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Factors Related to Health Resilience in Students Affected by Disaster at Campus Graha Ananda Palu

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ABSTRACT

Introduction: Palu City, located in Central Sulawesi Province, is one of the most vulnerable areas disaster, intervention countermeasures disaster that has been This focus on intervention recovery source power and development infrastructure. while on intervention poor mental health get attention. Follow stages disaster in Palu City, when these are the people affected disaster in Palu City now currently in phase recovery going to resilience, namely restore normal condition and strengthen Power stand public to disaster. Research This aiming for inspect relationship preparedness, mental health and behavior health post disaster to resilience health of affected students disaster at the Institute Health Technology and Business Graha Ananda, Palu City, to be able to strengthen resilience health and able adapt to threat, danger, serious disturbance from disaster.

Methods: Study This conducted at the Institute Technology and Health Business Ananda Building, Palu City, with use design observational cross sectional. Sample study This that is students of the Institute of Health Technology and Business Graha Ananda Palu City which was affected disaster as many as 55 people. Data is collected use questionnaire that has been validity and reliability tests were conducted along with sheet observation. Data analysis was carried out with univariate and bivariate with using fisher exact test and likelihood as an alternative to the chi-square test.

Results: Research results show that behavior health post disaster influential significant to resilience health, things This indicated p- value of 0.004, which means the better behavior health individual after disaster, increasingly big his contribution to ability for recover and survive (resilience health). Preparedness post disasters also have significant relationship with resilience health, with p value of 0.026, this show that individual or a more society Ready face situation post-disaster tend own resilience better health good. On the other hand, post-traumatic mental health disaster No own significant relationship with resilience health, because p -value of 0.112, which means that the condition post mental health disaster in context This No in a way direct influence level resilience health.

Conclusion: Individual with level preparedness and implementing behavior good health after experience disaster tend show resilience better health Good However No existence significant relationship between post mental health disaster with resilience health indicates that resilience health Possible influenced by other factors such as support social from family, friends, and community can become factor important in resilience, individuals who feel supported in a way emotional or own access to network strong social tend more easy recover from trauma or stress caused by disaster.

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INTRODUCTION

Indonesia is one of the countries that has vulnerable areas. to disaster including earthquake and tsunami. The territory of Indonesia is located between 3 plates tectonic that is plate pacific, Eurasian plate, plate Australian Indies. Conditions This makes Indonesia vulnerable to earthquake earth, tsunami, eruption mountain fire and types type disaster geology other. Threats danger earthquake earth spread almost throughout the Indonesian archipelago, both scale small until scale big. Vulnerable areas disaster earthquake earth is the provinces of Aceh, North Sumatra, West Sumatra, Bengkulu, Lampung, West Java, Yogyakarta, Central Java, East Java, Bali, Nusa Tenggara, Sulawesi Island, Maluku Islands, North Maluku and the Papua region (1).

One of vulnerable areas to disaster is Palu City, Central Sulawesi Province. On September 28, 2018 at 18.02, happen Earthquake and Tsunami in Palu City. Data from BNPB on November 7, 2018, the death toll was 2,096 people, the number of missing people was 1,373 people, seriously injured and being treated 4,438 people hospitalized, injured light and care road 83,122 people, refugees 173,553 people. Facilities service health affected House 1 hospital unit, 50 health centers, 18 health posts, village health posts 5 units with level damage 12 units damaged heavy, 20 units damaged moderate, 42 units damaged light. Damage infrastructure street, house population, buildings offices, hotels including schools (2).

In framework Work management disaster (David, 2018) criticized intervention Handling disaster that has been This done, with focus intervention usually more on development return source power and infrastructure, while in the intervention mental health with evaluation term long like resilience health not enough get attention. Even though disaster no only impact on material losses only, but also has an impact on non-material (3).

Effect interventions on preparedness that are not mediated by symptoms mental health because of difference approach between preparedness disasters and mental health which researchers Welton-Mitchell Courtney, et al., (2018) integrated for increase resilience community affected disaster. Welton-Mitchell Courtney et al (2018) research on preparedness the disaster in question is his approach based on risk disaster (for example; threat) disaster what is there, how save self from threat said) while mental health in research the to study affected communities' disaster (for example; if experience symptoms depression consequence How method they help self alone or how they to obtain help mental health) (4).

