Cultural Perspective on Mental Health and Disaster of Women Affected by the 2010 Mt. Merapi Eruption

Thesis

Presented in Partial Fulfillment of the Requirements for the Degree Master of Social Work in the Graduate School of The Ohio State University

By

Lori Murphy

Graduate Program in Social Work

The Ohio State University

2012

Thesis Examination Committee:

Assistant Professor, Dr. Sharvari Karandikar-Chheda, Advisor

Associate Professor, Dr. Theresa Early
Abstract

This research project looked at the mental health of Indonesian women affected by the eruption of Mt. Merapi. The purpose was to understand how they were affected by the 2010 eruption, to explore their post-traumatic stress disorder symptoms, and also to explore the coping strategies used by women affected by the eruption. The research study used a cross-sectional, qualitative descriptive design. The research participants included 12 women aged 18 or older who were affected by the Mt. Merapi eruption through one or more of the following: damage to home, damage to livelihood, and/or death or serious injury to a relative or loved one. An interpreter was present during the interviews to provide verbal translation of the interviewer’s questions. The results of this study indicate none of the women would meet the full criteria for post-traumatic stress disorder. However, they did experience an average of 3.6 PTSD symptoms such as frequent distressing thoughts and difficulty getting through their day. The women utilized coping strategies that are commonly viewed as positive, such as prayer and engaging in enjoyable activities. Many women also used coping strategies that are typically viewed as negative such as avoiding thoughts about the traumatic event. The interviews reflected literature on the area around Merapi that highlights the culture of disaster that exists in the area. People who live on the slopes of the volcano have a spiritual connection to Merapi, and they regularly honor the volcano for depositing such fertile material onto their fields. This traditional culture has an influence on how they view disaster, their mental health after a disaster, and their feelings about resettlement. Results of this study found a need for macro-level community organizing to rebuild the communities destroyed in the eruption. Psycho education is also needed to teach the use of positive coping strategies after a disaster. The implications of this project include culturally sensitive suggestions for disaster mental health professionals working with women affected by disasters in Indonesia. Professionals looking at this study can become
aware of the Indonesian view of disasters in historical, religious and political contexts, as well as their view of coping and mental health. Results can help disaster mental health professionals provide more appropriate services to women in Indonesia.
Acknowledgements

This thesis was born from my interest of how individuals cope in the aftermath of a natural disaster, along with a lifelong passion for Asian cultures. Completing this research was a lofty dream when I started the MSW program, and that dream came true with the support of many individuals. I would first like to thank my advisor, Dr. Sharvari Karandikar-Chheda, for her enthusiasm, encouragement, and unflinching belief in my ability to make this huge project happen. This project would not have been possible without the support and hospitality of Christine, her lovely family, and their friends, in particular Karmen. I would also like to thank my parents, whose guidance and support helped me tackle the challenges of grad school, along with their regular supply of late-night cookies and ice cream to help get me through the endless typing. Lastly, I would like to thank Sean, whose love and support offered me the confidence to go after my dreams.
Vita

February 15, 1980 ................................................................. Born Columbus, OH
August 1997 ................................................................. Student ambassador trip to Japan
June 1998 ............................ High School Diploma, Worthington Kilbourne High School
May 2002 ............................... B.S. in Special Education, Indiana University-Bloomington
August 2002 ............ Special Education Teacher, Keiller Middle School, San Diego CA
July 2003 ............................ ARC of San Diego, Group Home Manager, San Diego CA
August 2005 ............... Community Alternatives Unlimited, Casemanager, Chicago IL
January 2007 ..................... Warren Barr Nursing Home, Social Services, Chicago IL
February 2010 ................................. Two month travel in Southeast Asia
September 2010 ............................... Research Assistant, Project RISE
January 2011 .... Social Work Internship, Community Refugee and Immigration Services
April 2011 ............... Received the Columbus Foundation Community Garden Grant
on behalf of the Burmese Refugee Community in Central Ohio
July 2011 ......................... India Study Abroad, OSU College of Social Work
September 2011 ...... Social Work Internship, American Red Cross of Greater Columbus

Fields of Study

Major Field ................................................................. Social Work
Table of Contents

Abstract .................................................................................................................. ii
Acknowledgements .......................................................................................... iii
Vita ......................................................................................................................... iv
List of Tables ....................................................................................................... vi
List of Figures ...................................................................................................... vii
Chapter One: Introduction ................................................................................... 1
Chapter Two: Literature Review ........................................................................ 7
Chapter Three: Methods ..................................................................................... 18
Chapter Four: Results ......................................................................................... 22
Chapter Five: Discussion .................................................................................... 34
References ........................................................................................................... 38
Appendix A: Contact Information Card .............................................................. 42
Appendix B: Consent to Participate in Research ................................................ 44
List of Tables

