

Mental Readiness of Families on the Slopes of Mount Merapi to Face Eruption Events

Retno Yuli Hastuti^A, Mustikasari^B, Novy Helena D^C, Dewi Gayatri^D

Abstract

In March 2023, Mount Merapi experienced an eruption by emitting hot clouds that made a number of areas of Yogyakarta and Central Java showered with volcanic ash, making the sky thick and the air full of ash. This condition has increased the awareness of the surrounding community to realize their position so that they can always be prepared when an unexpected disaster occurs. Several volcanic events that experienced eruptions, namely Mount Anak Krakatau in April 2020 experienced 8 eruptions, Mount Semeru from March-April 2020 experienced 49 eruptions until February 2021 is still on alert status, Mount Sinabung 27 times during January 2021 experienced eruptions, Mount Ili Lewotolok NTT during January 2021 experienced 2 eruptions, further making the importance of community preparedness and mental readiness in dealing with eruption events. The expected goal is to get an overview of the mental readiness of families on the slopes of Mount Merapi in facing eruption events. Qualitative research design with a phenomenological study, by means of in-depth interviews and Focus Group Discussions using an interview guide. The population in the KRB III area of Sidorejo village, Kemalang Klaten, selected families with a minimum of 10 years living in the village, who had experienced an eruption disaster with 36 informants, data analysis following the Colaizzi method. The results in supporting family mental readiness obtained 5 themes, namely (1) family experience in facing disasters, (2) government efforts in disaster management, (3) nature as family resilience, (4) social support in facing disasters and (5) coping mechanisms used by families in facing disasters. All themes are supported by sub-themes and categories, which are explained with quotes from the analyzed interviews. The conclusion is that the mental readiness of families on the slopes of Mount Merapi in the face of eruption has been described in expressions both in terms of family, community and government readiness.

Keywords: *Mental Readiness, Mount Merapi Slope Families, Eruption Event.*

^AUniversitas Indonesia, Depok, Indonesia, Email: hastuti.puteri@gmail.com

^BUniversitas Indonesia, Depok, Indonesia

^CUniversitas Indonesia, Depok, Indonesia

^DUniversitas Indonesia, Depok, Indonesia

INTRODUCTION

Volcanic eruptions are one of the major disasters that are of global concern, including Mount Merapi which is an active volcano in Indonesia (Hafida et al., 2022; Rindrasih, 2018; Laivigne et al., 2008). History records that eruptions have occurred since 1872, and 2010 was the biggest eruption with 273 victims including the caretaker "*mbah Marijan*" who is considered to have guarded Mount Merapi in the Special Region of Yogyakarta and Central Java Province, since then every year this volcano has continued to erupt, this shows a change in the rhythm of eruptions which is usually 10 years turning into 5 years and currently becoming annual (BNPB, 2021). In 2023, in March, Mount Merapi experienced an eruption by emitting hot clouds which made a number of areas of Yogyakarta and Central Java rain with volcanic ash (BPPTKG, 2023). Based on these conditions, it has increased the vigilance of the surrounding community so that mapping of disaster-prone areas is needed so that people are aware of their position so that they can always be prepared when an unexpected disaster occurs.

Central Java Province, especially Kemalang Sub-district in Klaten Regency, there are 3 villages located closest to the peak of Merapi which is included in the Disaster Prone Area III (KRB III) with a distance of ± 6 km from the peak of Merapi, the possibility of volcanic ash, hot clouds, toxic gasses, incandescent rocks and cold lava. The eruption of Mount Merapi disaster that occurs suddenly and is difficult to predict, can cause anxiety, fear and unpleasant experiences that ultimately cause trauma. In accordance with what Kandou (2017) has revealed, which states that every individual who is faced with potentially dangerous or worrying conditions, not only brings up feelings of anxiety which are considered normal but also requires readiness to survive. Continued anxiety disorders cause individuals not to be productive, this is due to the limited space for movement due to the impact of the disaster to inhibit opportunities to develop themselves (Faturachman, 2018; Rindarsih, 2018; Otani et al., 2018). Cahyo (2020) shows that the comparison of anxiety between KRB 3 and KRB 1 is 21.2%, and KRB 3 adolescents have a momentary anxiety risk of 0.313 times compared to KRB 1 adolescents. Natural disaster conditions can disrupt peace and change the pattern of life of the community, and can destroy the future life expectancy of community members due to the traumatic experience felt (Septiana et al., 2019; Juhaeni, 2016; Herfianto et al., 2022).

Traumatic experiences are often generalized in everyday life such as fear of seeing water because they have been affected by floods, fear of thunderous sounds because they experienced when the mountain erupted so that the person concerned only focuses on disaster experiences that can hinder opportunities to develop themselves (Handayani et al., 2019; Wimbardana et al., 2013; Tentama et al., 2014). Natural disasters leave trauma for the community can be seen from the results of Fauzi's research (2018) the incidence of depression and Post-traumatic Stress Disorder which is further mentioned PTSD

after the eruption of Mount Sinabung showed that the level of moderate depression was 35.8% and Post trauma stress disorder with clinical symptoms was 47.8%. This is in line with the results of Ernawati's research (2020) that residents / communities still show signs and symptoms of PTSD, namely feeling sad as if they are re-experiencing the eruption of Merapi in 2010, still feeling trauma such as easily remembering the events of Mount Merapi erupting even though they don't want to remember it, anxiety if Merapi experiences increased activity and hopes that the eruption of Merapi in 2010 will not happen again. For this reason, local communities must realize that disaster hazards cannot be avoided while living in disaster-prone areas, so it is very important to prepare themselves both physically and mentally (Mei et al., 2013; Muryani & Noviani, 2023; Muir et al., 2019). The handling of the Merapi volcano disaster has its own uniqueness, namely when the eruption emergency response ended and was declared to enter the recovery phase, in other parts it entered the emergency response status of a secondary disaster in the form of cold lava floods which also resulted in damage to various inter-regional public infrastructure. Seeing these conditions, it is very possible that the emergency response phase will be prolonged, which can cause a prolonged psychological impact on the surrounding community. Coping capacity is the ability of a person to anticipate, cope with, withstand and restore the conditions/impact of a disaster event. Research by Budiani (2013) states that the coping capacity of the community in the Merapi mountain area is high in KRB II while the lowest is in KRB III which is the highest vulnerability zoning of Mount Merapi due to low resources. Coping skills are needed by every human being for the problem-solving process when under stress so that they can survive in a rapidly changing environment. Gunawan (2014) in his research stated that coping strategies related to nature have been formed by themselves since the community lived in each disaster-prone area. Prihatin (2018) mentioned the results of his research that the people of Banjarnegara and Karo stated that the source of individual strength to adapt to disasters without experiencing prolonged stress is by surrendering to conditions. Mental readiness or coping strategies will certainly determine the success of the community in maintaining their resilience in facing hazardous conditions so that it is hoped that families or communities can live in harmony with disasters.

