Living Alongside the Threat of Eruption: Assessing the Psychosocial Capacity of Communities Affected by the Semeru Eruption

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Abstract: Natural disasters pose a tangible threat that disrupts societal order, strains social systems, and leads to long-term psychological consequences. The communities living around Mount Semeru, who have coexisted with the constant risk of volcanic eruptions, present a compelling and important subject for study. This research aims to examine the post-eruption conditions of these communities and assess their level of psychosocial capacity, along with the contribution of various influencing factors. Psychosocial capacity was evaluated based on nineteen selected factors. Data collection was conducted through structured interviews with one hundred respondents from Supiturang and Sumberwuluh Villages in Lumajang Regency. Descriptive statistical analysis was employed to assess psychosocial capacity and to review the contribution of each factor in shaping the community's overall resilience. The findings reveal that the community continues to experience post-traumatic disturbances and faces challenges in returning to normal life. The assessment results indicate that the psychosocial capacity of the community is at a moderate level, with a score of 0.542. Enhancing this capacity can be achieved through targeted interventions in several underperforming areas, including trauma recovery programs, disaster exposure experience, disaster education services, knowledge of eruption risks, and both self-efficacy and collective efficacy. This study is expected to contribute to the planning of sustainable post-eruption recovery strategies by integrating efforts to strengthen the psychosocial capacity of affected communities.

Keywords: Capacity; Community; Disaster; Eruption; Psychosocial; Recovery; Semeru.

1. Introduction

Natural disaster is a real threat that disrupt the fabric of societal life, strain social systems (Fritz, 1961; Aldrich & Meyer, 2015) and lead to long-term social and psychological consequences (Gersons et al., 2020; Saeed & Gargano, 2022). Communities affected by disasters often face significant challenges in adapting and recovering from the shocks they experienced (Ahumada et al., 2024). Recovery, as one of critical phase in disaster risk management (ACOSS Resilience., 2024) plays a central role in building community resilience (Anderson, 2007; Mello, 2012). One effective intervention is to strengthening of psychosocial capacity, which empowers communities to heal themselves by addressing emotional, psychological, and social needs (Pelech, 2013; Rao, 2006). Psychosocial aspects encompass an individual's relationship with their environment, including family, community, and culture (Schlein, 2016). When psychosocial capacity is optimized, communities are better equipped to cope, thereby accelerating the recovery process and enabling a return to a stable or even improved state of life post-disaster (Mayunga, 2006; Aryal et al., 2019; Firmansyah et al., 2022). Therefore, enhancing the psychosocial capacity of disaster-affected communities is essential to support their ability to recover from various shocks, stressors, trauma, and other psychosocial disturbances (Miller et al., 2010; Rao, 2006).

Indonesia, located along the Pacific Ring of Fire and home to approximately 127 active volcanoes, is highly vulnerable to volcanic eruption disasters (Birkmann et al., 2010; PVMBG, 2023). The National Disaster Management Agency (BNPB) records that over the past 200 years, volcanic eruptions have claimed the lives of 1.2 million people. Beyond the immediate physical impacts, eruptions also trigger a cascade of psychological issues such as anxiety, stress, and trauma, which further disrupt societal structures (Daulay et al., 2021; Nurlaili & Hizriani, 2022). These issues warrant deeper investigation to develop effective mitigation strategies. For instance, communities affected by the 2010 eruptions of Mount Sinabung and Mount Merapi showed gradual improvement due to strengthened psychosocial capacity through the provision of psychological support, education, and post-disaster assistance (Tentama, 2015; Marini et al., 2018; Nasution & Saragih, 2022).

Mount Semeru, located in Lumajang Regency, is one of the most frequently erupting volcanoes in East Java (PVMBG, 2023). The eruption in December 2021 resulted in 51 fatalities, 169 injuries, 22 missing persons, extensive infrastructure damage, and the loss of livelihoods. The grief from losing loved ones, combined with shock and trauma, severely impacted the mental health and psychosocial well-being of the affected communities (Eca, 2021). Many individuals, including children, experienced deep trauma (Usman et al., 2023), expressing fear upon hearing rumbling sounds or encountering stimuli that reminded them of the eruption (Suprijati et al., 2022). These conditions have hindered the community's ability to rebuild their daily activities and social relationships in a normal manner (Wahyuningtyas et al., 2022; Rahmawati et al., 2018). Efforts to strengthen the community's psychosocial capacity have not yet proven effective in achieving significant recovery. This is evidenced by the weak socio-economic support for survivors, limited disaster and trauma-related knowledge among family members, and the lack of psychosocial assistance and therapeutic interventions (Nur'Aini, Esterilita, & Rochman, 2024; Novelya et al., 2024). Although strong social networks have fostered social capital within the community (Mulyono & Paramith, 2022; Thouret et al., 2022), these have not been sufficient to reduce vulnerability or facilitate recovery (Nasution et al., 2020). These realities form the basis of this study, which aims to assess level of psychosocial capacity that has developed among communities affected by the Semeru eruption in Lumajang Regency and to provide a foundation for future recovery planning.

