

## Process and Output of Family Resilience on Lebak Flash Flood Victims in 2020 Who Stay in Temporary Housing

Nurdewi Azizah Safitri<sup>1</sup>, Euis Sunarti<sup>2\*</sup>)

<sup>1,2</sup>Department of Family and Consumer Science, Faculty of Human Ecology, IPB University, Bogor 16680, West Java, Indonesia

\*) Corresponding author: [euissunarti@apps.ipb.ac.id](mailto:euissunarti@apps.ipb.ac.id)

### Abstract

The flash flood disaster that hit Lebak Regency in 2020 caused the family to be in a state of crisis. Families need a process to survive and come back empowered. This study aims to analyze the process and output of the resilience of the victims' families using the RESILIENSI-GA instrument. The research design was a cross-sectional study and a retrospective study. The sample was selected by purposive sampling, precisely 60 victims' families who stay in temporary housing at Lebak Regency. Collected data in March 2021, 15 month post-disaster. The data was processed using descriptive, correlation, and multiple regression tests. The results showed that the family experienced a crisis after the disaster for 3.5 months. The process of family resilience at 15 months is better than a 1-month post-disaster. The regression test results showed that in the 15 month, family organization capacity and family atmosphere, which is a part of the process of family resilience, consistently influenced the increase of family resilience output (subjective). Meanwhile, the older the husband affects, the decrease in family resilience output (subjective). The result of this study is expected to provide data and information for policy and program makers to reinforce family resilience in dealing with disasters.

Keywords: disaster, family resilience, flash flood, recovery, temporary housing

### Abstrak

Bencana banjir bandang yang melanda Kabupaten Lebak pada 2020 menyebabkan keluarga berada pada kondisi krisis. Keluarga membutuhkan proses agar mampu bertahan dan kembali berdaya. Penelitian ini bertujuan untuk menganalisis proses dan output resiliensi keluarga korban banjir bandang yang diukur menggunakan instrument RESILIENSI-GA. Desain penelitian adalah *cross-sectional study* dan retrospektif. Sampel dipilih secara purposive sampling yakni 60 keluarga korban yang tinggal di hunian sementara Kabupaten Lebak. Pengambilan data dilakukan pada Maret 2021, tepat 15 bulan pascabencana. Data diolah menggunakan uji deskriptif, uji korelasi, dan uji regresi linear berganda. Hasil penelitian menunjukkan bahwa keluarga mengalami krisis setelah bencana selama 3.5 bulan. Proses resiliensi keluarga pada 15 bulan lebih baik dibandingkan pada 1 bulan pascabencana. Hasil uji regresi menunjukkan bahwa pada bulan ke-15, kapasitas organisasi keluarga dan atmosfer keluarga yang merupakan bagian dari proses resiliensi keluarga secara konsisten berpengaruh terhadap kenaikan capaian output resiliensi keluarga (subjektif). Sementara itu, semakin bertambah tua usia suami berpengaruh terhadap penurunan capaian output resiliensi keluarga (subjektif). Hasil penelitian ini diharapkan menyediakan data dan informasi bagi para pengambil kebijakan dan program untuk meningkatkan ketangguhan keluarga dalam menghadapi bencana.

Kata kunci: banjir bandang, bencana, hunian sementara, pemulihan, resiliensi keluarga

## Introduction

Badan Nasional Penanggulangan Bencana (2020) noted that throughout 2020 there were 2,925 disasters in Indonesia. Banten Province, especially Lebak Regency, has a high disaster-prone risk (Wiguna et al., 2021). Natural disasters have a massive impact on the economic and environmental sectors directly and indirectly (Wiguna et al., 2021). In addition, natural disasters cause victims to experience tension, financial problems, family business (Sunarti, Praptiwi, & Muflikhati, 2011), job loss, damaged housing, trauma, declining health, and delays in children's education (Murni, 2010). The family has the potential to face emergencies in critical situations and conditions (Sunarti, 2018). Losses, problems, and demands experienced by families can potentially weaken family functions and relationships (Herdiana, 2019). Therefore, the government, society, and families are expected to be ready, resilient, and adaptable to produce the expected output, which is empowered after a crisis.

On January 1, 2020, flash floods hit six sub-districts in Lebak Regency and caused casualties, damaged infrastructure, and displaced thousands of families (BPBD Lebak, 2020). In the case of natural disaster management, there is still unpreparedness and limited human resources in the affected areas, especially during the emergency response period (Sunarti, 2007). The level of community readiness to reduce disaster risk is also not high/good (Raja, Hendarmawan, & Sunardi, 2017). The families of victims of the flash flood disaster in Lebak Regency who lost their homes mostly occupy temporary housing. Public facilities in temporary housing are considered lacking and limited. Berke, Kartez, and Wenger (1993) stated that inadequate quality and quantity of temporary housing would make families feel uncomfortable.

Disaster risk reduction efforts carried out by the government in charge of disaster management have not run optimally due to budget problems and the stipulation of regional management implementation regulations that are too late. In the 15<sup>th</sup> month following the disaster, it was discovered that the affected families were still occupying temporary housing because they did not have a place to live and were still waiting for the certainty of compensation funds from the responsible company. Murni (2010) stated that the delay of the government and the private sector in resolving the problems of the families of disaster victims had worsened the families' socio-economic conditions, especially for low-income families.

