

Original Research Article

IMPACT OF FLOOD AND PSYCHOLOGICAL ADAPTATION ON FLOOD SURVIVOR IN MOJOKERTO REGENCY, INDONESIA

Nuris Kushayati^{1*}, Linda Presti Fibriana²

¹Dian Husada Nursing Academy,
Mojokerto

²Dian Husada College of Health,
Mojokerto

*Correspondence:

Nuris Kushayati

Dian Husada Nursing Academy,
Mojokerto

Email: fa.fun11@yahoo.co.id

Abstract

Background: Flood is a hydrometeorological disaster that has an impact on all aspects of human life. Many complaints expressed by flood victims include feelings of sadness, fear, worry, loss of valuables, and difficulty in carrying out daily activities.

Objectives: Researchers measure stress levels as a result of overflow floods that occur every year and assess coping mechanisms for flood survivors in Mojoanyar District, Mojokerto Regency.

Methods: Researchers used a cross-sectional method with a sample of 144 respondents (225 families). Data were collected using the Jalowiec Coping Scale (JCS) and Depression on Anxiety Stress Scale (DASS) instruments and then tested for contingency coefficient statistics (significance level 0.05).

Results: The results showed that there were 19 respondents (13.2%) who had maladaptive coping mechanisms experienced severe stress. Adaptive respondents experienced mild stress as many as 50 respondents (34.7%). The results of statistical tests show that there is a relationship between coping mechanisms and stress levels for flood survivors with a correlation value of 0.632 with a significance of 0.00 ($p < 0.05$).

Conclusion: Based on the findings, flood survivors need to improve their coping mechanisms in order to be able to adapt psychologically to post-flood conditions. Good cooperation between the community and the government, the business world, academia and the media is needed to address disaster complaints and reduce the risk of future disasters.

Keywords: Coping Mechanisms, Flooding, Stress, Psychological Adaptation

INTRODUCTION

Floods are catastrophic events that occur in areas that are usually dry and then puddles appear. Floods are hydrometeorological disasters which are characterized by an increase in discharge and/or an increase in the water level, causing certain areas to become

inundated. Flooding is caused by the volume of water in a body of water such as a river or lake that overflows or overflows from a dam so that water comes out of the river (Polawan & Alam, 2019). Rivers or waterways that are not able to accommodate heavy rainwater will add to the burden of the river. At the maximum limit of

the river's ability to drain water, it will overflow and there will be flooding. Many complaints expressed by flood victims include feelings of sadness, fear, worry and loss of valuables when the flood comes. Flood victims often show that after the flood disaster they feel depressed and find it difficult to carry out their daily activities.

The stress of the flood disaster becomes pressure, tension or unpleasant disturbances become a problem for the community. Events that occur in the surrounding environment that affect life events require psychological and social adjustments. The ability of coping mechanisms with the stress level of flood victims has an important role because it can overcome stress and have a positive influence and help through crisis conditions and difficulties after the flood disaster. According to Khasan & Widjanarko (2012) explains that individuals who use coping behavior well can make social adjustments well. Coping behavior to deal with problems, pressures, or challenges is a behavioral response that is psychological behavior to reduce dynamic pressure.

Based on the phenomena in the field, it is known that several areas in Mojokerto experienced overflow floods, namely the overflow of the Sadar river. Put (2017) states that dozens of houses in the Mojoanyar sub-district, Mojokerto district, were submerged in water. In addition, the Pungging sub-district also experienced the same thing. The overflow of river water is caused by heavy rain in the mountainous area around Mojokerto district. The overflow flood incident not only covered the village road access but also the rice fields were also submerged. Even though the community has built a water retaining wall, due to heavy rains, water still enters the village. Rain falls with moderate to heavy intensity accompanied by winds with a speed of 25-30 Km/hour causing Avor Sungai Sadar to experience an increase in water discharge. The overflow of Avor Sungai Sadar overflows to inundate rice fields, village roads and residents' houses (BPBD Mojokerto in Prihatini, 2020). The results of a preliminary study show that 10 villagers who are affected by flooding every

rainy season include 8 residents who are restless, feeling stressed by the conditions. the overflowing flood of the Sadar river because it interferes with activities and causes material harm due to submerged houses and rice fields.