2. Methods

2.1. Study Area

The eruption of Mount Semeru in 2021 released hot clouds and pyroclastic flows through the Besuk Kobokan River in Supiturang Village to Sumberwuluh Village, Pronojiwo District, Lumajang Regency (Geological Agency of the Ministry of Energy and Mineral Resources, 2024). This situation placed Supiturang Village and Sumberwuluh Village in Disaster Prone Zone III (KRB III) and made them the two villages most affected by various infrastructure damages and casualties (Ukik, 2022). Therefore, this study took the administrative areas of Supiturang Village and Sumberwuluh Village as the study area (Figure 1).
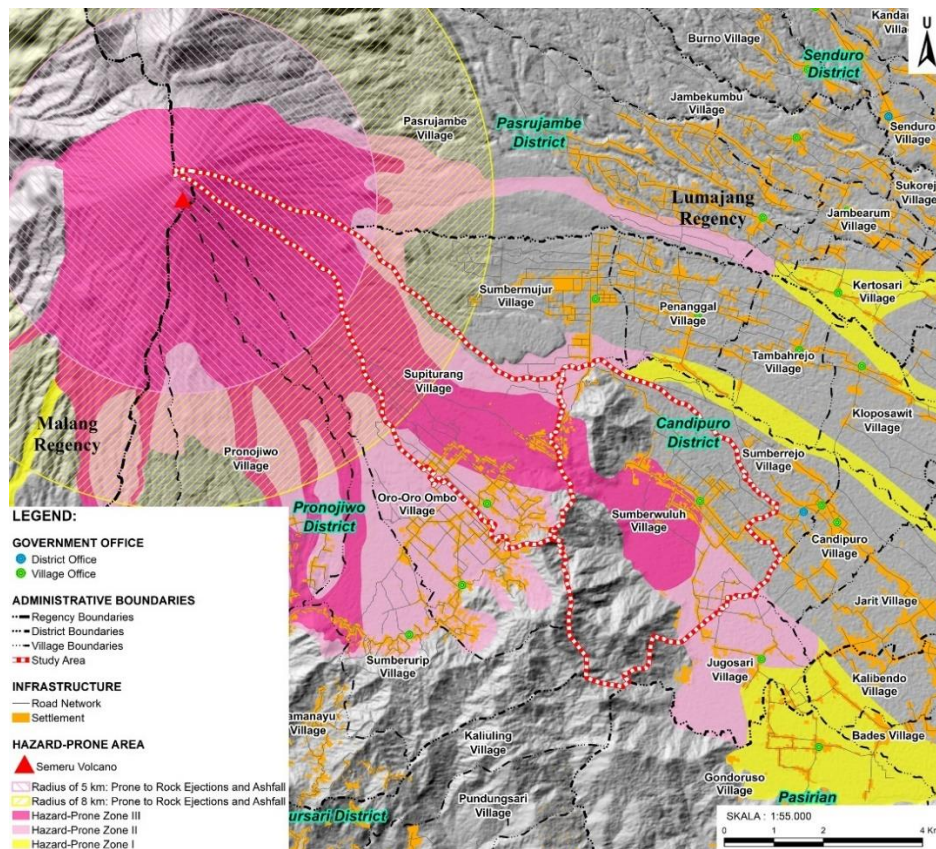
Figure 1. Study Area
Source: PVMBG (2022)

2.2. Research Variable

Regarding to psychosocial capacity in post-disaster conditions, previous studies have explained various factors that can influence it. Through a literature review process that considered its suitability to the locality and demographic characteristics of the research area, 19 factors or variables were selected to assess the psychosocial capacity of the affected community. Those are: (1) Economic Assistance, (2) Involvement of Local Leaders/Activists in Disaster Management, (3) Accessibility to Natural Resources, (4) Accessibility to Employment Locations, (5) Closeness of Relationship with Neighbors, (6) Comfort of Home Environment, (7) Knowledge of Eruption Risks, (8) Disaster Exposure Experience, (9) Disaster Education Services, (10) Confidence in Ability to Face Disasters (Self-efficacy), (11) Interpersonal Trust in Coping with Disasters (Collective Efficacy), (12) Trust in Government Authorities, (13) Spiritual Belief, (14) Local Wisdom, (15) Availability of Government Support in Disaster Management, (16) Availability of Non-Governmental Organization (NGO) Support in Disaster Management, (17) Existence of Community/Local Organization Collaboration in Disaster Management, (18) Trauma Healing Programs, and (19) Family Support.