During a disaster, family resilience is an effort to prevent or protect from dangerous threats by building a strengthening system and defense and reducing losses (Patterson, 2002). Walsh (2003) explains that the concept of family resilience consists of a process that focuses on the strength of the family when under pressure, crisis, and adversity. According to Walsh (2006), family resilience consists of family belief systems, organizational patterns, and communication processes. These three resilience processes are fundamental to mediating individual adaptation to loss (Walsh, 2006). Based on Walsh's theory, Sunarti, a family resilience, and empowerment professor, developed the family resilience theory for research purposes in Indonesia. The concept of the family resilience process consists of three complementary and reinforcing components, including (1) values, beliefs, and rules, (2) family organization capacity, and (3) family atmosphere (Sunarti, 2021). The output of family resilience consists of the family's time to recover conditions, ease in the recovery process, and the empowerment the family gains from adversity or crises experienced (Sunarti, 2021).

Family resilience is built by shared trust in problem-solving, recovery, and further development (Walsh, 2003). Dominant family beliefs can form family strength to deal with crises (Sunarti, 2018). Family trust is also a strong force in family resilience (Walsh, 2007). Therefore, with the various demanding situations experienced after the disaster, the victims must positively accept the situation and thoughts to shift their focus to achieving life goals (Elita, Sholihah, & Sahiel, 2017). Families also must mobilize and manage their resources and withstand pressure to deal effectively with crises or difficulties (Walsh, 2006). Strong emotions caused by natural disasters, such as fear or trauma, can affect a person's decision-making cognitive processes (Cassar, Healy, & Kessler, 2017). Therefore, the family is expected to maintain a stable atmosphere when in a crisis. Resilience will arise due to individual and environmental heterogeneity, resulting in optimal performance in dealing with threats (Fraser et al., 1999; Herdiana, 2019).

Families that can survive adversity and are more assertive in dealing with problems will have optimal family readiness in dealing with disasters (Gumelar, Akbar, Suryaratri, Erchanis, & Wahyuni, 2020). The diversity of problems faced and the characteristics of the victims' families make the output of resilience unique and dynamic. The output of family resilience is related to the length of recovery, the ease of recovery, and the empowerment obtained by the family after the crisis (Sunarti, 2021). In previous studies, there is still little data showing the gradual output of family resilience. Therefore, the process and output of resilience need to be measured in stages to get a pattern of the victim's recovery until it reaches empowerment. This study explores and describes the characteristics of families, processes, and outputs of resilience from the first month and 15 months after the flash flood disaster in Lebak, Banten.

## Methods

### Participants

This study analyzes the families of the 2020 Lebak flash flood victims who live in temporary housing. The population is the families of victims of flash floods in Sajira District, Lebak Banten. Sampling was done using a purposive method with a sample of 60 families. The sample in this study is a family with a wife representative of the sample family who lives in temporary housing, is an intact family affected by a flash flood, and is willing to participate.

Data were collected from March 2021 to April 2021, coinciding with the 15 month after the disaster. The design used in this study is a cross-sectional study. The sample was interviewed in the 15 month post-disaster. A retrospective approach was also used to explore information experienced by victims of the flash flood disaster from one month to 15 months after the disaster. The research location is in the temporary housing of Pajagan Village and the temporary housing of Bungur Mekar Village, Sajira District, Lebak Regency, Banten Province. The location selection was chosen purposively considering that Pajagan Village and Bungur Mekar Village were severely affected by the flash flood disaster in the Sajira District, Lebak Regency, Banten Province.

### Measurement

Primary data collection was done through direct interviews with respondents. Primary data collected includes family characteristics, family resilience processes, and

outputs. Family characteristics include family size, the number of dependents financed by the head of the family, age of husband and wife, husband and wife education, type of husband and wife work, income per capita before the disaster, and the first and fifteenth months after the disaster. In addition, the family resilience process and output were measured using the RESILIENSI-GA instrument from Sunarti (2021).

The process of family resilience is the family's ability to survive and rise from difficult conditions after a flash flood disaster. The instrument of the family resilience process consists of values, beliefs, rules, family organizational capacity, and family atmosphere using a semantic scale of 1–7. The closer the score to 1, the worse the assessment is given and if the answer is closer to 7, the better the assessment is given. Components of values, beliefs, and rules indicate the constancy of the family's values, religion, beliefs, and rules (Sunarti, 2021). Value, belief, and rule variables consist of 10 questions. The capacity of the family organization is indicated by the readiness of the family to face uncertainty, instability, and adverse conditions and the ability to adapt and find solutions to struggle to obtain the expected goals (Sunarti, 2021). The family organizational capacity variable consists of 10 questions. The family atmosphere indicates the environment, bonds, and atmosphere of family life due to patterns of communication and interaction in the family (Sunarti, 2021). Peterson and Bredow (2009) also explain that emotional bonding and communication form the family atmosphere. The family atmosphere variable consists of 10 questions. Referring to Sunarti (2021), the family resilience process index was categorized based on the interval class in the form of very low (0.00 – 0.19), low (0.20 – 0.49), moderate (0.50 – 0.79), and high (0.80 – 1.00) to make it easier to describe the data.