Resilience of families in disaster-prone areas of Mount Merapi is very necessary to be formed in order to live in harmony with disasters. Dillashandy (2018) stated that when the Merapi eruption occurred the community had high vulnerability, which managed to achieve resilience by adapting to changes. Lazarus and Folkman (1984, in Susanto, 2013) say coping strategies are not always appropriate for all situations depending on who uses them, when they are used and how they are used, it is important for the role of nurses in disaster management. Anam's research (2018) on the role of nurses based on the ICN Framework in the disaster mitigation phase of Mount Kelud was 36.3%

in the good category in risk reduction and disease prevention, 34.1% in the moderate category in health promotion efforts, and 29.6% in the poor category in policy development and planning. Putra's (2016) research using a literature review approach obtained the results of the role and leadership of nurses in the emergency response phase in general identified in 6 aspects, namely search and rescue, triage, first aid, the process of moving victims, hospital care, and rapid health assessment. Handling disasters is different from handling in hospitals so that nurses must be able to deal with skills and techniques in dealing with conditions like this. Based on the responsibility of nurses in disaster management, it is very important that nurses understand the psychological responses of survivors, especially in the disillusionment phase which is usually experienced during up to <2 years after the disaster with symptoms such as feeling disappointed, frustrated, angry, resentful and upset if assistance is not immediately fulfilled, losing assistance and volunteers, local community groups begin to weaken, togetherness begins to disappear because of the focus on rebuilding their own lives and overcoming individual problems (Bakkour et al., 2015; Seeberg & Padmawati, 2015; Untari et al., 2020).

The results of the researcher's preliminary study (2021) in Kemalang District, Klaten Regency, there are 3 villages located closest to the peak of Merapi which are included in the Disaster Prone Area III (KRB III), namely Balerante, Siderejo, and Tegalmulyo with a distance of ± 6 km from the peak of Merapi, with the possibility of volcanic ash, hot clouds, toxic gasses, incandescent rocks and cold lava. The results obtained from population data in the local village show that the high exposure to hazards is due to the close proximity of settlements to the peak of Merapi, people whose livelihoods are highly dependent on nature, the majority of the population has low education and the vulnerable age group (toddlers and people over 56 years old) is quite high. In addition, there are fears of damage to houses and agricultural land as in the past. From these results, researchers are interested in knowing the mental readiness of families on the slopes of Mount Merapi in facing the current eruption event with more intensity than in previous years.

METHOD

This research was conducted in the population of KRB 3 area, especially Sidorejo village, Kemalang sub-district, Klaten Regency, qualitative research design with phenomenological studies, data collection by means of in-depth interviews and Focus Group Discussions using an interview guide. Selection of participants by selecting families who have lived in the village for at least 10 years, have had experience of eruption disasters and can tell well about previous experiences. The number of participants was 36 informants who were selected by taking into account the equitable distribution of hamlets in the village. The researcher acted as a data collection instrument by using media, namely recording devices and stationery to record field

events. Research ethics were upheld by showing that all informants had filled out informed consent and there was no coercion from the researcher. This research has obtained permission from the relevant parties and has passed the ethical test with a Certificate of Passing Ethical Review No. Ket208/UN2.FF: Ket.208/UN2.F12.D1.2.1/PPM.00.02/2021. Data analysis follows the Colaizzi method with the stages of listening to recordings, making interview transcripts, rereading, and formulating appropriate sentences to be able to represent the meaning of participants' statements that have been processed in data analysis.

RESULT

This research presents the results of the exploration by first describing the characteristics of the participants and the results in the form of themes, sub-themes, categories and interpretation of the results that show the mental readiness of families living on the slopes of Mount Merapi in dealing with eruption events. The following are the results of the research.

Characteristics of Participants

The study participants were 36 informants consisting of 13 housewives, 6 community cadres, 2 health workers, 3 local culturists, 4 religious leaders, 4 community leaders, 3 volunteers and 1 participant from National Board for Disaster Management which is then called BPBD. Characteristics of the study included age, education, marital status, income, disaster experience, religion. The mean age of participants in this study was 42.22 years and standard deviation ± 7.41 with a minimum age of 21 years and a maximum age of 54 years. Other participant characteristics were 66.7% female, 50% had a high school education, 100% were married, 38.9% had an income below 1 million, 63.9% had 2 disaster experiences and 86.1% were Muslim.

Exploration results

The results of an exploratory study conducted on 36 participants through in-depth interviews and Focus Group Discussions (FGD) obtained an overview of the mental readiness of families in facing the eruption of Mount Merapi in 5 themes including (1) Family experience in facing the Mount Merapi disaster, (2) Government efforts in handling the Mount Merapi disaster, (3) Nature as a source of family resilience, (4) Social support in facing the Mount Merapi disaster and (5) Coping mechanisms of disaster-prone families.

Theme 1: Family experience in dealing with the Merapi volcano disaster

The results of the analysis of the participants' information about the experience of Mount Merapi disaster there are two sub themes that form it, namely the first sub theme about the occurrence of Mount Merapi disaster obtained four categories, namely (1) the recurrence of

Mount Merapi eruptions, (2) the meaning of disaster if there are casualties, (3) signs of disaster and (4) psychological responses in Mount Merapi disaster. The second sub-theme about the evacuation experience during the Merapi volcano disaster obtained four categories, namely (1) information on evacuation preparation, (2) traditional warnings of danger, (3) physical preparation before evacuating and (4) preparation of transportation for evacuating residents.

Sub-theme 1: The Merapi volcano disaster

Previous Merapi mountain disaster events that have been experienced by families as family experiences in dealing with Merapi mountain disasters are described in four categories as follows

a) Category 1: Repeated eruptions of Mount Merapi

The meaning of disaster events that have been experienced by the family as an experience of Mount Merapi disaster in the category of repeated eruptions of Mount Merapi as in the following interview expert: *"... saat itu saya sudah pengalaman meletus yang beberapa kali ... jadi tidak Cuma sekali...". Ada juga menyampaikan sebagai berikut "... pengalaman saya pertama tahun 2006 itu tapi ga separah yang 2010 itu yang paling dahsyat..".*

b) Category 2: The meaning of the Merapi volcano disaster

The meaning of disaster events that have been experienced by the family as an experience of Mount Merapi disaster in the category of the meaning of Mount Merapi disaster if there are casualties as in the following interview excerpt: *"... merapi memang membahayakan masyarakat bila ada letusan yang besar, ... nah itu lho pas mbah marijan meninggal.....waktu meletus itu takut karena mendengar ada yang meninggal.....".*

c) Category 3: Signs of the eruption of the Merapi volcano disaster

The meaning of disaster events that have been experienced by the family as an experience of Mount Merapi disaster in the category of signs of the emergence of Mount Merapi disaster as in the following interview excerpt: *"... kelihatan dari bawah itu banyak api yang turun terus,kalau udah mengeluarkan asap itu menakutkan..., ... gunung mengeluarkan abu atau prempul-prempul begitu, berarti kita harus lari..., ... suhunya panas dan bambu akan meletus seperti petasan, biasanya ada bunyi pletek-pletek dari atas itu kan bambu yang pecah karena panas...,kadang ada hewan yang pada turun seperti kera gitu..."*

d) Category 4: Psychological responses to the Merapi volcano disaster

The meaning of disaster events that have been experienced by the family as an experience of the Merapi mountain disaster in the category of psychological responses in dealing with the Merapi mountain disaster as in the following interview excerpt: *"..... kalau cuaca sudah gelap nah kalau gitu mesti sudah deg-degan bu,mpun gak bisa mikir bu cuma adanya takut,pikirannya cuma pengen lari bu..., saat itu saya hanya bisa nangis bu....".*

