. This confirms the opinion of experts who state that children suffer more or are more prone to suffer post-earthquake trauma than adults. In addition, researchers also found that the effects of the earthquake not only caused trauma, but also had an effect on the teaching and learning process.

This research reaffirms the importance of more thorough handling. Aid for earthquake victims should not only touch the physical, but also the psychological side. Counselors need to be involved to help earthquake victims who suffered trauma after the earthquake.

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