The output of family resilience is the family's ability to recover after a flash flood disaster, indicated by the time it takes for the family to recover, ease in the recovery process (recovery), and the empowerment that families gain from adversity or crises they experience. The output of family resilience is measured objectively and subjectively. Measurement of resilience output is objectively carried out to determine the length of the recovery process. The subjective family resilience output consists of 3 statements to assess the intensity of family perceptions after the 15 month of the disaster with a semantic scale of 1-7. The closer the score to 1, the worse the assessment is, and vice versa. Referring to Sunarti (2021), the family resilience process index was categorized based on the interval class in the form of very low (0.00 – 0.19), low (0.20 – 0.49), moderate (0.50 – 0.79), and high (0.80 – 1.00) to make it easier to describe the data.

### **Analysis**

The research data includes family characteristics, family resilience processes, and family resilience outputs—processing and analyzing data using Microsoft Excel 2016 and SPSS for Windows 25 application programs. Processing is done through editing, coding, scoring, data entry, cleaning, analysis, and data interpretation. The data obtained before cleaning amounted to 63 families. After cleaning, three families are incomplete (widows/widowers), so they are not included in the calculation.

Data analysis was carried out descriptively using inferential statistics (difference, correlation, and multiple regression). The paired T-test is different to determine the difference in the first and fifteenth post-disaster months. A correlation test was conducted to analyze the relationship between family characteristics; values, beliefs, and rules; family organizational capacity; family atmosphere; and subjective output of family resilience. Multiple linear regression tests were conducted to analyze the influence of

family characteristics; values, beliefs, and rules; family organizational capacity; family atmosphere; and subjective output of family resilience. The regression test conducted in this study used two regression models. The first model is a regression with predictors without family characteristics. The second model is a regression with predictors using family characteristics.

## Findings

### Family Characteristics

The number of sample family members is 2 to 12 people, with an average of 6 family members. The husband's age in the sample family is 24 to 80 years, with an average of 44.4 years. The wife's age in the sample family is 19 years to 70 years, with an average of 38 years. The average length of education that husbands and wives take is 7.4 years for husbands and 7.1 years for wives. Both husband and wife, on average, only study until they finish elementary school. There is about 3.3% of husbands can not take formal education.

After the flash flood disaster, the family's employment status changed in 1<sup>st</sup> month and 15<sup>th</sup> month. As many as 96.7 percent of husbands in the previous victims' families have worked either as laborers (63.3%), transportation services (21,7%), private sector, and traders. However, after the first month of the disaster, only 20% of husbands could work. As many as 15% of wives were previously able to work, including as traders (11.7%), laborers (1.7%), and farmers (1.7%). After the disaster's first month, no wife is working due to the disappearance of all family assets. No remaining items could be traded, and the land affected by the flash flood could not be used temporarily.

After the 15 month of the disaster, 90 percent of husbands have been able to return to work. As many as 56.7% of them usually work as casual daily laborers after access to the temporary shelters area can be passed. However, 10% of husbands cannot return to work due to declining health. As many as 16.7% of wives can work in the 15 month of a flash flood disaster. There is financial assistance from the government for families who originally had trading businesses so that families can have their capital back to start trading.

Changes in family income per capita before and after the disaster are presented in Table 1. The number of families categorized as poor has almost doubled in 1 month after the disaster. After 15 months of the disaster, there was an increase in the per capita income of the victim's family. Nevertheless, more than 50% of the victims' families are still below the poverty line.

Table 1. Poverty status based on family income per capita before the disaster, the 1<sup>st</sup> month, and the 15<sup>th</sup> month after the disaster

Poverty status	Before		1 <sup>st</sup> month		15 <sup>th</sup> month	
	n	%	n	%	n	%
Poor (<Rp334,509)	21	35.0	39	65.0	34	56.7
Not poor (>Rp334,509)	39	65.0	21	35.0	26	43.3
Total	60	100.0	60	100.0	60	100.0
Min	Rp57,143		Rp0		Rp0	
Max	Rp2,480,000		Rp1,500,000		Rp2,333,333	
Mean	Rp682,129		Rp289,151		Rp472,375	
Std.	Rp572,453		Rp361,708		Rp455,818	

### Values, Beliefs, and Rules

The loss of all assets owned by the family and requiring them to live together in temporary housing certainly affects the values and rules adopted for the common good. The length of time a family lives in a temporary residence can also affect the values and rules adopted by the family. The increase in the average value of the variables of value, trust, and rules from the first month to the 15<sup>th</sup> month post-disaster is presented in Table 2. Based on the paired T-test results, there was a significant difference ( $p < 0.01$ ). The indicator of commitment to using religion as the basis for decisions consistently has the highest achievement at first month and 15<sup>th</sup> months after the disaster. While the indicator of calm when facing a disaster has the lowest achievement. After the 15<sup>th</sup> months after the disaster, all indicators on the variables of values, beliefs, and rules experienced an increase in the total score.