Sub-theme 2: Merapi volcano disaster evacuation experience

The meaning of evacuation experience during the Merapi volcano disaster is explained in four categories, namely information on evacuation preparation, traditional warnings of danger, physical preparation before evacuating and transportation preparation for evacuating residents.

a. Category 1: Evacuation preparation information

The meaning of evacuation experience during the Merapi mountain disaster as an experience of the Merapi mountain disaster in the category of evacuation preparation information as in the following interview excerpt: *"..... sudah dikasih tau sama pak RT kalau nanti siap-siap harus mengungsi.., ...mereka sudah ngasih tau kita, kalau misalnya kita dianggap sudah benar-benar dianggap rentan kita diminta persiapan... pihak pemerintah desa nya juga sudah ada himbauan bu, ... malem malem itu sudah dikontak dari perangkat desa..., orang-orang atau tetangga yang sudah dijalan pasti ngajaki ayo-ayoo gitu bu..., ... ya itu bisa komunikasi bisa lewat hp..., yang ngga bangun nanti di dodog (ketuk pintu rumah) satu persatu".*

b. Category 2: Traditional warning of danger

The meaning of the experience of evacuation during the Merapi mountain disaster as an experience of the Merapi mountain disaster in the category of traditional warnings of danger as in the following interview excerpt: *"... gardu-gardu itukan sudah diberi alat sirine untuk memberitahu persiapan evakuasi..., ...ada beberapa relawan yang memasang alat sensor gempa di gunung, jadi langsung disuruh siap-siap..., ... sudah mendengar sasmit jadi kalau ada bahayakan udah siap-siap..., ... itukan menghidupkan sirine, lalu nyemprit nyemprit untuk cepat keluar rumah....., ...dibentuknya pos ronda siskamling untuk siap siaga dengan pukul kentongan bu...,... itu kan diadakan ronda malam untuk siap-siap.."*

c. Category 3: Physical preparation in evacuation centers

The meaning of the evacuation experience during the Merapi mountain disaster as an experience of the Merapi mountain disaster in the category of physical preparation before evacuating as in the following interview excerpt: *".....sudah diberitahu untuk selalu siap paling enggak 2 tas: tas surat-surat penting dan tas pakaian secukupnya ..., .. surat-surat berharga, ya yang penting bisa menyelamatkan diri..., menyiapkan dari tas itu ada surat- surat penting, baju, segala macam ... surat surat berharga kita siapkan di tas terus baju baju sekiranya untuk ganti berapa stel..., ... surat penting disini namanya tas siaga ada obat ada pakaian ada makanan gitu..., ... punya tabungan untuk hidup disana agar tidak repot..., ... fasilitas desa memang sudah kita atur titik-titik kumpulnya...."*

d. Category 4: Transport preparations for evacuation of residents

The meaning of evacuation experience during the Merapi mountain disaster as an experience of the Merapi mountain disaster in the category of transport preparation for evacuating residents as in the following interview excerpt: *"...tetangga yang punya truk sudah siap-*

siap diatas.., ... pengaturan di desa sudah ada titik kumpul titik kumpulnya.., ..tetangga yang punya sepeda lebih dari 1 atau 2 bisa dipinjamkan dulu yang penting tanggungjawab..., ... yang lansia-lansia itu dulu dinaikan mobil..., ... mobil pribadi biasanya sudah pada isi bensin semua agar siap....”.

Based on the explanation above, it states that the experience of the Merapi mountain disaster is the community's knowledge of disaster events that have been experienced by families with evacuation experience during the Merapi mountain disaster.

Theme 2: Government efforts in handling the Merapi volcano disaster

The results of the analysis on the second theme, namely the government's efforts in handling the Mount Merapi disaster, there are 2 sub-themes, namely the first sub-theme on preparedness in the face of disaster consisting of three categories, namely (1) the availability of good evacuation facilities, (2) the village government's attention to the safety of its citizens and (3) the readiness of residents to recognise disasters. The second sub-theme on the training of Mount Merapi disaster management consists of two categories, namely (1) preparation of disaster preparedness team volunteers and (2) socialization of disaster management in the community.

Sub-theme 1: Preparedness in the face of Mount Merapi disaster

Preparedness in the face of disasters is explained in three categories, namely the first is the availability of good evacuation facilities, the second is the village government's attention to the safety of its citizens and the third is the readiness of residents to recognise disasters.

a. Category 1: Availability of good evacuation center facilities

The meaning of disaster preparedness in the category of the availability of good evacuation facilities is contained in the following interview excerpt: *“... saat 2010 itu memang masih kurang tertata nggih.. masih semrawut...namun sekarang sudah lebih baik, ... tempat yang bagus dan waktu itu makan nya aja terjamin walaupun ngungsi...,banyak yang bantuin saat di pengungsian, namun ya itu karena dulu pada panik jadi kurang tertata...,Pengungsian sekarang lebih baik mbak.. sudah ada kasur nya juga...”.*

b. Category 2: Village government's concern for residents' safety

The meaning of disaster preparedness in the category of the village government's attention to the safety of its citizens is found in the following interview excerpt: *“ ... petugas atau pak RT sudah memberitahu kita harus mempersiapkan diri, segalanya sudah siap..., ada yang sampai dijemput sama kepala desa..., di desa bapak ibu kades dan kadus bersama-sama memastikan warganya tidak ada yang tertinggal..., percaya sama pemerintah kan soalnya udah ada himbauan-himbauan..., ... Petugas BPBD sering kesini malam-malam*

untuk mengecek...., ... Rekomendasi BPPTK itu tidak aktifitas 3 km dari puncak Merapi...”.

c. Category 3: Citizen readiness to recognise disasters

The meaning of disaster preparedness in the category of community readiness to recognise disasters is found in the following interview excerpt: “... prosedur kegawatdaruratan sudah ada di desa..., ... penanggulangan letusan gunung, kesadaran harus semua, cara peduli harus paham, jarak 4 km..., ... perbualan data di update, agar mudah dalam mencari datanya..., ... termasuk relawan tentunya kita harus bersedia memberi tahu apa ya mengkoordinir lansia dulu, balita..., ... disini sudah banyak bisa membaca menurut ilmu titan lah istilahnya gunung Merapi...,... Mengenal ancaman, bahaya dan Kesiapsiagaan merapi sampai dilombakan juga..., ..kebanyakan warga kalau sudah gelap gitu bu langsung keluar rumah dan melihat ke gunung, arahnya kemana awannya...,ya nggih memperhatikan alam bu, kadang dari awannya, kadang dari hewan monyet yang mulai turun gitu bu...”.