The economic hardship experienced by disaster-affected communities due to the loss of jobs and income sources makes economic assistance a critical factor influencing psychosocial capacity. Such support helps alleviate financial burdens, reduce stress, and restore social functioning (Buster et al., 2007). In relation to this, ease of access to natural resources and employment locations also significantly affects the psychosocial condition of disaster survivors (Scheid 1993; Kondo et al., 2018). Furthermore, disaster management is closely tied to the involvement of local leaders, making their participation and collaboration with local organizations essential for psychosocial recovery. Local leaders often possess a deeper understanding of their communities, can enhance local participation, and positively contribute to psychological and social restoration (Chuah et al., 2018). However, during volcanic eruptions, when local leaders are also affected, government support often

becomes the primary source of aid relied upon by survivors (Islam & Walkerden, 2014). In this regard, public trust in government authorities becomes a crucial factor to examine, as the effectiveness of services and the quality of community recovery are largely determined by the level of trust citizens place in their institutions (Liang, 2016). That equally important is the role of non-governmental organizations, which often incorporate local values into their empowerment programs. These organizations can strengthen psychosocial capacity, especially when government aid diminishes over time (Mooney et al., 2011).

The psychosocial capacity of communities affected by volcanic eruptions is also closely linked to their prior exposure to such events. Experience can either enhance disaster preparedness through increased understanding (Johnston et al., 1999) or lead to complacency, thereby reducing readiness (Martinez-Villegas et al., 2021). Additionally, the level of community knowledge about eruptions risk plays a vital role in strengthening psychosocial resilience (Thouret et al., 2022). Besides that, self-efficacy, or confidence in individual's ability to cope with disasters, is another key factor influencing mental health and social well-being (Rippon et al., 2021) as well as recovery capacity (Storr & Haeffele-Balch, 2012). Similarly, collective efficacy, the shared belief in a community's ability to manage challenges, can foster a sense of safety and calm (Thomas et al., 2024). Psychosocial conditions and ability to recover are also shaped by place attachment, including comfort in one's home environment (Laurito et al., 2022) and close relationships with neighbors (Islam & Walkerden, 2014).

The existance of piritual beliefs can provide a profound sense of security and peace (Keevers et al., 2024), while local wisdom embedded in community practices should be recognized as a framework for implementing recovery programs and building sustainable psychosocial capacity (Miller & Pescaroli, 2018). Lastly, internal family support and trauma healing programs are also essential components in shaping the psychosocial capacity of disaster-affected communities (Gibbs et al., 2015; Marini et al., 2019).

2.3. Data Collection

Data collection to assess psychosocial capacity was conducted using primary methods through structured interviews based on a questionnaire comprising nineteen selected research variables. A four-point Likert scale was employed to avoid neutral or midpoint responses, which are often prone to bias (Wakita et al., 2012). At the end of each question, respondents were also given the opportunity to provide brief additional comments related to the questions or variables.

The questionnaire began by asking about the presence and condition of each variable, with the scale generally interpreted as follows: 1 (poor) to 4 (very good). Based on the condition of each variable, respondents were then asked to evaluate how much each variable contributed to improving their psychosocial condition. These evaluations served as input for calculating the community's psychosocial capacity. The scale used for this assessment was defined as: 1 (the variable is not helpful at all in improving psychosocial conditions) to 4 (the variable is very helpful in improving psychosocial conditions). Detailed instructions and explanations were provided within the questionnaire to guide respondents in interpreting and completing the items. To calculate psychosocial capacity, the Likert scale values were normalized to a range of 0–1 to produce a capacity index. The index values were categorized as follows: 0–0.3 indicating low capacity, 0.3–0.6 indicating moderate capacity, and 0.6–1 indicating high capacity (BNPB, 2019).

