Original Research

Mental-Emotional Disorder among Post-Earthquake Responders in Ambon Maluku

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ABSTRACT

Introduction: Earthquake causes disruption of physical and mental health, such as stress. The government the assists the needs of victims of the earthquake to prevent disruption. The purpose of this study was to explain the factors related to mental-emotional disorder among post-earthquake responders in Ambon, Maluku.

Methods: The design was observational analytics with a cross-sectional approach. Respondents were 174 people living near the epicenter and taken by simple random sampling. The independent variables were age, sex and work status, damage to the residence, the family members dying from earthquakes, and assistance from the government. The dependent variable was mental-emotional disorders. Data of mental-emotional disorder were collected using the SRQ 20 (Self-Reported Questionnaire) and analyzed using logistic regression ($\alpha < 0.05$).

Results: The results showed 69% of respondents experienced mental-emotional disorders. Communities who were 17-25 years (OR = 0.05; 95% CI = 0.005 - 0.491) tend to experience mental-emotional disorders. Communities with moderate category of residence damage (OR = 0.313; CI95% = 0.115 - 0.856) tend to experience mental-emotional disorders. Communities with family members dying from earthquakes (OR = 2,616; CI95% = 1,228 - 5,577) tend to experience mental-emotional disorders. Communities who did not get residence compensation (OR = 2,575; CI95% = 1,073 - 6,177) tend to experience mental-emotional disorders.

Conclusion: There were factors related to mental-emotional disorder among post-earthquake victims, such as teenagers who were 17-25 years old, community with residence damage and injured or died family members, and those who did not get assistance. Assisting still needs to be done to prevent mental-emotional disorders of people affected by earthquake.

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INTRODUCTION

Indonesia is known as one of the countries with high seismic activity because it is located in a circle of fire. Indonesia is also flanked by three tectonic plates, namely the Eurasian plate, the Indo-Australian plate, and the Pacific plate. These geographical conditions increase the number of natural disasters in Indonesia. Disasters have an impact both physically and psychologically. One of the psychological effects of

natural disasters is the emotional distress of disaster victims (Kusdiah Gemeliarini & Helmi, 2018).

Earthquake was one of the recent natural disasters in Ambon, Maluku Indonesia. The earthquake that occurred on September 29, 2019, produced a considerable impact on the community. A total of 247,437 residents were affected by the 6.8 M earthquake and as many as 30 people died, 83 were

Table 1. Potential Factors Correlated to Mental-Emotional Disorder

Potential Factors Correlates	n	%
Gender		
Male	59	34
Female	115	66
Total	174	100
Age		
17-25 years old	77	44.3
25-45 years old	36	20.7
46-65 years old	47	27
>65 years old	14	8
Total	174	100
Change in Work Status		
Yes	109	62.6
No	65	37.4
Total	174	100
Loss of Family		
Yes	115	66
No	59	34
Total	174	100
Residence damage		
Mild	86	49.4
Moderate	47	27
Severe	41	23.6
Total	174	100
Residence compensation		
Yes	113	65
No	61	35
Total	174	100
Mental-Emotional disorder		
Yes	120	69
No	54	31
Total	174	100

Table 2. Analysis of Potential Factors Correlated to Mental-Emotional Disorder

Potential Factors Correlates	OR	95%CI	P-value
Age (17-25 years old)	0.050	0.005-0.491	P = 0.010
Change in Work Status	0.777	0.351-1.719	P = 0.533
Died or injured Family	2.575	1.073-6.177	P = 0.034
Residence Damage (Moderate Damage)	0.313	0.115-0.856	P = 0.024
Residence Compensation (No)	2.616	1.228-5.577	P = 0.013

seriously injured, and 85 people were slightly injured. Physical impact in the form of damage to dwellings was also unavoidable, consisting of 59 heavily damaged houses, 45 moderately damaged houses, and 67 lightly damaged houses (AHA Centre, 2019; Maipark, 2018).

Given the impact of the earthquake, the government provided logistical assistance along with guarantees for housing repairs according to the level of damage (OCHA Indonesia, 2018). Although considerable assistance has been given by the government, earthquakes that occur can always affect the socioeconomic status of the victims, which can be psychological distress or mental-emotional disorders. The term mental-emotional disorders is used as an indicator of the mental health of the Indonesian population with the aim that the public knows that the measuring instrument used is SRQ (Self Reporting Questionnaire) (Furukawa, Takeuchi, Yano, & Muto, 2015; Idaiani, Prihatini, Suryaputri, & Indrawati, 2014).