Sub-theme 2: Merapi volcano disaster management training

The Merapi volcano disaster management training is in two categories, namely the preparation of disaster preparedness team volunteers and the socialization of disaster management in the community.

a. Category 1: Preparation of disaster preparedness team volunteers

The meaning of Merapi volcano disaster management training in the category of disaster preparedness team volunteer preparation is contained in the following interview excerpt: “...dulu dari BMKG memberikan pelatihan untuk masyarakat disini, BPBD pernah memberikan pelatihan untuk relawan, ...kabupaten Klaten itu juga pernah membentuk tim relawan...,sampai sekarang tim relawan selalu waspada dan keliling...”.

b. Category 2: Socialization of disaster management in the community

The meaning of training on volcano disaster management in the category of disaster management socialization in the community is found in the following interview excerpt: “... dulu itu nggih sampun ada bu dari BPBD klaten bu, di bale desa itu dijelaskan tentang bencana gunung Merapi..., ...pernah kog bu setelah yang Meletus besar itu spertinya berapa kali gitu bu dikumpulkan di bale desa diajari persiapan mengungsi, ..banyak bu yang diundang mewakili dusun bu..ya ada ibu-ibu ada bapak-bapak dilatih persiapan mengungsi dan waspada dengan tanda-tanda gunung Merapi..., ... perangkat desa itu beberapa kali mengadakan kaya sosialisasi..., ... mengundang dokter dari sardjito juga relawan melatih anak – anak untuk pertolongan pertama”.

Based on the explanation above, it states that the government's efforts in handling Mount Merapi disasters are the efforts that the government and the community have made in handling disasters with

preparedness in the face of disasters and training in handling Mount Merapi disasters.

Theme 3: Nature as a source of family resilience

The results of the analysis on theme 3 are about the source of family resilience from nature. In this fourth theme, there are two sub-themes, namely the first sub-theme, which is the source of fortune, there are two categories, namely (1) work fields for families and (2) volcanic fertilizers that come from nature. While the second sub-theme, namely Merapi as the life of the community, has two categories, namely (1) safe living with disasters and (2) birthplace of inheritance.

Sub Theme 1: Source of Fortune

a. Category 1: Family employment

The meaning of *Sumber Rejeki* as a source of family resilience from nature in the category of work fields for families is found in the following interview excerpt: “...Merapi itu yang ngasih untuk hidup kami bu., ... kebanyakan warga depan merapi bergantung hidupnya sama Merapi, ... merapi pun menciptakan rejeki untuk sekitarnya..., ... menyimpan banyak sumber rejeki didalamnya..... sekitar merapi banyak yang punya hewan ternak sapi jadi nggih rumputnya itu yang diambil bu..... wah kalau habis Meletus itu pada senang bu karena banyak materialnya..., ...kebanyakan warga sini itu nambangnya tradisional bu...,nggih macem-macem bu ada yang tani, ternak atau ikut tambang pasir.. , ... bahaya nggih bu...la tapi priapun lagi hasil nambang itu lebih besar juga bu daripada tani biasa... ,,... Setelah erupsi nanti ada banjir yang membawa rejeki... ya itu bu pasirnya ...mriki ini tani juga banyak karena subur bu tanahnya...”

b. Category 2: Volcanic fertilizer of natural origin

The meaning of *Sumber Rejeki* as a source of family resilience from nature in the category of volcanic fertilizer that comes from nature is found in the following interview excerpt: “... jane itu abu itu memberikan manfaat artinya bisa buat pupuk, ... bikin subur tanaman disekitar...pupuk alami bu... , ... bisa menyuburkan tanaman di sekitarnya melindungi hutan-hutan nya..., ... manfaat untuk masyarakat bu baik tentang pasir juga tentang kesuburannya..., ... pintar mengolah, pupuk dari abu vulkanik...”

Sub Theme 2: Merapi as a way of life

The meaning of Merapi as a community life as a source of family resilience from nature consists of two categories, namely living safely with threats and birthplace and inheritance.

a. Category 1: Living safely with threats

The meaning of merapi as a community life as a source of family resilience from nature in the category of living safely with threats can be seen in the following interview excerpt: “... tidak semua harus segera ditanggapi dengan kepanikan dan ketakutan, ... kalau tentang bencana itu dimana-mana ada bencana, disini Merapi tapi diluar sana kan ada

bencana, kalau saya nggih udah terbiasa tapi waspada..., ... gunung Merapi sering meletus itu semoga masyarakat itu tenang., ... kita tau bahwa Merapi sedang aktivitasnya lebih, terus ya ...ya kalau bahaya ya kita harus segera pergi, ... Ya bagi saya, gunung Merapi itu, kehidupan saya di bawah ancaman gunung Merapi, ..., jadi sewaktu ada erupsi pokoke yang penting waspada gitulah, ... ya nek saya punya konsep hidup nyaman bersama ancaman, ... bila merapi menyuruh kita pergi ya anggap berarti kita refresing, ... ada saatnya untuk waspada, ada saatnya untuk tenang, ... yang penting saya dan keluarga saya dan warga disini sudah terbiasa, ... suami saya kan anggota kebencanaan di sidorejo jadi dia selalu memberi motivasi jangan menakut nakuti warga yang lain, ... kita selalu tenang dan menghimbau kepada keluarga kita, ... nyaman dan paham apa yang harus dilakukan ketika kapan kami tinggal...”

b. Category 2: Land of birth and inheritance

The meaning of Merapi as the life of the community as a source of family resilience from nature in the category of birthplace and inheritance is found in the following interview excerpt: “..nggih saya kan dari kecil disini jadi nggih sudah paham dengan Merapi..., ...dulu seringnya diberitahu sama bapak kalau Merapi itu baik dan menghidupi ..., ... keluarga saya itu dari dulu sudah mempersiapkan, seperti saya punya lansia itu memang harus selalu waspada..., ... yang penting saya dan keluarga saya dan warga disini sudah terbiasa karena dari lahir sudah disini bu., ..meskipun kadang khawatir dengan bencana namun tetap senang tinggal disini bu...rumah tinggalan orang tua harus tetap kami jaga bu...”

Based on the explanation above, it provides an explanation that the source of family resilience from nature comes from the existence of Merapi which is the life of the community with natural availability in the form of fertile fields and volcanic fertilizer.

Theme 4: Social support in dealing with the Merapi volcano disaster

The results of the analysis on the fourth theme, namely social support in dealing with the volcano disaster, consisted of two sub-themes, namely family communication and surrounding neighbors and cooperation in the community. The first sub-theme consists of three categories namely (1) disaster information for families and neighbors, (2) the role of neighbors in dealing with disasters and (3) family intimacy in evacuation. while the second sub-theme consists of two categories namely (1) provision of independent transportation during evacuation and (2) provision of radio information about disasters.