The sample size was determined using Slovin's formula with a 10% margin of error, a method commonly applied in social science research (Sitorus et al., 2023). A total of 100 respondents were selected. Using purposive sampling, respondents were chosen based on specific criteria to ensure representativeness and alignment with the research objectives (Neetij & Bikash, 2015). Respondents were required to meet the following criteria: native residents of Supiturang and Sumberwuluh Villages, aged over seventeen, had experienced the eruption and had undergone relocation or evacuation. The selection also considered various demographic characteristics, including individuals with special needs, vulnerable groups, and families with infants and/or children.

2.4. Data Analysis

The assessment of psychosocial capacity in this study was conducted using descriptive statistical analysis, as illustrated in Figure 2. Descriptive statistics serve as an analytical method that organizes and summarizes data

in a clear, concise, and systematic manner, enabling the extraction of meaningful insights from observed phenomena (Green et al., 2023). The analysis was based on data collected from respondents through the psychosocial capacity questionnaire. The statistical measures used included the mean, mode, standard deviation, and variance to understand the distribution of the data.

Prior to distribution, the questionnaire underwent validity and reliability testing to ensure its effectiveness as a research instrument. These tests were conducted using SPSS version 27. Construct validity was assessed by examining the correlation coefficient (r), which is appropriate for Likert-scale questionnaires (Hartley & MacLean, 2006). A questionnaire item was considered valid if the calculated r-value exceeded the critical r-table value or if the significance level was less than 0.05 (Oktavia et al., 2018). To ensure the consistency of the questionnaire, a reliability test was also conducted using Cronbach's alpha coefficient, which is a suitable measure for Likert-scale instruments (Taherdoost, 2016). A Cronbach's alpha value greater than 0.6 indicated that the questionnaire was reliable (Azwar, 2019).
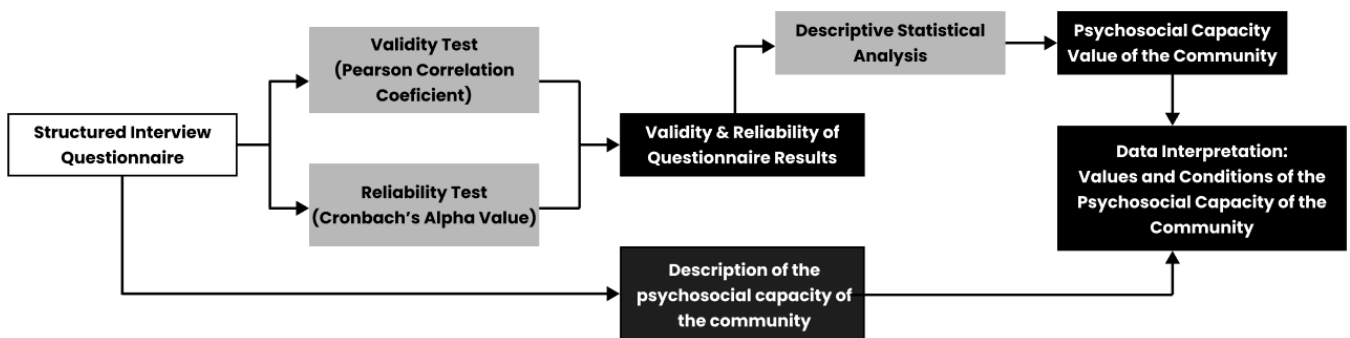

Figure 2. Analytical Framework
Source: Author, 2025

3. Results and Discussion

3.1. Respondents Characteristics

A total of 100 individuals participated in this study, with the sample proportion adjusted to reflect the population distribution in the research area. The respondents included 35 residents from Supiturang Village and 65 from Sumberwuluh Village. Overall, the sample represented a balanced gender distribution, with 56% female and 44% male participants. The majority of respondents (78.6%) were aged between 20 and 59 years, while the remainder were from the elderly age group. Vulnerable families with infants and/or children also participated, comprising 33% of the total sample. Additionally, the study included other vulnerable groups, such as individuals with disabilities (3.25%), represented by two female and two male respondents.

In terms of educational background which may influence the capacity to understand disaster risks and response, most respondents were high school graduates (37%), followed by junior high school graduates (21%), elementary school graduates (26%), and the remainder had received non-formal education. Reflecting the characteristics of rural communities, the majority of respondents (35.9%) worked as farmers, while a significant portion (19.4%) were employed in sand mining as a high-risk occupation due to its location in former lava flow zones. Furthermore, 64% of respondents reported earning below the regional minimum wage of IDR 2,430,000.

Regarding eruption exposure and experience, all respondents reported frequent exposure to Semeru eruptions and had undergone evacuation at least one to three times. However, approximately 73% of respondents not yet participated in disaster preparedness training or simulations, particularly before the major eruption in 2021.