Signs and symptoms of people who experience mental-emotional disorders after a disaster can be anxiety, depression, and PTSD. Other psychological problems that can cause a person to experience mental-emotional disorders caused by an earthquake can be in the form of anxiety and fear of aftershocks and fears of occupying a place after an earthquake (Ampuero, Goldswosthy, Delgado, & J, 2015; Asim et al., 2019).

Mental-emotional disorders after a disaster depend on the size of the impact of the disaster caused. Several previous studies mention the factors associated with post-disaster mental-emotional disorders can be in the form of demographic factors, community networks, living conditions, and employment status. Many earthquake victims have lost family members, friends, and their homes after the disaster. In addition, job losses are also felt by many earthquake victims. Therefore the purpose of this study is to determine the factors associated with mental-emotional disorders for earthquake-affected populations in Ambon, Maluku (Furukawa et al., 2015; Yamanouchi et al., 2017).

MATERIALS AND METHODS

This research was a descriptive analysis research with cross-sectional approach. The subjects in this study were the earthquake-affected population in Ambon. The sample was 174 respondents with inclusion criteria 17-75 years and taken from one earthquake-affected region. The dependent variable is mental-emotional disorders while independent variables are potential correlates which include personal factors including gender, age, work status, loss of family, residence damage, and residence compensation. Residence compensation was housing assistance from the government based on community answers through questionnaires. Data were collected using the SRQ-20 (Self-Reported Questionnaire) questionnaire from the Ministry of Health of the Republic of Indonesia which consisted of 20 questions. SRQ determines a person experiencing mental-emotional disorders through the accumulation of answers "Yes" more or equal to 6 (Rifati, 2012).

The statistical tests used in this study are the Chi-square test and the logistic regression test. Chi-square test is performed to determine potential correlates that can be tested by logistic regression with $\alpha < 0.05$. Potential correlates not included in logistic regression are gender. This study has obtained ethical approval from the KEPK Poltekkes Maluku Ministry of Health, the number of certificate LB.02.03/6.2/3045/2020.

Data Collection

The dependent variable is mirror therapy in combination with cylindrical grip and the independent variable is the self-care of post-stroke patients. The treatment group received mirror therapy combined with cylindrical grip while the control group received mirror therapy alone. Interventions in each group involved as many as 2 sessions, 1 session with a duration of 15 minutes with intervals between sessions of 5 minutes, 3 times a week for a month.

Data were obtained through a questionnaire modified for the level of patient independence based on the Theory of Self-Care from Orem for assessing post-stroke patients' self-care. Twenty questions were used to assess post-stroke patients' self-care relating to each of the sub-variables eating, dressing, bathing/toileting and dressing. Answers were categorized as follows: independence = 20, mild dependence = 12-19, moderate dependence = 9-11, heavy dependence = 5-8, total dependence = 0-4. This instrument was tested for validity on 15 stroke patients at Banjarmasin Hospital, and each question item had validity ($r > 0.514$) so that the instrument or question items correlated significantly to the total score (declared valid). The reliability test used Cronbach's alpha with a value of 0.875> suggesting all items were reliable and all tests had consistently strong reliability. Demographic data included gender, age, hands with hemiparesis, education, employment status and marital status. Descriptive analysis was used for respondent characteristics. Analysis of influence was undertaken using the Wilcoxon Sign Rank Test statistical test.

This research protocol was declared to have passed an ethical test by the Health Research Ethics Commission of the Faculty of Nursing, Airlangga University on October 14, 2019 with a certificate of ethics number 1786-KEPK in an effort to protect human rights and patient welfare from therapy.

RESULTS

Table 1 shows the characteristics of respondents which are also factors that can influence mental-emotional disorders. Most of them were female (66%), aged 17-25 years (44.3%), and the change of work status to being unemployed after the disaster (62.6%). It was also found that most of the family members had become victims after the disaster (66%), both dead and seriously injured. And most of the population was affected by the earthquake with lightly damaged housing conditions (49.4%) with 65% received shelter compensation. As many as 69% of respondents experienced mental-emotional disorders.

Table 2 shows the results of the analysis of statistical test factors related to post-disaster mental-emotional disorders. Statistical test results showed that sex was not associated with mental-emotional disorders because the Chi-square results obtained were p = 0.352. Factors related to post-disaster mental-emotional disorders based on statistical test results are communities who were 17-25 years (OR = 0.05; 95% CI = 0.005 - 0.491), communities with moderate category of residence damage (OR = 0.313; CI95% = 0.115 - 0.856), communities with family members died or injured from earthquake (OR = 2,575; CI95% = 1,073 - 6,177), and communities who did not get residence compensation (OR = 2,616; CI95% = 1,228 - 5,577).