Sub Theme 1: Family and Neighbourhood Communication

The meaning of family communication and surrounding neighbors as social support in dealing with the Merapi volcano disaster is contained in three categories, namely information about disasters for

families and neighbors, the role of neighbors in dealing with disasters and family intimacy in refugee camps.

a. Category 1: Disaster information for family and neighbors

The meaning of communication between family and neighbors as social support in facing the Merapi volcano disaster is in three categories, namely information about disasters for family and neighbors can be seen from the following interview excerpts: *"...biasanya kalau pada anak itu berpesan nek dolan ojo adoh-adoh .., ...anak yang sekolah selalu di weling untuk kalau main jangan jauh-jauh.. , ..para suami itu selalu mencari istri dan anaknya yang ke ladang..., ...dirumah sudah selalu disampaikan oleh bapak kalau kemana-mana harus bilang agar mudah mencarinya ..., ...nah kalau anak saya kan sudah gede bu seringnya kalu main sampai klaten itu ya kita weling kalau kami sudah dipengungsian gitu... , ...sejak meletus yang korban banyak itu bu ...sekarang sekeluarga kl pergi selalu ngomong dulu ..."*

b. Category 2: the role of neighbors in dealing with disasters

The meaning of family communication and surrounding neighbors as social support in dealing with the Merapi mountain disaster is in the category of the role of neighbors in dealing with disasters can be seen from the following interview excerpt: *"... ya kalau denger ada peringatan gitu langsung keluar terus teriak ke tetangga sebelah-sebelahnya ..., ... ya kalau saya kan rumahnya di dalam jadi keluar gitu sambil ajak-ajak tetangga gitu .., ...nek saya itu kan kepasrahan daerah sini ya kalau mau ngungsi gitu ya ngecek tetangga dulu sudah keluar belum..., ..biasanya pak RT ngentongi juga bu..., ...biasanya tetangga juga sudah diubengi dari relawan atau RT bu... , ...kalau kami yang didalam rumahnya yang kuat ya bantu dulu yang tua-tua duluan dan balita..."*.

c. Category 3: family intimacy in refugee camps

The meaning of family communication and surrounding neighbors as social support in dealing with the Merapi volcano disaster is in the category of family intimacy in refugee camps can be seen from the following interview: *"...pengalaman ngungsi yang tahun 2006 itu agak kacau bu karena kami terpisah dengan tetangga tapi untung sama-sama terus dengan keluarga... , ...di pengungsian itu rasanya seperti tidak mau pisah dengan anak-anak bu., ...anak saya yang besar itu jadi ngerti dengan ibunya dan adik-adiknya,,, ...saat yang tahun 2010 itu sdh dikelompokan tiap desa minimal dusun jadi sudah aman dengan keluarga bu.."*.

Sub-theme 2: Cooperation in the Community

The meaning of cooperation in the community in social support in the face of volcanic disasters is in two categories, namely the provision of independent transportation during evacuation and the provision of radio information about disasters.

a. Category 1: Provision of independent transport during evacuation

The meaning of cooperation in the community in social support in the face of volcanic disasters is in the category of providing independent transportation during evacuation in the following interview excerpt: *"...alhamdulillahnya disini itu yang punya truk rela bu utk ngungsi .., ...saya biasanya weling sama bapak untuk ngisi bensin mobil dan motor yang ada .., ...pernah dulu motor saya itu malah dipake tetangga la karena truknya sudah muat yang tua-tua.., ...biasanya yang punya mobil itu pada nawari tetangga-tetangganya bu.."*

b. Category 2: Provision of disaster information radio

The meaning of cooperation in the community in social support in dealing with the Mount Merapi disaster is in the category of providing radio information about disasters in the following interview excerpt: *"...disini itu ya adalah 3 rumah yang rela dipasang radio informasi bu..., ...alatnya itu bunyi ngiing gitu bu dipasang di rumah warga yang ikhlas, tapi diatas sana.., ...nah rumahnya yg ada radio itu bu yang nantinya ngabari warga sekitarnya... , ...biasanya meskipun bunyi terus kita sudah tau kog bu mana yang bunyinya itu tanda bahaya..., ...ya memang harus hapal bunyi dan gerak cepat kalau sudah tanda bahaya..."*

Based on the explanation above, it can provide an explanation of social support in dealing with disasters as a form of communication and cooperation in the family and community by providing information and providing independent transportation during evacuation.

Theme 5: Coping mechanisms of disaster-prone families

The results of the analysis on the seventh theme is the coping mechanism of disaster-prone families consisting of one sub-theme, namely how families maintain mental health during disasters which consists of two categories, namely ego-oriented handling and task-oriented handling.

Sub-theme 1: How families maintain mental health during disasters

a. Category 1: Ego-orientated handling

Handling with ego orientation as a way for families to maintain mental health during disasters can be seen from the following interview excerpt: *"...kadang niku nggih sok pripun gitu, merasa kog nggih berat kalo gini terus ,,, ..kadang nggih sok jengkel sama tetangga yg kalo dikandani niku angel, malah suwi lama tidak segera gitu lho..., ..kulo niku sok bayangke jaman cilik dulu kalo Merapi Meletus saya langsung digendong bapak saya, hiks (nangis) saya jadi kangen bapak..., ...kulo niki nggih pangapunten nate marah-marah sama relawan, la mboten adil dalam membagi makanan saat di pengungsian..., ..di pengungsian niku bu, harus serba sabar bu, baju ilang nggih mpun, sampai mboten gantos bu..., ..ada bu warga yang tidak mau mengungsi karena katanya berdasarkan ilmu titennya itu tidak akan terjadi apa-apa.."*

b. Category 2: Task-orientated handling

Task-orientated handling as a way for families to maintain mental health during disasters can be seen from the following interview excerpt: “...nggih biasanya itu pada panik dulu sambil teriak-teriak mbledos mbledos..., ...nggih ada warga yang tidak percaya bu, jadi ya rodo angel diajak ngungsi..., ...setelah kejadian yang besar dulu bu tiap ada suara dueeerrrr gitu jadi kagetan bu..., ...sekarang itu jadi kagetan bu kalau denger ban truk mbledos gitu saja langsung lari keluar, dipikirnya itu gunung yang Meletus..., ..pas dulu itu denger mbah marijan meninggal nggih langsung lemes bu bibar itu saya rasanya takut terus..., ..pernah bu saya ndak berani kemana-mana, takutnya tiba-tiba disuruh mengungsi pas lagi tidak dirumah..., ..saya paling Cuma disekitar rumah bu sambil terus lihat-lihat gunung, menawi padang nggih aman..., ...wah mriki nek mpun mendung kelihatan gelap banget bu menakutkan .., ...nggih jane pripun nggih yak arena Sudah disini rumahnya nggih dinikmati , ..sekarang sudah lebih tenang bu karena arahnya ke utara, paling nanti kraos getaran dan kena abunya..”.

Based on the explanation above, the coping mechanism of disaster-prone families is a way for families to maintain mental health during disasters by overcoming ego and task-orientated problems.

DISCUSSION

Characteristics of respondents

Participants with an average age of 42 years show the development of middle adulthood with a balance of biological and sociocultural aspects. Life span expert, Gilbert Brim (1992) in Santrock (2012) states that middle adulthood is a period full of change and conflict. Middle adulthood is mentioned as a unique period because of the loss and gain balance during this period. Losses and gains occur in balance in both biological and sociocultural aspects, such as education, career, and relationships.

Most participants are female, this is because the target of the implementation of the coping mechanism model with a cultural approach in increasing family resilience is housewives who have responsibility for management in the family (Alfons, 2014). Hastuti (2016) states that women's participation in dealing with disasters is starting to be recognised as so important that women are expected to participate in reducing disaster risk, while UNESCO (2014) notes that women are more vulnerable in dealing with disasters, such as during the 2004 Tsunami, 70% of the missing victims in Asia were women, more female victims. The education of participants, most of whom are high school graduates, will have factual, conceptual, procedural and metacognitive knowledge at technical, specific, detailed and complex levels (Permendikbud, 2020).