Table 1. Impact of Mt. Merapi Eruption ................................................................. 2
Table 2. Number of PTSD Symptoms Using DSM-IV-TR Criteria ....................... 29
Table 3. Coping Strategies .................................................................................... 31
Table 4. Comparing PTSD Symptoms to Coping Strategies ............................... 32
Table 5. Comparing Level of Impact to Number of PTSD Symptoms ................. 33
List of Figures

Figure 1. Map of Indonesia via Google Maps .................................................. 2

Figure 2. Map of the Island of Java via Google Maps ..................................... 3

Figure 3. Map of Villages from where the participants are from and Sleman Regency near the city of Yogyakarta via Google Earth .................................................. 23
Chapter One: Introduction

1.1 Introduction to Research Topic

Indonesia has been dubbed the world’s most disaster-prone country due to its frequent earthquakes, volcanic eruptions, tsunamis, floods, and droughts (Simamora, 2011). A 2011 report from the UN International Strategy for Disaster Reduction (UNISDR) ranked Indonesia third among 153 countries most prone to earthquakes (Simamora, 2011). Living with the constant risk of a natural disaster is a reality in Indonesia. The Indonesian government and local NGOs are developing more readiness and preparedness programs to better respond to future disasters, but mental health is often overlooked. Dr. Nova Riyanti Yusuf, a psychiatrist, writer and politician in Indonesia, cites the impact of disasters on survivors among the most urgent mental health needs in the country (Bastian, 2011). Studies across the world show there is a significant risk for adverse mental health outcomes after a disaster occurs, particularly in developing countries such as Indonesia. However, mental health continues to be a low priority in Indonesia (Bastian, 2011). Mental health advocates working in Indonesia are in need of culture-specific research that indicates not only the need for mental health services, but also offers suggestions for culturally appropriate disaster preparedness and community rebuilding programs. This research project is a qualitative study on the mental health impact of the 2010 Mt.
Merapi volcanic eruption on women living in villages around the volcano. The research is driven by three main objectives; to understand how women were affected by the 2010 Mt. Merapi eruption, to explore their PTSD symptoms, and to explore their coping strategies.

1.2 Information and Background on Indonesia

The country of Indonesia is the largest archipelago in the world, consisting of 17,500 islands that span across South East Asia. Of the 6,000 inhabited islands, 1,000 are permanently settled (Background note: Indonesia, 2012). Indonesia is south of Thailand, Malaysia, and Cambodia, and lies north of Australia. As of 2010 the estimated total population was 237.6 million, making it the 4th most highly populated country in the world (Background note: Indonesia, 2012). The island of Java, where both the capital Jakarta and the city of Yogyakarta are located, is about the size of New York State and is the most highly populated island in the world.

Figure 1. Map of Indonesia via Google Maps
Indonesia is a developing country and is a member of the “Developing Eight” economic development alliance along with Bangladesh, Egypt, Iran, Malaysia, Nigeria, Pakistan, and Turkey. As of 2011 Indonesia’s per capita income was $4,668 and its GDP is $834 billion (Background note: Indonesia, 2012). In the last decade Indonesia has had remarkable economic growth that led to an investment upgrade on its credit rating in December 2011. In fact, in 2009 Indonesia was the third-fastest growing G-20 country, trailing only China and India (Background note: Indonesia, 2012). However, despite its growth Indonesia is plagued by corruption, a lack of infrastructure, and a low level of public health. Natural disasters have also devastated parts of the country, most notably the 2004 tsunami that killed over 13,000 people in the city of Aceh on the island of Java, and left more than 500,000 people homeless. In 2006 a magnitude 6.2 earthquake struck the city of Yogyakarta.
near Mt. Merapi, killing more than 5,000 people and leaving an estimated 200,000 homeless in the Yogyakarta area.

The country of Indonesia is located in a geologically unstable region known as the Pacific Ring of Fire. Project Concern International has reported that in the last 20 years Indonesia has had more than 200 natural disasters, affecting 15.4 million people (PCI awarded grant, 2012). Mt. Merapi is the most active volcano in Indonesia. It is located about 28 kilometers north of Yogyakarta, a major city with a metro area population of almost 2.4 million people. A few thousand people also live along the slopes of Mt. Merapi, harvesting crops along the fertile soil rich with volcanic material. Living on Merapi has the benefit of extraordinarily productive land, but also the inescapable reality of devastating eruptions of the active volcano.