Objective(s): Based on this description, the authors are interested in examining the relationship between stress levels as a result of flooding and psychological adaptation to flood survivors in the Mojoanyar sub-district, Mojokerto district.

METHODS

Study Design

The research design uses an analytic approach with a cross sectional approach by linking the stress level variable with the coping mechanism variable in the flood flood survivors.

Setting and Research Subject

The total population is 225 families and the sample is determined by stratified random sampling of 144 families in the Mojoanyar sub-district, Mojokerto district, Indonesia. The samples were grouped into 5 strata, namely RT 01, RT 02, RT 03, RT 04, RT 05. After obtaining a proportional sample, sampling for each strata was carried out randomly and taking into account the proportions in each RT, then the number of samples for each each RT is RT 01 (38 families), RT 02 (26 families), RT 03 (27 families), RT 04 (32 families) and 23 families for RT 05.

Instruments

The instrument used the Jalowiec Coping Scale (JCS) and Depression on Anxiety Stress Scale (DASS) questionnaires.

Data Analysis

After the data is collected, Editing, Coding, Scoring, and Tabulating are performed using the Contingency Coefficient test (significance level 0.05).

Ethical Consideration

This study has received ethical approval from the Health Research Ethics Association of Nursing Academy Dian Husada and the number of ethical approvals is 245-KEPK/DH.

RESULTS

Characteristics of respondents based on stress levels and coping mechanisms for flood victims can be seen in Table 1.

Table 1. Characteristics of Respondents

Variable	Frequency (f)	Percentage (%)
Stress Level		
1. Normal	39	27,1
2. Mild	50	34,7
3. Moderate	36	25,0
4. Heavy	19	13,2
Total	144	100
Coping Mechanism		
1 Maladaptive	35	24,3
2 Adaptive	109	75,7
Total	144	100

Based on the table above, it is explained that the respondents who have mild stress levels are 50 respondents with a percentage of 34.7% (almost half of all respondents), while respondents who have adaptive coping mechanisms are 109 respondents or 75.7% more than maladaptive respondents.

Table 2. Crosstabulation on Coping Mechanism and Stress

Coping mechanism	Stress				Total
	Normal	Mild	Moderate	Heavy	
Maladaptive	0	0	16	19	35
Percentage	0.00	0.00	11.10	13.20	24.3
Adaptive	39	50	20	0	109
Percentage	27.10	34.70	13.90	0.00	75.70
Total	39	50	36	19	144
Percentage	27.10	34.70	25.00	13.20	100.00

The table above shows that of the 144 respondents, 50 respondents (34.7%) experienced mild stress with adaptive coping mechanisms, and 19 respondents (13.2%)

suffered from severe stress with maladaptive coping mechanisms.

Table 3. Relationship Between Stress Levels and Coping Mechanisms for Flood Disaster Survivors

p-value	α	Correlation Value
<0.01	0.05	0.632

Based on the table above explains the results of the statistical test of the contingency coefficient showing a correlation value of 0.632 with a significant value = 0.000.

DISCUSSION

Stress Level as Impact of Flood

The results of the study in Mojoanyar District, Mojokerto Regency as many as 50 respondents with a percentage of 34.7% (almost half of all respondents) had mild stress levels. Stress means unpleasant pressure, tension or disturbance that comes from outside a person. Stress occurs when there is an event that will then become something that is considered dangerous for the individual, from which the individual will react, either physically or psychologically. The presence of disasters in human life causes psychological shock in humans. As a result of this psychological imbalance, a person affected by floods often brings up unexpected attitudes. Symptoms of stress that occur after a person has been exposed to a traumatic event are resulting in feelings of horror, helplessness or fear (Erlin & Sari, 2020). The quality of the disturbance in this aspect of people's life is not total, and it really depends on the size of the hazard (threat). The disaster was also influenced by the existing community capacity and the inability of the community (Daryono (2010) in Erlin & Sari, 2020).