Resilience health defined as ability individual or community for cope, adapt, and recover from challenge health, including disease, disaster, or pressure psychological. Preparation face situation emergency or change suddenly, like own plan emergency, very important for support resilience health, things This help individual or community respond in a way effective and reduce impact negative term long. Resilience often associated with good mental health, such as ability overcome stress, maintain balance emotions, and thinking positive. Health Behavior such as habit life healthy, including sports, patterns eat well and sleep sufficient, contributing to resilience body and mind at the moment face situation difficult (5).

In 2018, there was an incident movement plates in different areas in Indonesia, causing a number of city experience earthquake earth with great power. One of them occurred in Palu City, Central Sulawesi, which is also one of the city with level vulnerable high disaster. No only cause earthquake earth, but also tsunamis and phenomena very rare liquefaction also happened to Palu City (6).

Follow phases and cycles disaster in Palu City, at the time these are the people who are affected impact disaster in Palu City has enter phases and cycles recovery going to resilience, namely recovery return to normal and constructive conditions resilience society. Related with matter said, the study writer against 25 students of the Institute of Health Technology and Business Graha Ananda Palu City which consists of of 9 men and 16 women aged between 19 – 21 years old who were victims of the disaster lost place stay or lost family. Study results introduction the find that 48.5% have resilience low while 51.5% have resilience tall.

Based on matter it is very important for integrate preparedness disaster mental health and behavior to in a interventions that can give strong influence to resilience health public especially for students of the Institute of Health Technology and Business Ananda Building, Palu City.

METHOD

Research conducted is study quantitative descriptive with type study observational analytic with use method cross sectional study because study This do observation variable independent and dependent at the same time (7). Study This aiming for see as well as do analysis connection preparedness, mental health and behavior to resilience

health in students who have affected disaster. Technique of taking sample to be used in research This is use technique total sampling is technique taking sample Where amount sample the same with population with the total sample, so that sample study This as many as 55 students with criteria student the Once experience incident disaster in 2018.

Study This done to affected students disaster at the Institute Health Technology and Business Graha Ananda, Palu City, which is located on Singgani and Mamboro street, Palu City for 1 month namely in May - June 2024. Term time This chosen for get sample representative based on activity lectures students and minimize potential temporal bias. Consent obtained from all respondents involved in study this and given information Details about objectives, procedures, potential risks and benefits research. Form agreement become Respondent signed before Respondent fill in questionnaire.

Data collected with use questionnaire structured that has been validity and reliability tests were conducted previously at the students at Tadulako University Hammer with results there is a number of the reduced questions, then questionnaire that has been validated by conducting reliability tests, so that questionnaire mentioned guaranteed its accuracy, next questionnaire that has been validity and reliability tests were carried out as tool measuring with do interview direct to Respondent in research This For measure variable the key being studied.

Questionnaire covers part about age, type gender, experience against disaster, preparedness post disaster, post-disaster mental health disaster, change behavior post disaster and resilience health. Next done Data analysis using the IBM SPSS statistics 24 computer program includes analysis univariate for describe every variables studied use collect result data study so that become information. and analysis bivariate for see connection between variable independent with variable dependent with the test used in the analysis This namely the chi square test with level significance a=0.05. The results obtained in the analysis chi square, with using the SPSS program, namely p- value, then compared to with a=0.05. If p value < a=0.05 then There is connection or difference between two variable said. Next for fisher test exact as an alternative to the chi-square test used because of in study This test connection between two variable with size sample small or There is mark low expectations (<5).

RESULTS

Univariate Analysis

Table 1. Distribution Respondents by Age

Age (years)	n	%
19	5	9.1%
20	39	70.9%
21	11	20%
Total	**55**	**100**

Source: Primary Data 2024

It is known that the distribution of respondents based on age groups of 55 respondents with a percentage of 100%, where the highest number of ages is at the age of 20 years as many as 39 respondents (70.9%), while category age lowest there were 5 respondents at age 19 (9.1%).