On October 26, 2010, Indonesia’s Mount Merapi erupted, spewing lava down its slopes and onto villages up to 30 kilometers away (Brata, 2011). Fast moving clouds of superheated gas and ash known as pyroclastic flows burned entire villages along Merapi. At one point the ash plumes extended 14 kilometers up into the atmosphere (Brata, 2011). Eruptions occurred daily, sometimes several times per day through November. The emergency response status of Merapi lasted through December 5, 2010. The eruption caused over 300 casualties and displaced more than 360,000 people from the villages around the volcano (Saputra, 2010).
1.3 Research Questions

Within this research I looked at the mental health of women affected by the eruption of Mt. Merapi. I had three research objectives; 1) to understand how women were affected by the 2010 Mt. Merapi eruption, 2) to explore their PTSD symptoms, and 3) to explore the coping strategies used by women affected by the eruption.

1.4 Significance

There is a need for more research on the psychosocial effects of disasters in Indonesia. Due to its location in the Pacific Ring of Fire, natural disasters will continue to occur in this region. Research is needed to explore women’s experiences with disasters, and to explore the psychosocial effects of disasters including symptoms of PTSD and the strategies used to cope. A thorough review of the cultural perspective on disaster and mental health in the Merapi area is also needed. Results of this research can be read by agencies and mental health professionals working in Indonesia to develop disaster preparedness programs and community rebuilding efforts. Examples of such agencies include the International Federation of the Red Cross Indonesia and REKOMPAK (Community-Based Settlement Rehabilitation and Reconstruction Project). REKOMPAK is implemented by the Indonesian Ministry of Public Works, and became one of the largest community based housing reconstruction projects after a massive earthquake in Yogyakarta in 2006 (First Step, 2010). The funding for REKOMPAK comes from the Java Reconstruction Fund (JRF), a multi-donor grant facility set up by request from the
Indonesian government to help in disaster impacted areas (First Step, 2010).

Results of this research can be used by these agencies and other professionals to develop culturally-sensitive and purposive programs. Instead of relying on Western standards for prevention and coping, this research offers unique insight into the perspectives on disaster and mental health through the lens of women living near Merapi. Agencies and professionals looking to develop programs for preventing the risk of significant negative mental health impact of disaster on women in Indonesia can use these results in determining needs and strengths. Disaster response agencies that help in the aftermath of a disaster can also use these results in assisting with micro and macro level coping and recovery.
Chapter Two: Literature Review

In this chapter I will review the literature found on PTSD and coping strategies after a disaster. My literature review focuses on the effects of disaster in developing countries such as Indonesia. I have included a summary of the literature on traditional spirituality and mysticism that exists within the villages of Mt. Merapi, and how those beliefs affect the villagers’ views on disaster in contrast to the scientific views backed by the Indonesian government. Finally, I reviewed the literature on how the topic of mental health is viewed in Indonesian public policy and societal norms.

2.1 Incidence of PTSD after a Disaster in Developing Countries

Several isolated research studies indicate similar findings on the incidence of PTSD after a natural disaster in developing countries. A longitudinal study done on the prevalence of PTSD in adults after an earthquake in Northern China showed the rate of onset 3 months after the earthquake was 18.8%, and within 9 months it was 24.2% (Wang, 2000). A team of medical volunteers in Western India conducted a series of semi-structured interviews after an earthquake that occurred on September 30, 1993. 23% of their respondents met DSM-III-R criteria for PTSD (Sharan, 1996). A study done in Sri Lanka 20-21 months after the 2004 tsunami indicated that 21% of the respondents had clinically significant PTSD (Hollifield, 2008).
When the effects of a disaster are more severe, for example causing destruction to homes, livelihoods, death and serious injury, it is more likely that the population will develop PTSD (Wang, 2009). Disasters that involve mass casualties and extensive damage to homes and livelihood are more likely to result in a higher incidence of PTSD. It has also been confirmed by several studies that women, those with low education levels, low social support, and those with high initial exposure are particularly vulnerable to developing PTSD (Wang, 2009). These vulnerable populations are not only at a higher risk for developing negative health outcomes but they also have fewer resources to access help.

2.2 Coping Strategies after a Natural Disaster

In the aftermath of a disaster that affects entire communities or villages, coping and adjusting must be processed on both an individual and community-wide level. Recovery efforts must come from outside agencies offering financial and material support as well as the communities themselves initiating change processes. There is an emphasis on the ability of victims and the capacity of the community to make social and psychological adjustments to adapt to a crisis (Juvva, 2000). While governments and non-government organizations (NGO’s) can meet basic immediate needs, individuals and their communities must also have a commitment to rebuilding their neighborhoods and caring for each other. However, the borderline economic status of populations in developing countries with inadequate adjustment capacity makes the impact of a disaster more severe (Juvva, 2000). Individuals in rural
villages are not educated on how to maintain good mental health during a crisis, and communities that were once tight-knit can struggle to find leadership and organization in the aftermath of a disaster.