Measurement of stress levels in flood disaster survivors found that most of the respondents had stress levels in the mild category after the flood disaster. It can be seen that some respondents looked calm and did not feel upset about the flood disaster that often occurred when it rained and some respondents responded to the flood disaster, because

respondents felt that their angry attitude and overreaction to the flood conditions that had occurred so far would not be able to solve the changes that occur in the flood problem.

Psychological Adaptation of Flood Survivors

The results of the study in Mojoanyar District, Mojokerto Regency as many as 109 respondents with a percentage of 75.7% having adaptive coping mechanisms.

Adaptation is an effort to adjust to environmental changes. Meltzer et al., (2021) stated that the impact of flood events on human health and well-being develops various adaptation actions implemented by affected communities and in addition to increasing adaptive behavior. Physical health impacts are not related to adaptation strategies at the individual level. However, adaptive behavior tends to be related to material and infrastructure damage that is affected by flooding. This can be shown from the people that the adaptations made by the community to the impacts caused by floods include the community normalizing the river, erecting embankments and raising walls around the river.

Coping mechanism is a way to adapt to stress. The strategy is carried out in the form of thoughts and behaviors directed at finding information, solving problems, seeking help from others, managing emotions, and setting goals (Zulfan and Wahyuni (2015) in Aliyupiudin, 2022). The coping mechanism of the flood disaster survivor community is to do a way by overcoming a flood problem and responding to changes in conditions experienced. Most communities have adaptive coping mechanisms. This shows that respondents are able to adapt in taking the attitude that must be done.

The factors that also influence the coping mechanism are the age of the respondents. Based on table 4.1, the characteristics of respondents based on age show that almost half of them are aged 26-35 years as many as 44 respondents with a percentage of 30.6%. From the results of the study, 109 (75.7%)

respondents had adaptive coping mechanisms including almost half of them aged 26-35 years as many as 29 (20.1%) respondents and aged 36-45 years as many as 27 (18.8%) respondents. Age is the length of life in years calculated from birth. Age is closely related to the level of maturity or maturity of a person. Most of the respondents aged 26-35 years and 36-45 years have adaptive coping mechanisms where that age is classified as an adult age. The adult respondents already have a level of technical and psychological maturity in solving flood problems that often occur which will show their mental maturity so that it affects the adaptive coping mechanism.

Relationship of Stress Levels as Impact of Floods with Psychological Adaptation of Flood Survivors

Based on the results of the cross tabulation table 4.7 above shows that of 144 respondents including 39 respondents (27.1%) suffering from normal stress, all of them have adaptive coping mechanisms, 50 respondents (34.7%) suffering from mild stress, all of whom have adaptive coping mechanisms, 36 respondents (25%) suffer from moderate stress of which 20 respondents (13.9%) have adaptive coping mechanisms and 16 respondents (11.1%) have maladaptive coping mechanisms, and 19 respondents (13.2%) suffer from severe stress all of whom have maladaptive coping mechanisms. with the results of the statistical test of the contingency coefficient showing a correlation value of 0.632 with a significant value of = 0.000

Coping mechanisms as a form of normal anticipation of every human being to anticipate psychological problems, especially stress and depression, so that the better (adaptive) the coping mechanism a person uses, the less likely it is that stress or depression will be experienced, but on the contrary, the worse (maladaptive) one's coping mechanism is, the greater the risk of stress and depression. Coping mechanisms are like a fortress that works hard to protect a person from attacks of stress or depression. According to Aliyupiudin, (2022)

states that coping mechanisms that are carried out on oneself can shape character and develop psychologically which have a positive impact to be used as guidelines in daily life.