3.2. The Conditions of Affected Communities

Communities affected by disasters often face significant hardship and psychological disruption, making them highly vulnerable to post-traumatic stress disorder (PTSD) (Goldmann & Galea, 2014). These individuals may struggle to resume their social functions and find it difficult to return to their pre-disaster routines (Orengo-

Aguayo et al., 2022). To better understand the post-disaster condition of affected communities specifically those in Supiturang and Sumberwuluh Villages, who are also at risk of PTSD, a survey was conducted using a structured questionnaire administered to all respondents.

As an initial step in identifying potential PTSD symptoms, the questionnaire included items designed to explore respondents' emotional states, reactions, and behaviors following the eruption. This instrument aimed to detect signs of intrusion, avoidance, and hyperarousal, which are core indicators of PTSD symptoms (American Psychiatric Publishing, 2013)
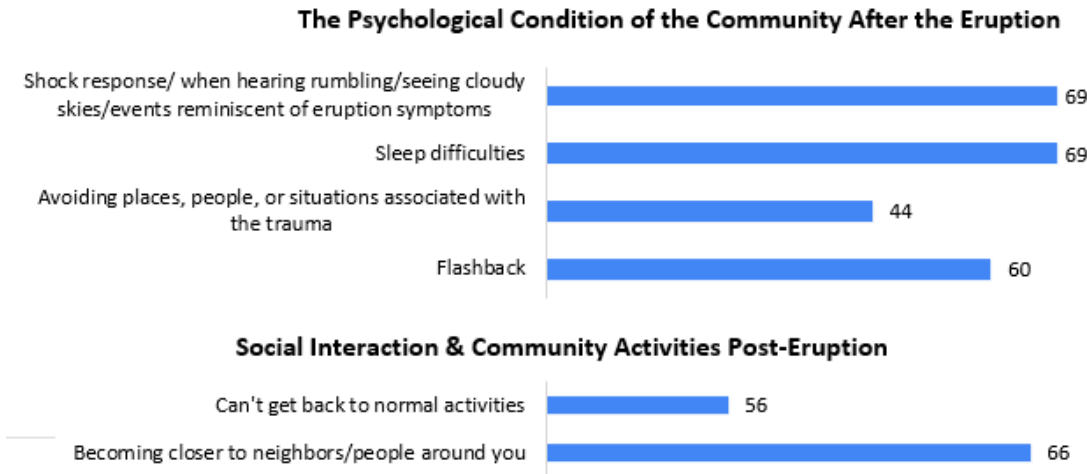
The Psychological Condition of the Community After the Eruption

Category	Value
Shock response/ when hearing rumbling/seeing cloudy skies/events reminiscent of eruption symptoms	69
Sleep difficulties	69
Avoiding places, people, or situations associated with the trauma	44
Flashback	60

Social Interaction & Community Activities Post-Eruption

Category	Value
Can't get back to normal activities	56
Becoming closer to neighbors/people around you	66

Figure 3. The Conditions of Communities Affetcted in Post Semeru Eruption
Source: Field Survey (2024)

As illustrated in Figure 3, the psychological condition of the community reveals that a significant portion of respondents exhibited symptoms of post-traumatic stress disorder (PTSD). Based on the questionnaire responses, 69 out of 100 participants reported experiencing shock responses when exposed to triggers such as rumbling sounds, dark cloudy skies, or other conditions reminiscent of the eruption. These reactions often led to sleep disturbances, indicating symptoms of hyperarousal. Additionally, some individuals continued to avoid places, people, or situations that could trigger memories of the eruption. The most commonly reported intrusive symptom was the experience of flashbacks or the sensation of reliving the eruption event. These symptoms highlight the urgent need for early identification and targeted intervention to prevent further deterioration of the community's mental health. Beyond psychological impacts, many respondents also reported difficulties in resuming their daily routines, particularly work-related activities, due to the destruction of farmland and plantations caused by the eruption. However, despite these challenges, both the questionnaire results and testimonies from village officials in Supiturang and Sumberwuluh revealed a positive shift in social dynamics. Post-eruption, community members reported stronger social bonds, with neighbors becoming more supportive and cooperative in facing shared hardships. This strengthened social connection serves as a valuable form of social capital, which can act as a natural buffer against collective psychological stress in disaster contexts (Aldrich, 2012) and positively contribute to sustainable disaster recovery (Sobhaninia, 2023).