Marital Status of participants are all married, this is psychologically married people tend to live longer and healthier than those who are not or not married, married individuals have a higher level of well-being (Soulsby & Bennett, 2015) this is because married

individuals tend to get more social support. Participants' income is in the range of less than 1 million to more than 3 million per month, while the most with an income of less than 1 million is 38.9%. This income comes from wages or salaries from the head of the family and some are assisted by housewives who work additionally where the income is used to meet joint and individual needs in the household. Family occupations around the Merapi volcano disaster area are as farmers, cattle breeders and manual sand takers around the local sand mine.

The disaster experience that occurred in the participants was at least one direct disaster experience and some even experienced disasters more than twice, but it was found that 63.9% had two disaster experiences while living in the Merapi volcano disaster-prone area. One of the things that can affect individual preparedness is the existence of past disaster experiences both directly and indirectly experienced. Disaster experience will be useful learning in the future. Disaster experience will be useful learning in the future. This can be seen when a disaster occurs, the individual who experiences it certainly has its own trauma. The trauma experienced will provide a response and learning to make it an information. The information obtained will result in an action on what to do when the disaster recurs (Sullivan & Sagala, 2020; Mulyono & Paramith, 2022).

The religion of the respondents includes three existing religions, namely Islam, Catholicism and Protestantism. Religious life is a life that has rules and obligations that must be obeyed by its adherents, these rules are in accordance with divine will. There are various religions that live and develop on this human earth, so it is not surprising that what is called religion is open to various interpretations and definitions. In general, religion refers to the beliefs, actions, and feelings of people in the light of the conviction that their values are rooted in a divine reality. At the heart of a religious person's life is his or her belief in and surrender to the Divine. This paper explains the view of disasters in religion, which suggests that disasters can occur purely due to the laws of nature, purely due to human actions, while religion is a valuable psychological therapy for the victims.

Analyze the Results of the Exploration Phase

Based on the explanation above, it states that the experience of the Merapi mountain disaster is the community's knowledge of disaster events that have been experienced by the family with the experience of evacuation during the Merapi mountain disaster. The experience of the Merapi volcano disaster is the community's understanding of the definition of disaster seen based on the presence of casualties and eruptions, as well as the experience of events seen from the signs of disaster and the scale of the disaster. The explanation above is in line with the definition of a volcanic disaster as an eruption event by releasing the contents of the mountain in the form of hot clouds, incandescent rocks, lava that can damage the environment and disrupt the survival of the surrounding community (BPBD, 2015). Disaster

knowledge will be needed by people who live in disaster-prone areas, because various information about the types of disasters that may threaten them, symptoms of disasters, estimated disaster coverage areas, self-rescue procedures, recommended places to evacuate, and other information that people may need before, during and after the disaster occurs can minimize disaster risk (BPPTKG, 2020). Merapi is interesting because a lot of scientific data can be obtained here ranging from the composition of volcano gas because there are several solfatara fields at the summit, various types and types of earthquakes, deformation of the volcano body, earth's magnetism, changes in the gravitational field, changes in rock's self-potential and others (BPPTKG, 2016).

Based on the explanation above, it states that the government's efforts in handling Mount Merapi disasters are the efforts that the government and the community have made in handling disasters with preparedness in the face of disasters and training in handling Mount Merapi disasters. Preparedness to face Mount Merapi is an understanding of disasters by the community which includes information, warnings and disaster response training and the existence of a responsible person from both the village and the government in providing facilities in the form of evacuation assistance (BPPTKG, 2016). Improving the ability to deal with Mount Merapi disasters needs to be prepared between socialization to people who live around the foot of Mount Merapi. Evacuation drills, public kitchen preparation, stretcher and tent management, refugee management, and village government coordination are some examples of training for the community as an effort to deal with the eruption of Mount Merapi (Doty Damayanti, 2011). In principle, all governmental and non-governmental organizations are focusing on training and preparing to increase the community's capacity to deal with disasters. The role of the community is expected to actively participate in dealing with disaster conditions (Hendra Cipta, 2012). Hafisah (2019) on changes in community readiness in facing the Mount Merapi disaster that the Sidorejo Village community has developed a disaster paradigm towards prevention by utilizing community radio infrastructure. Community readiness in facing disasters followed by the use of community radio infrastructure can encourage the people of Sidorejo Village to be more prepared and not easily panic during disaster situations. Community-based infrastructure will be more effectively used to improve community preparedness capabilities because it is the community that manages the infrastructure.

Based on the explanation above, it provides an explanation that the source of family resilience from nature comes from the existence of Merapi, which is the life of the community with natural availability in the form of fertile fields and volcanic fertilizer. Family resilience to survive in the environment of the Merapi mountain area is explained by the existence of comfort and sources of fortune (Sofhani et al., 2018; Wardaya, 2021). The volcano has two sides like a coin. When the dark

side appears, what happens is a disaster due to an eruption, but on the other hand, the bright side of the volcano provides extraordinary benefits for human life, namely fertile soil, eruption material, energy sources, attractive landscapes and others. The resilience of the KRB III community includes economic resilience, social resilience and environmental (disaster) resilience which is closely related to local wisdom. The Merapi community is able to coexist with nature and survive in disaster-prone areas. Factors that influence the resilience of the KRB III community are regional factors of origin. The factors of origin include sources of livelihood, livable areas, blood-soaked land that has been passed down from generation to generation, and the spirit and comfort of life. The strong rural character and attachment to nature is difficult to change plus the community's livelihoods concerning their work as farmers and ranchers and the assets owned in the area of origin that encourage them to survive in disaster-prone areas (Hidayah, 2013; Permana, 2020; Schwartz et al., 2022).

Based on the explanation above, it can provide an explanation of social support in dealing with disasters as a form of communication and cooperation in the family and community by providing information and providing independent transportation during evacuation. Apostelina, (2014) suggests that families who have good relationships can achieve balance in the family. To find out family resilience in families who have good relationships, it is necessary to see how the stressors and strains faced by families, how the support received by families, how the characteristics of family resilience as a resource system owned by families, how families define and assess the events they face, and the distress events felt by families. The family is the most important part of disaster preparedness. Djafri (2013) said that awareness and good coordination in facing disaster risks can strengthen disaster preparedness.

Based on the explanation above, the coping mechanism of families in disaster-prone areas is a way for families to maintain mental health during disasters by overcoming ego- and task-oriented problems. actions to overcome the impact of the Merapi volcano disaster in two actions that focus on resolving emotions by reducing stress and mental preparation, and those that focus on solving problems by means of community communication, paying attention to traditional early warnings and making physical preparations. Disasters that occur in Indonesia have caused enormous losses both in terms of material and immaterial. Damage to infrastructure such as buildings, roads and houses are some of the material losses caused by disasters. Meanwhile, immaterial losses experienced by disaster victims are the emergence of psychological problems such as depression, anxiety, PTSD and other mental health problems (Makwana, 2019; Njome et al., 2010).