Table 2. Mean score of values, beliefs, and rules in 1<sup>st</sup> month and the 15<sup>th</sup> month after the disaster

Indicator	Total score	
	1 <sup>st</sup> month	15 <sup>th</sup> month
Obedience and adherence to religious values and teachings	56.67	85.48
Regularity of carrying out worship	54.29	82.38
Commitment to make religion the basis for decisions	60.95	83.33
Calmness in the face of calamity	35.48	79.05
Patience to live things you do not like	41.90	72.62
The ability to find the positive side of an event	46.90	78.33
Acceptance of calamity as a provision	43.10	80.24
Discipline in applying values and principles	50.71	75.24
Obedience and adherence to agreed rules	59.76	74.29
Firmness in applying sanctions when there is a violation of the rules	48.33	75.71
Average achievement scores of values, beliefs, and rules	49.81	78.74
p-value	0.00**	

\*Notes: \*\*=significant at  $p < .01$

### Family Organization Capacity

The first time it happened was the Lebak flash flood that hit the family, so the family could not predict the natural disaster. As a result, all assets owned by the average family are lost. After the flash flood disaster, the family received assistance from the government and related institutions to fulfill their daily needs. The existence of these new assets requires families to manage assets so that they can meet their needs in the long term. Over time, family adaptation can be measured by managing the family's capacity. The data presented in Table 3 shows the paired T-test results, which showed an increase with a significant difference ( $p < 0.01$ ). The readiness indicator to face uncertainty and instability has the lowest achievement compared to other indicators. After the 15<sup>th</sup> month of the Lebak flash flood disaster, the indicator of preparedness to face bad conditions had the highest achievement. The family is getting ready and has concerns about a similar incident. Overall, each family organizational capacity variable indicator shows an increase in achievement from the first month to the 15<sup>th</sup> month after the disaster.

Table 3. Mean score of family organizational capacity in the 1<sup>st</sup> month and the 15<sup>th</sup> month after the disaster

Indicator	Total score	
	1 <sup>st</sup> month	15 <sup>th</sup> month
Ease of family in adapting to change	42.38	74.52
Easy to relieve pressure and tension	42.86	74.29
Reliability and efficiency at work	48.33	74.52
Persistence in finding solutions to the problems at hand	51.19	82.38
Creativity turns resources into assets needed when families face crises	49.52	85.24
Perseverance in striving to get the desired goal/result	50.24	82.38
The accuracy of essential family decisions	49.05	77.38
Accuracy and thoroughness in the use of family resources	49.05	78.81
Readiness to face uncertainty and instability	38.81	75.71
Preparedness for adverse conditions	41.43	88.81
Average achievement of family organizational capacity scores	46.29	73.24
p-value	0.00**	

\*Notes: \*\*=significant at  $p < .01$

### Family Atmosphere

The Lebak flash flood that hit the village has now turned into agricultural land, and families live in temporary shelters. Changes in the environment and atmosphere affect the process of family resilience. The data presented in Table 4 shows an increase in the average value of the family atmosphere component from the 1<sup>st</sup> month to the 15<sup>th</sup> month after the disaster with a significant difference ( $p < 0.01$ ). Willingness to sacrifice for the family consistently has a high achievement compared to other indicators in the first month and 15<sup>th</sup> months after the disaster. The safety of all family members is the family's top priority. In the first post-disaster month, the family was so shocked by their situation, and it took time to understand the situation and communicate smoothly. Overall, each indicator on the family atmosphere variable shows an increase in achievement from the first month to the 15<sup>th</sup>-month post-disaster.

Table 4. Mean score of the family atmosphere in the 1<sup>st</sup> month and the 15<sup>th</sup> month after the disaster

Indicator	Total score	
	1 <sup>st</sup> month	15 <sup>th</sup> month
The clarity in communicating and conveying thoughts	46.90	74.52
Literacy and ability to analyze information	46.90	74.29
Acceptance of the diverse nature of family members	60.24	74.52
Closeness and openness between family members	70.71	82.38
The closeness of the inner bond between family members	75.00	85.24
Calmness in the face of sharp differences of opinion	49.29	82.38
The generosity of sharing and caring for others	65.71	77.38
Ease of family to have fun	48.81	78.81
Joy and ease of humor in the family	50.71	75.71
Willingness to sacrifice for family	82.38	88.81
Average achievement of Family atmosphere scores	59.67	79.40
p-value	0.00**	

\*Notes: \*\*=significant at  $p < .01$

### The Process of Family Resilience

The data presented in Table 5 shows an increase in the average value based on the index category in the family resilience process consisting of values, beliefs, rules, family organizational capacity, and family atmosphere at the first month and 15<sup>th</sup> months after the disaster. The result shows that within the 15<sup>th</sup> month, the families of the survivors can show the development of their empowerment in rising from the crisis caused by the flash flood.