3.3. The Level of Psychosocial Capacity of the Community

Before assessing the condition of each variable and calculating psychosocial capacity, the questionnaire underwent validity testing. All variables, through their respective constructs formulated in the questionnaire, demonstrated valid results with significance values greater than 0.001 and correlation coefficients (r) ranging from 0.3 to 0.7—exceeding the critical r-table value of 0.192. Additionally, the questionnaire passed reliability testing, with a Cronbach's alpha coefficient of 0.8, indicating that the research instrument is consistent and stable when retested under similar conditions.

Based on respondents' evaluations of the 19 selected variables, the psychosocial capacity index for the study area was found to be moderate, with a score of 0.542. Specifically, the 37 respondents from Supiturang Village

had a psychosocial capacity score of 0.541, while the 66 respondents from Sumberwuluh Village scored 0.542—both falling within the moderate category. These findings suggest that the psychosocial capacity of communities living in high-risk disaster zones remains suboptimal and requires strengthening. Without efforts to enhance this capacity, there is a risk of further decline over time, especially in areas with frequent eruption exposure. Such deterioration could exacerbate community vulnerability and hinder long-term recovery (Norris et al., 2008).

Psychosocial Capacity Value of the Overall Community = 0.542 (Moderate)

Psychosocial Capacity Values for Vulnerable Groups

Figure 4. Psychosocial Capacity Value of the Community
Source: Field Survey (2024)

When analyzing the psychosocial capacity of respondents categorized as vulnerable groups, comprising 4 individuals with disabilities, 12 female heads of households with low income, 17 elderly respondents and 11 families with infants and/or children—average scores were calculated based on each group. The results showed a psychosocial capacity score of 0.316 (low) for individuals with disabilities; 0.383 (moderate) for low-income female heads of households; 0.475 (moderate) for the elderly group; and 0.514 (moderate) for families with young children, as illustrated in Figure 4.

These findings indicate that in disaster situations, vulnerable groups face compounded vulnerabilities due to both physical risks and limited psychosocial capacity to adapt. Wisner & Nivaran (2003) in their research on natural disasters and community vulnerability, emphasized that socio-economic vulnerability exacerbates disaster impacts, especially in the absence of adequate support systems. For instance, elderly individuals and persons with disabilities often encounter difficulties during disasters, including challenges in communication, accessing information, and receiving social and psychological support during recovery phases. Stough & Kang (2015) found that people with disabilities are particularly at risk of being excluded from aid services, disaster education, and inclusive evacuation systems.

Meanwhile, female heads of households especially those with low income who recorded lower psychosocial capacity scores, often struggle to recover from the economic and social pressures of disasters. Their ability to adapt and rebuild their lives to pre-disaster or improved conditions is limited. These women frequently bear dual burdens as both primary earners and caregivers, yet have restricted access to resources, information, and psychosocial support. Reid (2012) explains that gender inequality, reinforced by traditional caregiving roles, leads to disproportionate physical and emotional burdens, unequal access to aid and information, and social stigma—particularly for widows—which can result in self-isolation and reluctance to seek help, ultimately reducing psychosocial capacity and slowing recovery.

Families with infants and/or children, whose psychosocial capacity scores were moderately low, face additional challenges. Children are not only affected by physical and economic disruptions but also require heightened protection due to their physiological and psychological vulnerability. These families often struggle to meet basic needs such as food, shelter, healthcare, and emotional support. Parents in such situations tend to experience elevated stress levels, which, if unaddressed, can impair their ability to support both their own and their children's psychosocial recovery (Peek, 2008).

3.4. Variable Conditions and Its Contribution to Psychosocial Capacity

Based on respondents' assessments of the 19 research variables, as presented in Table 1, the condition of the variables ranged from 2.17 to 3.53, with an overall average score of 2.82. When classified into four condition

categories—1 to 1.75 (poor), greater than 1.75 to 2.5 (less favorable), greater than 2.5 to 3.25 (fair), and greater than 3.25 to 4 (very good)—the overall condition of the variables in the study area falls within the fair category. The variable with the highest score was disaster exposure experience, indicating that most community members had encountered multiple eruption events. This was followed by strong neighborly relations, where respondents reported harmonious interactions with those around them, and high levels of emotional support from family during difficult times, including during eruptions. Another variable rated very positively was access to natural resources, as most respondents lived close to sufficient sources of food and water for daily needs.