Victims of natural disasters face very complex situations and conditions, both physically, psychologically and socially. The most basic problem is physical problems, such as impaired fulfillment of the needs for food, drink, shelter, health, and education (Nazrudin, 2017; Mei &

Lavigne, 2012; Troll et al., 2015). This stems from the unavailability or limited availability of public facilities, social facilities and poor environmental sanitation, which causes discomfort and can even be a source of disease. Loss of property causes victims to fall into poverty, especially when livelihood sources such as agricultural land and plantations are also damaged. Loss of family members, especially the family's breadwinner, often leads to prolonged feelings of worry, fear and even trauma (Gunawan et al., 2016; Ikhawnuddin & Sulisty, 2023; Siagian et al., 2014). Other adversities faced involve psychosocial issues, such as fears of aftershocks, a deep sense of loss over the death of family members, property and livelihoods, which often leads to prolonged grief. In addition, being forced to live in refugee camps in limited conditions adds to the anxiety of the refugees (Ningtyas & Risina, 2019; Hastangka & Suprpto, 2023; Hariyono & Liliyasi, 2018).

CONCLUSION

This study shows that the mental readiness of families on the slopes of Mount Merapi in the face of eruptions is formed by the experience of Mount Merapi disasters as family knowledge of disaster events that have been experienced by families with the experience of evacuation during the Mount Merapi disaster supported by government efforts in handling Mount Merapi disasters as the efforts of the government and the community to work on disaster management with preparedness in the face of disasters and training on Mount Merapi disaster management. Mental readiness is also formed by the source of family resilience from nature derived from the existence of Merapi which is the life of the community with the natural availability of fertile fields and volcanic fertilizer, also with the existence of social support in dealing with disasters as a form of communication and cooperation within the family and community by providing information and providing independent transportation during evacuation and coping mechanisms of disaster-prone families is a way for families to maintain mental health during disasters by overcoming ego-oriented problems and tasks as emotional resolution in reducing stress and mental preparation.

REFERENCES

- Afiyanti, Y., & Rachmawati, I. N. (2014). *Metodologi Penelitian Kualitatif dalam Riset Keperawatan*. Jakarta: Rajawali Pers.
- Badan Nasional Penanggulangan Bencana. (2015). *Kerangka Kerja Sendai untuk Pengurangan Resiko Bencana 2015-2030*. Platform Nasional PRB. 4 Maret 2015
- Badan Pusat Statistik Daerah Kecamatan Kemalang. (2015). 03 Oktober 2016.
- Bakkour, D., Enjorlas, G., Thouret, J. C., Kast, R., Wulan Mei, E. T., & Prihatminingtyas, B. (2015). The Adaptive Governance of Natural Disaster Systems: Insights from the 2010 Mount Merapi Eruption

- in Indonesia-Artikel. *International Journal of Economic Commerce & Management*.
- Bencana, B. N. P. (2017). *Buku Saku Tanggap Tangkas Tangguh Menghadapi Bencana*. Jakarta: BNPB.
- BPS, D. (2016). Yogyakarta. *Yogyakarta: Badan Pusat Statistik Daerah Istimewa Yogyakarta*.
- Budiani, S. R., Lestariningsih, S. P., & Gamayanti, P. (2014). Coping Capacity Masyarakat DAS Gendol dalam Menghadapi Bencana Erupsi Merapi (Coping Capacity of Watershed Gendol Community in Facing the Merapi Eruption). *Jurnal Manusia dan Lingkungan*, 21(1), 106-113.
- Dillashandy, N. A., & Panjaitan, N. K. (2018). Kapasitas Adaptasi dan Resiliensi Komunitas Menghadapi Bencana Erupsi Gunung Merapi. *Jurnal Sains Komunikasi dan Pengembangan Masyarakat [JSKPM]*, 2(5), 617-626.
- Eiser, J. R., Bostrom, A., Burton, I., Johnston, D. M., McClure, J., Paton, D., ... & White, M. P. (2012). Risk Interpretation and Action: A Conceptual Framework for Responses to Natural Hazards. *International Journal of Disaster Risk Reduction*, 1, 5-16.
- Gunawan, B., Abdoellah, O. S., & Sulaeman, M. (2016). Value Rationality of People Living on the Slope of Merapi in Yogyakarta. *Analisa*, 1(1), 105-119.
- Hafida, S. H. N., Isa, N. K. M., & Khotimah, N. (2022, February). Is Psychological Adaptability Needed for High School Students in Disaster-Prone Areas of Mount Merapi Eruption?. In *IOP Conference Series: Earth and Environmental Science* (Vol. 986, No. 1, p. 012040). IOP Publishing.
- Handayani, D., Sopha, B. M., Hartono, B., & Herliansyah, M. K. (2019, March). Behavior Proportion According to Merapi Volcano Eruption Evacuations in 2010. In *2018 International Conference on Industrial Enterprise and System Engineering (ICoIESE 2018)* (pp. 177-182). Atlantis Press.
- Hariyono, E., & Liliarsari, S. (2018). Disaster Mitigation Model of Eruption Based on Local Wisdom in Indonesia. *Natural Hazards: Risk Assessment and Vulnerability Reduction*, 149-167.
- Hastangka, & Suprpto. (2023). Conception and Perception of Indigenous People on Merapi Volcano Eruption: Knowledge, Philosophy, and Indigenous Education on Disaster Risk Reduction in Indonesia. In *Indigenous Knowledge and Disaster Risk Reduction: Insight Towards Perception, Response, Adaptation and Sustainability* (pp. 35-59). Cham: Springer International Publishing.
- Herfianto, A., Suparno, B. A., & Afifi, S. (2022). Volcanic Crisis Communication: The Case of the Mt. Merapi Eruption Emergency Response. *Communications in Humanities and Social Sciences*, 2(2), 71-76.