Table 2. Distribution Respondents Based on Type Sex

Type Sex	n	%
Woman	35	63.7%
Man	20	36.3%
Total	**55**	**100**

Source: Primary Data 2024

It is known that distribution Respondent based on type sex from 55 respondents with percentage of 100%, where the number of female respondents was 35 respondents (63.7%) while respondents of various types sex man as many as 20 respondents (36.3%).

Table 3. Distribution Respondents Based on the location of the incident Disaster

Location of the Incident Disaster	n	%
Central Sulawesi	51	92.7%
Other Areas	4	7.3%
Total	**55**	**100**

Source: Primary Data 2024

It is known that distribution Respondent based on location incident disaster from 55 respondents with percentage of 100%, where the number of respondents who experienced a disaster in Central Sulawesi was 51 respondents (92.7%), while respondents who experienced disasters in other areas or outside Central Sulawesi as many as 4 respondents (7.3%).

Table 4. Distribution Respondents Based on Health Resilience

Health Resilience	n	%
Good	24	43.6%
Not enough	31	56.4%
Total	**55**	**100**

Source: Primary Data, 2024

It is known that distribution Respondent based on resilience highest health is in the category not enough as many as 31 people (56.3%), while the lowest is in the category Good as many as 24 people (43.6%).

Table 5. Distribution Respondents Based on Post Mental Health Disaster

Mental Health	n	%
Good	24	43.6%
Not enough	31	56.4%
Total	**55**	**100**

Source: Primary data, 2024

It is known that distribution Respondent based on post mental health the greatest disaster is in the category not enough as many as 31 people (56.3%), while the lowest is in the category Good as many as 24 people (43.6%).

Table 6. Distribution Respondents Based on Post- Health Behavior Disaster

Health Behavior	n	%
Good	31	43.6%
Not enough	24	56.4%
Total	**55**	**100**

Source: Primary Data, 2024

It is known that distribution Respondent based on behavior health post the greatest disaster is in the category Good as many as 31 people (56.3%), while the lowest is in the category not enough as many as 24 people (43.6%).

Table 7. Distribution Respondents Based on Preparedness Post Disaster

Preparedness	n	%
Good	11	20.0%
Enough	30	54.5%
Not enough	14	25.5%
Total	55	100

Source: Primary Data, 2024

It is known that distribution Respondent based on resilience health post the greatest disaster is in the category Enough as many as 30 people (54.5%), while the lowest is in the category Good as many as 11 people (20%).

Analysis Bivariate

Table 8. Relationships Post-traumatic Mental Health Disaster with Health Resilience

Mental Health	Resilience Health: Good		Not enough		Total		P Value
	n	%	n	%	N	%	
Good	12	50	12	50	24	100	
Kurang	9	29	22	71	31	100	**0,112**
Total	**21**	**38.2**	**34**	**61.8**	**55**	**100**	

Source: Primary Data, 2024

Based on the data in table 8 it shows that respondents who are in the category resilience health not enough more many in the category mental health the less as many as 22 people (71%) compared to category mental health the good one as many as 12 people (50%), while respondents who experienced resilience good health more many in the category mental health the good one as many as 12 people (50%) compared to category mental health the less as many as 9 people (29%). Based on the chi square test conducted with results p value = 0.112 because p value >0.05 then can it is said that no there is significant relationship between post mental health disaster with resilience health.

Although mental health maybe No show significant relationship with resilience in study this, other factors such as preparedness, behavior health and support social can so more dominant. Therefore that, recovery program post disaster must focus on improvement factors said, while still give attention to mental health even though no significant.