In particular, the average achievement of the variables of values, beliefs, and family rules is categorized as low in the first month after the disaster. It becomes sufficient in the 15<sup>th</sup> month after the disaster. The improvement seen in the 15<sup>th</sup> months post-disaster is indicated by the absence of families with low average scores. Likewise, with the variable of family organization capacity, the average family has a low achievement in the first month and sufficient in the 15<sup>th</sup> month after the disaster. As for the family atmosphere variable, the average family has sufficient achievement in the first month and 15<sup>th</sup> months after the disaster. As many as 35% of the sample families had a high family atmosphere in the 15<sup>th</sup> month after the disaster.

Table 5. Sample distribution (%) by index category of value, belief, and rules, family organization capacity, and family atmosphere in 1<sup>st</sup> month and 15<sup>th</sup> month after the disaster

Category	Value, belief, and rules		Family organization capacity		Family atmosphere		Process	
	1 <sup>st</sup> month	15 <sup>th</sup> month	1 <sup>st</sup> month	15 <sup>th</sup> month	1 <sup>st</sup> month	15 <sup>th</sup> month	1 <sup>st</sup> month	15 <sup>th</sup> month
	Very low (0.00-0.19)	1.7	0.0	5.0	0.0	0.0	0.0	0.0
Low (0.20-0.49)	76.7	0.0	78.3	6.7	46.7	0.0	80.0	0.0
Sufficient (0.50-0.79)	21.7	73.3	16.7	80.0	53.3	65.0	20.0	85.0
High (0.80-1.00)	0.0	26.7	0.0	13.3	0.0	35.0	0.0	15.0
Total	100	100	100	100	100	100	100	100

### The Output of Family Resilience

The output of family resilience is measured objectively and subjectively. The objectively measured output of family resilience in the fifteenth post-disaster month is presented in Table 6. The average family experiences a crisis period of 3.5 months. After the 5.7<sup>th</sup> month, the average family begins the process of resilience and has settled into temporary housing. After the 7.8<sup>th</sup> month of flash floods, the survivors' families have shown their empowerment development. Furthermore, at the 12.4<sup>th</sup> month post-disaster, the average family has more power than before. Some families already have a place to relocate, come to terms with the trauma, and better prepare for uncertain things in the future.

Table 6. Average post-disaster family recovery time

Indicator	Average
T1 = time of crisis	3.5 month
T2 = time to start the process of family resilience	5.7 <sup>th</sup> month
T3 = stage 1. output	7.8 <sup>th</sup> month
T4 = stage 2. output	12.4 <sup>th</sup> month



The data presented in Table 7 shows the results of family resilience outputs measured subjectively at 15<sup>th</sup> months post-disaster. The subjective output measurement was carried out by assessing the intensity of the survivor's family's perception of recovery time speed, ease of recovery, and family empowerment after experiencing a crisis. The average empowerment of the families of survivors after experiencing a crisis after the 15<sup>th</sup> month after the flash flood disaster is the highest indicator (66.43), followed by the speed of recovery time and the ease of recovery. Based on the results of short interviews, the families of the survivors think that it is quite difficult for families to recover from the crisis. The duration of recovery needed by the family takes a long time. Nevertheless, the family still tries to change the situation and become more empowered in living the life it faces.

Table 7. The average score of family perception intensity (subjective output) at 15<sup>th</sup> months post-disaster

Indicator	Average score
Recovery time speed	59.52
Ease of recovery	55.24
Family empowerment after a crisis	66.43

The data presented in Table 8 shows the average subjective family resilience output value achieved by the family at 15<sup>th</sup> months post-disaster. The results showed that the average value of the family resilience output index achieved by the families of survivors was 0.54. Based on the index category, this figure shows that the subjective output of family resilience is sufficient (0.50-0.79) in the 15<sup>th</sup> month after the disaster. Therefore, the number of survivors families with low achievement is as much as survivors with sufficient output achievement.

Table 8. Index category of family perception intensity (subjective output) at 15<sup>th</sup> months post-disaster

The subjective output of family resilience categories	15 <sup>th</sup> month	
	n	%
Very low (0.00-0.19)	0	0.0
Low (0.20-0.49)	30	50.0
Sufficient (0.50-0.79)	30	50.0
High (0.80-1.00)	0	0.0
Total	60	100.0
Total subjective output of family resilience	Index value	
Min	0.22	
Max	0.78	
Average	0.54	
Std.	0.50	

### The Relationship Between Research Variables

The research data presented in Table 9 show a positive correlation between the independent variables, namely values, beliefs, rules, family organizational capacity, and family atmosphere, both in the first-month post-disaster and the 15<sup>th</sup> month post-disaster. In addition, all independent variables at the first month and 15<sup>th</sup> months post-disaster were significantly positively related to the subjective output of family resilience. These results

indicate that each increase in the family resilience process consisting of values, beliefs, rules, family organizational capacity, and family atmosphere in 1<sup>st</sup> month and 15<sup>th</sup>-month post-disaster is associated with a higher subjective output of family resilience after the 15<sup>th</sup> month of flash flood disaster.