On the other hand, several variables were rated less favorably, suggesting areas where interventions have not been fully effective. These include disaster education services, which were marked by limited implementation and low community participation, as well as low levels of self-efficacy and collective efficacy. Many respondents expressed doubts about their individual and collective ability to cope with and recover from disasters. Additionally, local wisdom was not consistently embraced across the community. The variable with the lowest score was trauma healing programs. According to respondents, such programs had been conducted but were infrequent, lacked continuity, and were not inclusive. Services provided to vulnerable groups were particularly inadequate. Understanding the condition of these variables is essential for identifying the current state and role of each component that contributes to psychosocial capacity, as perceived and experienced by the community.

Table 1. The Value of Conditions and Variable Contributions in Helping to Strengthen the Psychosocial Capacity of Communities

Variable	Variable Conditions	Proportion of Variable Contribution Levels in Helping Strengthen Psychosocial Capacity	Mean	Mode	STDEV	Variance
Economic Assistance	2.95	20.4% / 67.0% / 12.6%	2.92	3	0.57	0.33
Involvement of Local Leaders/Activists in Disaster Management	2.98	15.5% / 70.9% / 13.6%	2.98	3	0.54	0.29
Accessibility to Natural Resources	3.26	1.0% / 12.6% / 60.2% / 26.2%	3.12	3	0.65	0.42
Accessibility to Employment Locations	3.04	7.8% / 19.4% / 52.4% / 20.4%	2.85	3	0.83	0.69
Closeness of Relationship with Neighbors	3.49	7.8% / 56.3% / 35.9%	3.28	3	0.60	0.36
Comfort of Home Environment	3.16	1.0% / 20.4% / 61.2% / 17.5%	2.95	3	0.65	0.42
Knowledge of Eruption Risks	2.59	14.6% / 47.6% / 29.1% / 8.7%	2.32	2	0.83	0.69
Disaster Exposure Experience	3.53	28.2% / 45.6% / 26.2%	1.98	2	0.74	0.55
Disaster Education Services	2.17	29.1% / 47.6% / 22.3% / 1.0%	1.95	2	0.75	0.56
Confidence in Ability to Face Disasters (Self-efficacy)	2.24	33.0% / 39.8% / 24.3% / 2.9%	1.97	2	0.83	0.70
Interpersonal Trust in Coping with Disasters (Collective Efficacy)	2.27	26.2% / 48.5% / 20.4% / 4.9%	2.04	2	0.82	0.67
Trust in Government Authorities	3.08	1.0% / 33.0% / 63.1% / 2.9%	2.68	3	0.55	0.30
Spiritual Belief	2.59	11.7% / 29.1% / 40.8% / 18.4%	2.66	3	0.91	0.83
Local Wisdom	2.33	13.6% / 34.0% / 39.8% / 12.6%	2.52	3	0.88	0.78

Variable	Variable Conditions	Proportion of Variable Contribution Levels in Helping Strengthen Psychosocial Capacity	Mean	Mode	STDEV	Variance
Availability of Government Support in Disaster Management	3.01	1.0% 13.6% 76.7% 8.7%	2.93	3	0.51	0.26
Availability of Non-Governmental Organization (NGO) Support in Disaster Management	2.86	1.0% 35.0% 46.6% 17.5%	2.81	3	0.73	0.53
Existence of Community/Local Organization Collaboration in Disaster Management	2.65	3.9% 21.4% 62.1% 12.6%	2.84	3	0.69	0.47
Trauma Healing Programs	2.15	46.6% 27.2% 24.3% 1.9%	1.82	1	0.57	0.76
Family Support	3.32	1.9% 13.6% 39.8% 44.7%	3.27	4	0.54	0.59

Scale of Variable Condition :	(1 Poor	(2) Not Good	(3) Fairly Good	(4) Excellent
Scale of Variable Contribution :	(1) Not Helpful	(2) Slightly Helpful	(3) Moderately Helpful	(4) Very Helpful

Referring to Table 1, the contribution level of each variable to the overall strengthening of psychosocial capacity ranged from 1.82 to 3.28, with an average score of 2.6. When classified into four categories—1 to 1.75 (low contribution), greater than 1.75 to 2.5 (less significant contribution), greater than 2.5 to 3.25 (moderate contribution), and greater than 3.25 to 4 (high contribution)—the results indicate that, overall, the variables moderately contributed to enhancing psychosocial capacity and supporting post-disaster recovery. Consistent with the condition scores of the variables, the strongest contributors were close relationships with neighbors and family support. These factors represent existing social capital within the community and serve as important foundations for strengthening psychosocial resilience. Among the variables, those with the highest standard deviation and variance included knowledge of risk, self-efficacy, collective efficacy, and spiritual belief. These variables showed a wide range of responses, which aligns with their subjective nature and the fact that they are often shaped by individual experiences and perceptions. In contrast, most other variables had values close to the average and showed relatively low data dispersion, as indicated by lower deviation and variance scores.