The available facts and existing theories can draw a conclusion that the coping mechanism is the basic thing that can be applied to be able to find out whether someone is experiencing stress. It was found that 39 respondents out of 109 respondents had adaptive coping mechanisms with normal stress levels, this was due to the respondent's ability to respond to post-flood problems, being able to solve problems without feeling anxious and not disappointed and believing that the flood disaster had been determined by God, which must have a lesson, 50 respondents who have adaptive coping mechanisms experience mild stress, which means that coping mechanisms can minimize stress levels. This is possible because respondents can look for alternatives to these problems so that in the end they are able to carry out the plan by taking an appropriate action and 20 respondents have adaptive coping mechanisms with stress levels. moderate because respondents find it difficult to relax during the rainy season and are nervous if at any time a flood comes to hit their village even though information and ways to overcome post-flood problems have been socialized. On the contrary, it was found that some respondents had maladaptive coping mechanisms with a moderate level of stress as many as 16 people, which made it possible for respondents to feel that the moderate stress condition was carried out for a moment as a response to dealing with post-flood problems and then doing problem-solving skills well, namely by finding information and analyzing the situation. Some almost all 19 respondents have maladaptive coping mechanisms with severe stress levels, this is possible because respondents in responding to the problem of flood conditions are easily irritated, worry excessively about post-flood conditions.

From the analysis test results obtained in accordance with the theory, that there is a relationship between coping mechanisms and

the stress level of flood victims. This means that good coping mechanisms or adaptive coping mechanisms will certainly affect stress levels, because problem solving is also more positive. The factors that determine which coping strategies or coping mechanisms are used the most or often depend on the extent of the stress level experienced and a person's personality. Coping mechanisms, both adaptive and maladaptive, one of which is determined by the level of maturity of one's thinking. A person's ability to solve problems and new skills by dealing with a changing environment may be able to help someone in overcoming the problems (coping mechanisms) that are being faced so that they do not dissolve in stressful conditions after the flood disaster they experienced.

Khasan and Widjanarko (2012) and Romadoni (2022) explain that there are two types of coping behaviors in flood-affected communities. The first coping behavior is Problem Focused Coping, which is a form of confrontational coping strategy and planned problem solving, namely raising goods to a higher place, making rafts from cork, and there are certain stages to save the goods, while seeking support social services through the local government by anticipating the overflowing flood of the Sadar River in Mojokerto, namely using heavy equipment to dredge piles of garbage such as water spinach, water hyacinth and bamboo as well as tree branches piling up in the Sadar river. Second, Emotion Focused Coping is more oriented to the form of self-control and running or avoiding. While the transfer, positive assessment, acceptance of responsibility is different for each individual in interpreting the flood disaster and the individual's position when a flood occurs

CONCLUSION

Coping mechanisms of respondents in Mojoanyar District, Mojokerto, mostly have adaptive coping mechanisms as many as 109 respondents 75.7%.

The stress level of respondents in Mojoanyar District, Mojokerto, mostly had a mild stress level of 50 respondents, 34.7%.

There is a relationship between coping mechanisms and stress levels for flood victims in Mojoanyar District, Mojokerto Regency with a correlation value of 0.632 with a significant value indicating = 0.000

SUGGESTIONS

Based on the results of this study, the author hopes that the community has a preventive attitude towards the threat of flooding that often occurs and has positive thoughts in managing information related to flood disasters. Existing coping mechanism strategies can be developed and improved to maintain adaptive behavior. Cooperating with local governments to maintain cleanliness or normalization of rivers and pay attention to vigilance against material and infrastructure damage affected by floods.

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DECLARATION OF CONFLICTING INTEREST

The authors declare no potential conflict of interest.

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AUTHOR CONTRIBUTION

Author 1:

Master of plan, collecting data

Author 2:

Arrange the content and write the article

ORCID

Author 1:

Nuris Kushayati

<https://orcid.org/0000-0003-2936-4601>

Author 2:

Linda Presti Fibriana

<https://orcid.org/0000-0001-6573-5268>

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