Table 9. The relationship coefficient between values, beliefs, rules, family organization capacity, and family atmosphere at the 1<sup>st</sup> and fifteenth post-disaster months, and family resilience output (subjective) at 15<sup>th</sup> months post-disaster

Variable	Month	Values, beliefs, and rules		Family organization capacity		Family atmosphere		Output
		1 <sup>st</sup>	15 <sup>th</sup>	1 <sup>st</sup>	15 <sup>th</sup>	1 <sup>st</sup>	15 <sup>th</sup>	15 <sup>th</sup>
Values, beliefs, and rules	1 <sup>st</sup>	1						
	15 <sup>th</sup>	0.712**	1					
Family organization capacity	1 <sup>st</sup>	0.692**	0.507**	1				
	15 <sup>th</sup>	0.428**	0.521**	0.764**	1			
Family atmosphere	1 <sup>st</sup>	0.534**	0.506**	0.649**	0.558**	1		
	15 <sup>th</sup>	0.290*	0.438**	0.510**	0.696**	0.753**	1	
Output	15 <sup>th</sup>	0.285*	0.389**	0.544**	0.663**	0.469**	0.615**	1

### The Effect of Values, Beliefs, and Rules, Family Organization Capacity, and Family Atmosphere toward Family Resilience Output (Subjective)

Regression tests were conducted to determine the factors influencing the achievement of the subjective output of family resilience using multiple linear regression analysis. The influence analysis conducted in this study used two analytical models (Table 10).

The first model tested consisted of testing the independent variables at 15<sup>th</sup> months post-disaster, namely values, beliefs, rules, family organizational capacity, and family atmosphere on the dependent variable, the subjective output of family resilience at 15<sup>th</sup> months post-disaster. The results of the first regression test showed that the variable of family organizational capacity 15<sup>th</sup> months post-disaster ( $P < 0.01$ ;  $B = 0.680$ ) and family atmosphere variable 15 months post-disaster ( $P < 0.05$ ;  $B = 0.585$ ) had a significant positive effect on family resilience output. Each additional unit of family organizational capacity and atmosphere will increase the output of family resilience by 0.680 and 0.585 points, respectively. The first model has an Adjusted R Square value of 0.458. This model influences 45.8% of the 15<sup>th</sup>-month post-disaster family resilience output.

The second model tests family characteristics and the regression test of the independent variable on the dependent variable. The results of the second regression test showed that the subjective output of family resilience at 15<sup>th</sup> months post-disaster was positively and significantly affected ( $p < 0.05$ ) by the 15<sup>th</sup> months family organizational capacity variable ( $B = 0.496$ ) and the 15-month family atmosphere variable ( $B = 0.675$ ). This shows that each additional unit of family organizational capacity and family atmosphere will increase the subjective output of family resilience with a value of 0.496 and 0.675 points, respectively. This means that the better the achievement of family organizational capacity and family atmosphere in the 15<sup>th</sup>-month post-disaster, the better the subjective output of family resilience in the 15<sup>th</sup>-month post-disaster. In addition, the

husband's age characteristic had a significant negative effect ( $P < 0.05$ ,  $B = -0.008$ ) on the subjective output of family resilience 15<sup>th</sup> months after the disaster. These results indicate that each different age of the husband will significantly reduce the subjective output of family resilience at 15<sup>th</sup> months post-disaster. The second model has an Adjusted R square value of 0.476. These results explain that 47.6% of the subjective output of family resilience 15<sup>th</sup> months after the disaster is influenced by the model, and the rest is influenced by other variables not examined.

Table 10. Regression coefficient between values, beliefs, rules, family organization capacity, and family atmosphere toward family resilience output (subjective) at 15<sup>th</sup> months post-disaster

Variable	B	Beta	Sig	F	R <sup>2</sup>	Adjusted R <sup>2</sup>
Model 1						
Regression constant	-0.417		0.023	17.628	0.486	0.458
Values, beliefs, and rules after 15 <sup>th</sup> months (index)	0.054	0.030	0.793			
Family organization capacity after 15 <sup>th</sup> months (index)	0.680	0.444	0.003**			
Family atmosphere after 15 <sup>th</sup> months (index)	0.585	0.293	0.034*			
Model 2						
Regression constant	-0.105		0.681	6.351	0.564	0.476
Values, beliefs, and rules after 15 <sup>th</sup> months (index)	-0.002	-0.001	0.993			
Family organization capacity after 15 <sup>th</sup> months (index)	0.496	0.324	0.041*			
Family atmosphere after 15 <sup>th</sup> months (index)	0.675	0.337	0.020*			
Wife's age (year)	0.004	0.309	0.406			
Husband's age (year)	-0.008	-0.723	0.050*			
Wife's education (year)	-0.024	-0.949	0.348			
Husband's education (year)	-0.006	-0.340	0.735			
Length of marriage (year)	0.002	0.600	0.600			
The number of dependents	0.001	0.127	0.900			
The income per capita at 15 <sup>th</sup> months post-disaster (thousand rupiah/cap/month)	0.037	0.114	0.409			

## Discussion

The flash flood disaster hit several areas in Lebak Banten Regency, which caused families to take refuge in refugee posts (BPBD, 2020). The government provides temporary housing after going through several processes, only to be occupied by refugees 2-3 months after the disaster. The survivors' families lived in temporary housing in Seupang Village, Pajagan Village, and Bungur Mekar Village. This study analyzed the process of family resilience at the first month and 15<sup>th</sup> months post-disaster and the output of family resilience at the 15<sup>th</sup> months post-disaster. The results showed that most survivors' families had a lower family resilience process in the first month post-disaster than in the 15<sup>th</sup>-month post-disaster. However, after the 15<sup>th</sup> month, the achievement of the family resilience process increased, and most of the family survivors were in the moderate category.