- Ikhwanuddin, I., & Sulistiyo, C. A. (2023). Review House Communities Vulnerable to Volcanic Disaster. *International Journal of Service Science, Management, Engineering, and Technology*, 3(2), 13-17.
- Juhaeni, J. (2016). Strategies for Community Empowerment in Mount Merapi Disaster of Central Java Province Indonesia. *International Journal of Social Sciences*, 43(1).
- Lavigne, F., De Coster, B., Juvin, N., Flohic, F., Gaillard, J. C., Texier, P., ... & Sartohadi, J. (2008). People's behaviour in the face of volcanic hazards: Perspectives from Javanese communities, Indonesia. *Journal of Volcanology and Geothermal Research*, 172(3-4), 273-287.
- Maharani, Y. N., Nugroho, A. R. B., Adiba, D. F., & Sulistiyowati, I. (2020, July). Disaster risk reduction by measuring social vulnerability around the Merapi Volcano. In *AIP Conference Proceedings* (Vol. 2245, No. 1). AIP Publishing.
- Mei, E. T. W., & Lavigne, F. (2012). Influence of the Institutional and Socio-Economic Context for Responding to Disasters: Case Study of the 1994 and 2006 Eruptions of the Merapi Volcano, Indonesia. *Geological Society, London, Special Publications*, 361(1), 171-186.
- Mei, E. T. W., Lavigne, F., Picquout, A., De Bélizal, E., Brunstein, D., Grancher, D., ... & Vidal, C. (2013). Lessons Learned from the 2010 Evacuations at Merapi Volcano. *Journal of Volcanology and Geothermal Research*, 261, 348-365.
- Mei, F. A. U., & Dwi, P. (2019, January). Analysis of the Need for Volcanic Material Teaching Materials in Primary Schools. In *1st International Conference on Education and Social Science Research (ICESRE 2018)* (pp. 91-95). Atlantis Press.
- Muir, J. A., Cope, M. R., Angeningsih, L. R., Jackson, J. E., & Brown, R. B. (2019). Migration and Mental Health in the Aftermath of Disaster: Evidence from Mt. Merapi, Indonesia. *International Journal of Environmental Research and Public Health*, 16(15), 2726.
- Mulyono, J., & Paramith, N. A. (2022). Management of the Mount Semeru Eruption Disaster through Social Capital. *Int. J. Educ. Social Sci. Res*, 5(06), 307-319.
- Murphy, L. (2012). *Cultural Perspective on Mental Health and Disaster of Women Affected by the 2010 Mt. Merapi eruption* (Doctoral dissertation, The Ohio State University).
- Muryani, C., & Noviani, R. (2023, June). Spatial Distribution and Analysis of Safe Schools in Selo District, Boyolali Regency, Indonesia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 1190, No. 1, p. 012022). IOP Publishing.
- Nazaruddin, M. (2017). Media and Visual Representation of Disaster: Analysis of Merapi Eruption in 2010. *Disaster Risk Reduction in Indonesia: Progress, Challenges, and Issues*, 307-333.
- Nazaruddin, M., & Magnus, R. (2023). The Post-Disaster Transformation of Interspecies Dependencies: From Talkative

- Buffalo to Desemiotized Cows on the Slope of Mt. Merapi. *Sign Systems Studies*, 51(1), 128-152.
- Ningtyas, D. P., & Risina, D. F. (2019, May). Learning Media Model Development CD Interactive about Disaster Mitigation: Volcanic Eruption to Improve Self Awareness Early Childhood. In *1st International Conference on Social Sciences and Interdisciplinary Studies (ICSSIS 2018)* (pp. 33-38). Atlantis Press.
- Njome, M. S., Suh, C. E., Chuyong, G., & de Wit, M. J. (2010). Volcanic risk perception in rural communities along the slopes of mount Cameroon, West-Central Africa. *Journal of African Earth Sciences*, 58(4), 608-622.
- Otani, K., Legono, D., & Darsono, S. (2018, January). Effects of disaster Management programs on individuals' preparedness in Mount Merapi. In *Journal of the Civil Engineering Forum Vol* (Vol. 4, No. 1).
- Permana, S. A. (2020). The lesson of mbah Maridjan: The locksmith of Merapi mountain to face the threat of eruption. *International Journal of Innovation, Creativity and Change*, 11(10), 238-251.
- Rahayuni, W., & Jumadi, S. S. (2020). *Analisis Spasial Tingkat Resiliensi Masyarakat Terhadap Ancaman Bencana Banjir Lahar di Kecamatan Cangkringan Kabupaten Sleman* (Doctoral dissertation, Universitas Muhammadiyah Surakarta).
- Rindrasih, E. (2018). Under the Volcano: Responses of a community-based tourism village to the 2010 eruption of Mount Merapi, Indonesia. *Sustainability*, 10(5), 1620.
- Rufat, S., Tate, E., Burton, C. G., & Maroof, A. S. (2015). Social vulnerability to floods: Review of case studies and implications for measurement. *International journal of disaster risk reduction*, 14, 470-486.
- Schwartz-Marin, E., Merli, C., Rachmawati, L., Horwell, C. J., & Nugroho, F. (2022). Merapi multiple: Protection around Yogyakarta's celebrity volcano through masks, dreams, and seismographs. *History and Anthropology*, 33(5), 588-610.
- Seeberg, J., & Padmawati, R. S. (2015). Between the Queen of the South Sea and the Spirit of Mount Merapi-political and cosmological dimensions of the Central Java earthquake in 2006. *Past Vulnerability: Volcanic eruptions and human vulnerability in traditional societies past and present*.
- Septiana, M. E., Wardoyo, M. A. I., Praptiwi, N. Y., Ashari, A. N. S., Ashari, A., Susanti, N. I., ... & Nugrahagung, P. P. (2019, June). Disaster education through local knowledge in some area of Merapi Volcano. In *IOP Conference Series: Earth and Environmental Science* (Vol. 271, No. 1, p. 012011). IOP Publishing.
- Siagian, T. H., Purhadi, P., Suhartono, S., & Ritonga, H. (2014). Social vulnerability to natural hazards in Indonesia: Driving factors and policy implications. *Natural hazards*, 70, 1603-1617.

- Sofhani, T. F., Sagala, S., Pratam, A. A., & Wimbardana, R. (2018). Local wisdom and community resilience: Cases from Indonesia. *Disaster Risk Reduction in Indonesia. Environmental, Social and Cultural Aspects*, 152-166.
- Sullivan, G. B., & Sagala, S. (2020). Quality of Life and Subjective Social Status after Five Years of Mount Sinabung Eruptions: Disaster Management and Current Sources of Inequality in Displaced, Remaining and Relocated Communities. *International Journal of Disaster Risk Reduction*, 49, 101629.
- Kusumastuti, D. N. (2022). Political Elites in Disaster News: A Framing Analysis of the 2010 Mt. Merapi Eruption News in TVRI Yogyakarta. *Asian Journal of Media and Communication*, 6(2).
- Tentama, F., Mulasari, S. A., & Sukesu, T. W. (2014). The Effectiveness of Trauma Healing Methods to Reduce Post-Traumatic Stress Disorder (PTSD) on Teenage Victims of Mount Merapi... *International Journal of Research*, 3(3), 101-111.
- Troll, V. R., Deegan, F. M., Jolis, E. M., Budd, D. A., Dahren, B., & Schwarzkopf, L. M. (2015). Ancient Oral Tradition Describes Volcano–Earthquake Interaction at Merapi Volcano, Indonesia. *Geografiska Annaler: Series A, Physical Geography*, 97(1), 137-166.
- Untari, M. F. A., Diyah, H. D. P., & Ardiyanto, A. (2020, March). Implementation of METAL GEGANA for Elementary School Students on the Slopes of Mount Merapi. In *2nd International Conference on Education and Social Science Research (ICESRE 2019)* (pp. 163-166). Atlantis Press.
- Wardaya, N. F. (2021, November). Student's Level of Understanding on Mobile Learning based Volcano Eruption. In *IOP Conference Series: Earth and Environmental Science* (Vol. 884, No. 1, p. 012049). IOP Publishing.
- Wimbardana, R., Sagala, S., Pratama, A. A., Wijayanti, A. R., & Rosyidie, A. (2013). Assessing Community's Socio-Economic Enhancement in Post Disaster Recovery: Case Study of Mount Merapi. *The 2nd Planocosmo School of Architecture, Planning, and Policy Development, Institute of Technology Bandung, Bandung*, 21-22.