Table 9. Relationships Post- Health Behavior Disaster with Health Resilience

Health Behavior	Resilience Health: Good		Not enough		Total		P Value
	n	%	n	%	N	%	
Good	17	54.8	14	45.2	31	100	
Kurang	4	16.7	20	83.3	24	100	**0.004**
Total	**21**	**38.2**	**34**	**61.8**	**55**	**100**	

Source: Primary Data, 2024

Based on the data in table 9, it shows that respondents who are in the category resilience health not enough more many in the category behavior health the less as many as 20 people (83.3%) compared to category behavior health the good one as many as 14 people (45.2%), while respondents who experienced resilience good health more many in the category behavior health the good one as many as 17 people (54.8%) compared to category behavior health the less as many as 4 people (16.7%). Based on the chi square test conducted with results p value = 0.004 because p <value 0.05 then can it is said that there is significant relationship between behavior health post disaster with resilience health.

Behavior good health can strengthen resilience individuals and communities in face disasters and challenges health post-disaster. Implications from findings This is behavior positive health like pattern Eat healthy, exercise regularly, get enough sleep, as well management good stress can increase Power stand body and ability individual for recover with fast after disaster.

Table 10. Relationships Preparedness Post Disaster with Health Resilience

Preparedness	Resilience Health: Good		Not enough		Total		P Value
	n	%	n	%	N	%	
Good	8	72.7	3	27.3	11	100	
Cukup	8	26.7	22	73.3	30	100	
Kurang	5	35.7	9	64.3	14	100	**0,026**
Total	**21**	**38.2**	**34**	**61.8**	**55**	**100**	

Source: Primary Data, 2024

Based on the data in table 10 it shows that respondents who are in the category resilience health less than the highest is in the category preparedness sufficient as many as 22 people (73.3%) and the lowest is in the category preparedness the good one as many as 3 people (27.3%), while respondents who experienced resilience good health is the highest is in the category preparedness Good as many as 8 people (72.7%) and the lowest is in the category preparedness sufficient as many as 8 people (26.7%). Based on the chi square test conducted with results p value = 0.026 because p<value 0.05 then can it is said that there is significant relationship between preparedness post disaster with resilience health.

In context recovery post-disaster show that individual or more community ready face disaster tend own more resilience Good in overcome the impact. Implications in practice is More preparedness Good can reduce anxiety and confusion moment disaster happen, give individuals and communities source the power and skills they have need for recover more fast.

DISCUSSION

The problem Handling disaster often Still considered by most people to be as not quite enough the officers answered health solely. This is an understandable because Possible information completes about responsive emergency disaster whereas reality on the ground role as well as or involvement public can be very influential, starting from from reduce pain, relieve suffering, until save life somebody (8). Based on the research we conducted found data that behavior health post disaster (0.004) and preparedness post disaster (0.026) has significant relationship with resilience health, but for variable post mental health disaster (0.112) no own connection with resilience health.

Study This in line with research conducted by Ikhlas Rasido and Melisa Patodo (2020) who explain preparedness own influence to resilience health in students affected disaster at the Faculty of Public Health, Tadulako University (9). The community that has once experience disaster and start rise from downturn or resilient but still low level his alertness. One of factor main reason the emergence many victims due to disaster is Because lack of preparedness public about disaster. Therefore that, prepare preparedness disaster since early to vulnerable communities' disaster is very important thing for avoid or reduce risk become a victim (10).

Study this also shows that behavior individual to disasters vary widely , with a number of individual experience decline drastic in behavior health (such as improvement anxiety or decline activity physical), while others are able maintain or even repair behavior health they matter This in line with research conducted by Lim et al (2020) is in -depth results his research show high resilience relate with style a better life healthy and performance good physical (11). Whereas low resilience relates with easy blame self Alone as well as height anxiety and depression (12).

Mental health is indeed important, but in a number of contexts, other factors such as preparedness physical and behavioral health Possible more play a role in to form resilience health. People who have ability for manage stress with Good but not enough guard health physique or no own good preparedness Possible Still not enough capable for endure in face disaster. Support social often become factor important in resilience health. In Lots study, individuals who have network strong social tend easier recover from stress and trauma. Although mental health is factor important, resilience often more depends on ability for access and receive support from family, friends, or community (13).