As for the changes in the variables of values, beliefs, and rules that are very visible, among others, when facing difficulties and difficulties facing difficulties as His provisions, survivors' families admit that it is difficult to feel calm and deal with the crisis they experienced in the first month after the disaster. It is an asset owned by the family of every future family fan. It is known that various types of humanitarian aid can only enter the refugee area when access to these places can be passed so that victims of flash floods wait for aid which takes quite a long time to arrive. The condition of the survivor's family can improve by getting help and starting to accept the calamity as His provision. The research of Makahaghi and Surudani (2021) explains that the support provided in the form of motivation and entertainment can build faith and belief in a better future.

The variable of family organizational capacity at the 15<sup>th</sup> month post-disaster also increased with a significant difference. Survivors' families stated that after successfully going through a crisis period, families become better prepared to face uncertainty, instability, and adverse conditions that can occur anytime and anywhere. One of the efforts of the government and related institutions to reduce the feeling of inability to continue living in affected families includes providing instrumental support such as clothing, necessities, medicines, and other materials (Makahaghi & Surudani, 2021). With this assistance, the survivors' families slowly have resources that can be utilized and reused in the future. Some survivors' families are also known to optimize the assistance by carefully managing it and turning it into a source of income.

In the family atmosphere variable, families can better communicate and convey thoughts clearly, and become calmer in the face of sharp differences in views between family members after 15<sup>th</sup> months. Survivors' families spend more of their time hanging out, comforting each other, and relying on each other to build a positive environment despite living in temporary shelters. The forms of togetherness include cooking together, regular recitations, and gathering installs. Walsh (2003) explains that they can build mutual support and empathy by encouraging family members to share stories about difficulties and painful or embarrassing issues. Over time, the family shows a change in resilience or resilience that is getting better (Irzalinda & Sofia, 2019).

The output of family resilience shows that it was found that the average family of survivors experienced a crisis for 3.5 months after the flash flood disaster. During the crisis, the family lost all their assets and could not re-occupy their house, which was washed away and destroyed, so they had to live temporarily in refugee camps, could not work for a while, had deep trauma, and could only depend on humanitarian assistance from the government and volunteers to make ends meet.

After the misfortune, individuals and their families have more difficulty continuing life than before (Uttervall, Hultman, Ekerwald, Lindam, & Lundin, 2014). Accordingly, as many as 80% of the families of survivors are unable to work temporarily, and some of this is due to the declining health condition of the family and the consideration of the safety of family members in the refugee camps. Family concerns about children, other family members, and pets are also considered in decisions to work or not work during times of crisis (Davidson et al., 2009). During these times of crisis, disaster-affected families focused more on meeting their survival needs by taking advantage of the support they received from ties of ties, be it kinship or brotherhood (Nguyen-Trung, Forbes-Mewett, & Arunachalam, 2020).

At 5.7 months after the disaster, the average affected family started the process of resilience, and the family was moved from the refugee camp to a more suitable temporary shelter. The cessation of humanitarian assistance brings new concerns for the families of

survivors to fulfill family functions, especially in meeting their basic needs (Sunarti, Gunawan, Widiyantoro, Marliyani, & Ida, 2021). Therefore, the family began trying not to depend on help. The family began to carry out their normal activities, looking for work, and returning to mobilize community activities in temporary shelters such as gardening, cooperation, regular recitations, and the like. However, in the sixth month after the earthquake in Lombok, the family resilience process has not provided family satisfaction in meeting family needs (Sunarti, Gunawan, Widiyantoro, Marliyani, & Ida, 2021).

At 7.8 months after the disaster, families' work and economic activities in temporary shelters began to stabilize and school activities for children began to operate. At this stage, the family begins to prepare and consider the relocation decision because the temporary shelter area will be evicted at a predetermined time. Furthermore, 12.4 months after the disaster, humanitarian assistance was minimal, families were already preparing to relocate, were better able to accept the conditions experienced, and the trauma felt by the community had decreased considerably.

This study found that the consideration of relocation is the community's response to regulations that do not permit resettlement development in the affected area, and the compensation funds promised by the company in charge are clear. As of April 2021, the funds have entered the disbursement stage. The disaster assistance received and the cost of compensation obtained will affect subsequent survival (Stafford, Danes, & Haynes, 2013). Family ties also underlie decision-making, whether the family will relocate separately from other residents or relocation schemes in the sense of joint relocation to the same area (Nejat, Cong, & Liang, 2016). Survivors' families living in temporary shelters in Pajagan Village were divided into several groups to divide the relocation area because it was impossible to relocate to the same area. Survivors' families are also free to choose joint or independent relocation. After 15 months after the disaster, the average family subjectively felt quite fast in recovery time, relatively easy to recover, and quite empowered after experiencing a crisis.