DISCUSSION

This research shows that several factors have the potential to influence the occurrence of mental-emotional disorders in earthquake victims. These factors are age, the presence of family members who were injured or died, damage to housing, getting help from the government in the form of residence compensation. Residence compensation is the respondent's answer through an interview with a questionnaire who claimed that he did not receive certainty as to whether he would be a recipient of compensation or not, while the data collection process related to disaster victims who are entitled to receive compensation which is still carried out by the government. However, the results of this study did not show gender differences affecting mental-emotional disorders. This is in contrast to previous studies which mention that women are more prone to

experiencing mental illness or psychological distress after a disaster (Lawrence, Lin, Lipton, & Birkhead, 2019).

The same was found with changing job status. This study shows results that are different from previous studies which state that changes in the status of work during a disaster are associated with psychological distress that can lead to mental-emotional disorders. Ambonese people are known as coastal communities, so most of them work as fishermen. After the earthquake, many of the victims of the disaster did not carry out activities as fishermen, but some of them temporarily switched to gardening for income. This can cause changes in work status and do not affect the occurrence of mental-emotional disorders (Mendelson, Turner, & Tandon, 2010; Pollack, Weiss, & Trung, 2016).

The results of this study are following some previous studies which state that factors that can affect mental-emotional disorders include living conditions, loss of family members, and work status. In addition, the age group of children and adolescents are also more prone to experiencing emotional disorders after the disaster than the adult age group (Asim et al., 2019).

Stress or mental-emotional disorders are affected by age. Those aged 17-25 years with emotional instability have an impact on the readiness of coping mechanisms in dealing with a problem. This can be the cause of the age range of adolescents who are more prone to experiencing mental-emotional disorders in the aftermath of a disaster (Allison, Jessica, & Brown, 2017).

Damage to housing also affects the mental and emotional victims of the earthquake disaster. But previous research says it is uncertain whether it is the damage to their homes or the conditions that require them to occupy their damaged homes are related to psychological stress (Furukawa et al., 2015). On the other hand, providing socioeconomic support and compensation for housing can reduce psychological stress after a disaster. Social and economic support can be considered a protective factor in the initial post-disaster phase. Social support also provides long-term outcomes and reduces levels of anxiety or symptoms of excessive depression for those who are grieving and survivors of a disaster (Thoresen, Birkeland, Arnberg, Wentzel-larsen, & Blix, 2019).

Not only damage to their homes, but earthquake victims with family members who died or were injured are also affected mentally and emotionally. People who feel lost or afraid of losing family members due to a disaster will be at risk of experiencing Post-Traumatic Stress Disorder, which is part of mental-emotional disorders. Thus, people who have lost family members or have family members injured due to disasters require immediate psychiatric treatment (Allison et al., 2017).

Mental-emotional disorders can also occur as a result of the emergence of post-disaster physical health problems. Increased health problems after a disaster need to be given more attention to avoid factors that aggravate the emergence of mental-emotional disorders. Therefore, we need the response of health workers to address public health problems holistically to improve health and prevent mental health problems (Kajihara, Munechika, Sano, Kaneko, & Jin, 2017; Kc, Fitzgerald, & Chhetri, 2019; Saulnier, Brolin Ribacke, & Von Schreeb, 2017).

Earthquake causes a lot of doubts experienced by the victim, emotionally being the biggest loss. Mental-emotional decline, due to the earthquake makes the stress level higher. Psychological victims of the earthquake will feel they have lost many things, such as home and family and trauma persists for a long time. Psychological development plays an enormous role in the coping mechanism of victims, age and experience are predisposing factors in the level of mental-emotional disorder. Factors that influence the relationship between mental-emotional disorder are interrelated with loss of home, loss of family, loss of work, age and socioeconomic support. Age is the main focus in the development of mental-emotional disorders, especially adolescents because the growth stage is still unstable and can be traumatized and loss of family and economy damaged by the earthquake. Socioeconomic assistance and mental assistance from the government when there is a disaster can reduce the impact of mental-emotional disorder. The most important thing is to prepare early on about disaster learning because of the high level of disasters in Indonesia; it is hoped that all people are ready and not experiencing severe mental-emotional disorder.

CONCLUSION

One of the earthquake impacts is mental-emotional disorder. There are factors related to mental-emotional disorder, such as the presence of family members who were injured or died, as well as damage to the residence in regard to the assistance obtained. Those injured or had family members died due to disaster will be at risk of Post-Traumatic Stress Disorder as mental-emotional disorder sign. Socioeconomic support such as compensation for residence damage can prevent mental-emotional disorder post-disaster.

CONFLICT OF INTEREST

No conflicts of interest have been declared

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