Variables that contributed the least to strengthening psychosocial capacity and post-disaster recovery included trauma healing programs, disaster exposure experience, disaster education services, knowledge of eruption risks, self-efficacy, and collective efficacy. These areas require serious attention and targeted interventions to enhance the psychosocial capacity of affected communities.

An interesting finding emerged regarding disaster exposure. Although the community reported high levels of exposure to eruptions, this did not translate into stronger psychosocial capacity. In fact, some respondents shared that repeated exposure brought back negative memories and emotional distress. This finding aligns with the theory of cumulative trauma, which suggests that repeated exposure to disasters without adequate psychosocial support can lead to emotional exhaustion (Norris et al.. 2002; Peek. 2008). This contrasts with earlier research by Bandura (1977), which proposed that prior disaster experience could serve as a learning opportunity to strengthen self-efficacy and act as a natural risk communication mechanism that enhances preparedness and psychosocial resilience.

The community's limited knowledge of eruption risks also reflects the lack of effective disaster education services. Disaster education plays a critical role in building a psychological foundation that enables communities to respond more adaptively and cooperatively (Perry & Lindell. 2003). With appropriate and consistent educational practices, communities can develop better understanding, mental preparedness, and confidence, while reducing fear and uncertainty during disasters (Izadkhah & Hosseini. 2005). Regarding the development

of self-confidence in disaster response, often referred to as self-efficacy, Bandura (1977) emphasized that belief in one's own abilities is a key predictor of stress management and psychosocial resilience. However, individual readiness alone is not sufficient. The success of community disaster response also depends heavily on shared perceptions of collective ability, or collective efficacy (Paton & Johnson. 2005). Therefore, the variables that currently show low contribution to psychosocial capacity in the Semeru community must be evaluated and improved to support more effective post-disaster recovery.

3.5. Implications for Post-Disaster Recovery Management

The findings of this study provide valuable insights into the conditions and challenges faced by communities in the aftermath of the Mount Semeru eruption, particularly in relation to psychosocial aspects that are often overlooked in disaster recovery processes. The impact of disasters extends beyond physical and infrastructural damage, encompassing psychological distress, social dysfunction, and economic hardship that hinder the community's ability to adapt. This study assessed the psychosocial capacity of communities in Sumberwuluh and Supiturang Villages, revealing that the overall capacity remains at a moderate level. Vulnerable groups demonstrated lower capacity compared to others, highlighting the need for targeted attention and specialized interventions.

In the context of disaster management, these findings are expected to inform policymakers in strengthening post-disaster recovery efforts through adaptive, inclusive, and locally grounded strategies. Enhancing psychosocial capacity can be integrated into the Post-Disaster Rehabilitation and Reconstruction Plan (R3P) through programs that address basic needs, provide disaster education, and empower communities to build long-term resilience.

4. Conclusion

Most residents affected by the Mount Semeru eruption in Supiturang and Sumberwuluh Villages experienced post-traumatic stress and faced significant challenges in adapting and recovering from the disaster. Based on the community's condition and the presence of variables influencing psychosocial capacity, this study found that the psychosocial capacity of the affected population was at a moderate level, with an index score of 0.542. Vulnerable groups, particularly individuals with disabilities, demonstrated lower psychosocial capacity compared to other groups. Other vulnerable populations, such as the elderly and female-headed households, also showed psychosocial capacity scores that were moderate but approaching the lower threshold. Families with infants and/or children require special attention, as parents must not only meet basic needs but also ensure a sense of safety for children, who are among the most vulnerable in disaster contexts.

This study also provides an overview of the influence of psychosocial capacity-building variables as assessed among disaster-affected communities. While the overall condition and implementation of these variables were found to be fairly adequate, their contribution to strengthening psychosocial capacity has not yet reached an optimal level. Several variables require further intervention, particularly those that were found to contribute the least to psychosocial resilience. These include trauma healing programs, disaster exposure experience, disaster education services, knowledge of eruption risks, self-efficacy, and collective efficacy.

The findings of this study are expected to inform policymakers in developing post-disaster rehabilitation and reconstruction plans. By considering the various factors that shape psychosocial capacity, these plans can better support the recovery process and enhance the community's ability to rebuild and thrive after an eruption.

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