The relationship test results showed that income per capita at the first month and 15<sup>th</sup> months after the disaster was significantly positively related to the values, beliefs, and rules, the family organizational capacity, and the subjective output component of family resilience at 15<sup>th</sup> months post-disaster. The lower the income per capita of the family, the lower the family's values, beliefs, rules, organizational capacity, and the subjective output of family resilience. One month after the disaster, 65% of families were categorized as poor because most families had no income and only depended on assistance from the government and humanitarian volunteers to meet their daily needs. Most families have low reliability and efficiency in work. In line with Muttalib and Mashur's (2019) research results, all community economic activities experienced paralysis caused by a significant decline in the family economy after the disaster. Fahlia, Irawan, and Tasmin (2019) also explain that losing valuables, jobs, and being poor makes families powerless and difficult to meet the necessities of life.

In these findings, the husband's age characteristic was negatively related to the family atmosphere component and negatively related to the subjective output of family resilience at the 15<sup>th</sup> post-disaster. The older the husband's age is associated, the lower the achievement of the family atmosphere and the subjective output of family resilience the 15<sup>th</sup>-month post-disaster. In addition, the husband's length of education was significantly positively related to the subjective output of family resilience at 15<sup>th</sup> months post-disaster. These findings indicate that the higher the husband's education, the higher the subjective output of family resilience in the 15<sup>th</sup> month after the disaster. Furthermore,

the relationship test results showed that all components of the family resilience process at 1<sup>st</sup> month and 15<sup>th</sup> months post-disaster consisting of values, beliefs, rules, family organizational capacity, and family atmosphere, were significantly positively related to the subjective output of family resilience. This shows that the more each component of the family resilience process, the higher the subjective output of family resilience.

The effect test showed that the subjective output of family resilience was positively influenced by family organizational capacity and atmosphere at the 15<sup>th</sup> month post-disaster. This means that every increase in the achievement of family organizational capacity and atmosphere affects the subjective output of family resilience in the 15<sup>th</sup> month after the disaster. In line with Naziah's research (2020), families with an excellent organizational pattern will have a high output of family resilience. On the other hand, the results showed that the husband's age characteristics significantly affected the subjective output of family resilience. Families with elderly husbands tend to have a lower subjective output of family resilience. In the families of the survivors studied, as many as 13.3% of husbands are over 60 years old and can no longer continue their work as bamboo transporters. These findings align with Marwiah's research (2017) which states that older husbands generally experience a decline in health so that work productivity decreases and the income earned by the family decreases. The limitation of this study is that it is prone to data bias because it was taken at the 15<sup>th</sup> months after the disaster to obtain data in the range of 1 month to 15<sup>th</sup> months post-disaster.

## **Conclusion and Recommendation**

### **Conclusion**

The families of the survivors studied were affected by the 2020 Lebak flash flood and lived in temporary housing in Sajira District 15<sup>th</sup> months after the disaster. Changes in characteristics such as employment and income per capita experienced by families after the disaster. The process of family resilience consisting of values, beliefs, rules, family organizational capacity, and family atmosphere at the first month and 15<sup>th</sup> months on average increased with a significant difference ( $p < 0.01$ ). In the variables of families' values, beliefs, rules, and organizational capacity, most survivors' families were in the low category in the first month and adequate in the 15<sup>th</sup> month after the disaster. On the other hand, most family atmosphere variables were categorized as adequate in the first month and 15 months post-disaster. On the output of resilience, the average family experienced a crisis for 3.5 months and started the resilience process 5.7 months after the disaster.

The correlation test results showed that values, beliefs, rules, family organizational capacity, and 15-month family atmosphere were significantly positively related to the subjective output of family resilience. The regression test results showed that the subjective output of family resilience was consistently significantly positively influenced by family organizational capacity and atmosphere 15 months after the disaster. The husband's age was found to have a negative effect on the subjective output of resilience 15 months after the disaster. The findings are based on 13.3% of husbands as the primary breadwinner over 60 years with declining health conditions, so their husbands are unable to work.

## Recommendation

Based on this study, researchers recommend that several parties: 1) the government and related institutions can work together to provide assistance and assistance quickly, accurately, and optimally for the long term so that affected families do not experience a crisis in the long term; 2) the general public, especially families, can maintain emotional stability to be more calm and patient when facing disasters and undergoing things that are not liked so that they are better able to accept disasters as His provisions. Families can be more prepared and improve literacy, primarily related to disasters, to face uncertainty, instability, and adverse conditions so that it is easier to relieve pressure and tension and adapt to change; 3) further research is expected to be able to examine family resilience more deeply with supporting data. Not many families know for sure about the number of assets and family income. Family resilience can be studied gradually to see the development of the resilience process and avoid bias in research due to the limitations of respondents in remembering events or conditions one month after the disaster.

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