Resilience is a dynamic process adaptation positive to difficulty (14). Gatt et al. (2020) argue that resilience is capacity individual for rise from difficulties, conflicts, confusion and failure and ability for do change positive Resilience play a role important as factor protective from individual in respond and respond disaster. Mechanism coping will relate with resilience individual (15).

Resilience can define as a reciprocal process between individuals and their environment are influenced by stressors and their assessments to the stress. Assessment an individual to the stressor will cause different responses. Resilience No only defined as ability for face situation negative and rising from impact negative, but resilience is also defined as mental readiness for future situation (16).

In terminology simple, resilience public aiming for make system stronger, society more connected, and people are Healthier in a way physical and psychological from day to day Good when crisis small appear and also when happen disaster big or condition emergency. With thus, compared with approach preparedness traditional, resilience public tend own more resonance big with ranks stakeholders more interests wide, especially those who work in a way routine handle health, or welfare public (9).

Resilience community no can come true If community affected disaster No do in a way together. This is impact on conditions inequality source Power between member community so that only part only those who are able resilient. Considering social capital become points important achievement resilience, then a resilient condition no only for individual owner source adequate power only, but scale community also has potential reach ideal resilience. Referring to condition thus, then become important for under review deeper How the role of social capital in resilience community vulnerable the tsunami disaster in Indonesia (17).

Douglas Paton defines preparedness disaster refers to the knowledge and capacities developed by governments, organizations, communities and individuals for in a way effective anticipate, respond and recover from impact disaster (18). preparedness increases resilience community through education and training sustainable. This increase awareness and knowledge public about method face disaster. Solidarity and cooperation in communities are also strengthened, making they more strong and tough in face and overcome disaster (19). Preparedness This influenced a number of matters like training and counselling about disaster (20).

Besides preparedness, a must be noticed is mental health is one of the aspect prone to disturbed, especially among students who may face pressure addition from demands academic and life every day. Resilience, or ability for recover and adapt after experience difficulties, to be key in guard post mental health disaster. Post- disaster mental health disaster is significant challenges for students, but with strong resilience, they can recover and even grow stronger from experience said, support from family, friends and institutions education is very important in the process of recovery This It means condition individual will be influenced by relationships interpersonal with individual other, relationship healthy emotional make individual easier for control emotion (21). In a number of cases, other factors such as preparedness, behavior health, or support social can more play a role in to form resilience. for example, individuals who have access to support strong social or own behavior good health, such as a healthy diet and exercise, may more capably endure in face pressure post-disaster, even If they experience difficulty in matter mental health (22).

After disaster happened, students often have to adapt behavior health they for adapt with situation new full challenges. Behavior proper health can help they guard welfare physical and mental. Resilience, or ability for recover and adapt after experience difficulty, playing role important in this process. Behavior health student can be greatly affected by disasters, however with strong resilience, they can maintain or even repair habit health they. Support from institution Education, family and community are very important in help student develop resilience and maintaining health they post disaster. With the right approach, students can more easily navigate challenges faced after disaster and continue develop in a way physical and mental.

CONCLUSION

Based on results study this, can concluded that there is significant relationship between preparedness and behavior health post disaster with resilience health. Individual or group that has level preparedness and implementing behavior good health after experience disasters, such as guard pattern eating, hygiene and access service better health tall tend show resilience better health good. but results study this also shows that no there is significant relationship between post mental health disaster with resilience health. Although connection mental health and resilience no

significant in study this, monitoring mental health in term long still important. Support psychosocial term length, including therapy and counseling, can prevent problem better mental health Serious appear after disaster.

AUTHOR CONTRIBUTION STATEMENT

Study This led by Sadli Syam at a time prepare proposals and scripts journal, then Muhammad Sabri Syahrir prepare questionnaires and instruments research and Muhammad Aji Satria conducted data analysis and interpretation. all writer give contribution in research data collection and compilation script

CONFLICT OF INTEREST

The authors in a way explicit state that we do not own Affiliation finance or personal with entity that can endanger our objectivity.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

Realizing how important honesty is in compiling a manuscript, we hereby declare that the writing process for this manuscript does not use Generative AI and AI-Assisted Technology.

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