Studies have noted several factors that can have a positive effect on one’s coping ability after a disaster. Social support has a positive effect on health, and is emphasized as a key coping tool (Hu, 2010). A victim’s spiritual pillar is also helpful in building a picture of their stabilizing support system (Hu, 2010). Yet despite extensive research in the area of coping there is still not a clear consensus on which strategies are most effective (Aldwin, 1987). This is in part because there are many influences on the way a person copes. Personality characteristics, situational or role demands, cognitive appraisal, and cultural practices and preferences all have influence on coping styles (Aldwin, 1987). Coping will mean different things to different populations (Spurrell, 1993). Researchers have even struggled to agree on an empirical standard for conceptualizing and measuring coping strategies.

2.3 Spirituality in the Villages Around Mt. Merapi

Mt. Merapi is located near Yogyakarta, a major city on the island of Java. Java is the most populated island in the archipelago country Indonesia. Yogyakarta is known as the artistic, cultural and spiritual center of Java. It is a major city with a good infrastructure, existing in a blend of emerging modern technology and a strong sense
of pride for traditional culture. Traditional beliefs greatly affect the general attitudes of the people, particularly in the rural towns and villages around Yogyakarta.

One example of these traditional beliefs is the influence of ancient spirituality and mysticism on Javanese perceptions of disaster. Mt. Merapi is viewed as sacred by the villagers living on the slopes of the volcano. It is believed that the crater is inhabited by rulers, soldiers and servants living in a palace (kraton) similar to the one in Yogyakarta. The servants are said to be the spirits of good deceased persons (Schlehe, 2009). The crater spirits are believed to be in constant connection with villagers living on the mountain, warning them of pending disaster through dreams, inspirations, or animals approaching villagers to tell them of an eruption (Schlehe, 2009). The Merapi spirits are even credited for taking care of livestock and managing fields, citing as proof the rejuvenation of the soil after every eruption (Dove, 2008).

To understand the relationship between the people of Yogyakarta and Mount Merapi, one must learn about the history and traditional stories passed down generations. These accounts are found not only in journal articles and literature, but were also recounted to me from friends I made while conducting my research. Panuwun Budi Raharjo and Elli Adar Setitriana explained to me the history and importance behind Maridjan and the spiritual connection of the sultan to Mt. Merapi (personal communication, August 2011). This information is also outlined in Judith Schlehe’s essay “Cultural Politics of Natural Disasters: Discourses on Volcanic Eruptions in
Indonesia” (2009). According to Javanese tradition, the spirits are believed to be closest with those who protect the mountain. At the time of the 2010 eruption, Merapi was honored and guarded by Mbah Maridjan (Grandfather Maridjan), considered to be the spiritual leader of Merapi and the surrounding villages. The son of the previous guardian, he took over for his father in 1982. His father had been appointed to the palace staff by the Sultan of Yogyakarta (Sultan IX). Maridjan lived in Kinahrejo Village, only about 5 km from the crater of Merapi. The spiritual guardian of the mountain is believed by the local villagers to be able to talk to the spirits of Merapi (Malik & Sagita, 2010). “My job is to stop the lava from flowing down. Let the volcano breathe, but not cough,” Maridjan was quoted as saying in The Jakarta Globe (2010). He was beloved throughout Indonesia, known for his dedication to the Sultan as well as his stubbornness. It was this quality that led to his death; Maridjan refused to leave his home on the slopes of Merapi during the 2010 eruption. His body, bent in prayer and shrouded in gray ash from the mountain he dedicated his life to guarding, was found on October 27, 2010 (Malik & Sagita, 2010). A close friend who visited him just a few days before his death begged Marijan to leave. “He said he couldn’t because he had a responsibility, and that because ‘my time to die in this place has almost come, I cannot leave’, ” his friend reported (Malik & Sagita, 2010).

The villagers held Maridjan in high regard, and many chose to stay on the slopes despite government evacuation warnings because they shared the same sense of
spiritual connectedness to Merapi. Maridjan told The Jakarta Globe in 2001 that the other residents of Kinahrejo Village also believe that if Merapi erupts and they die, they will accept it with no problem. "It has penetrated their hearts that as people who were born here, who obtain their food from the land of Merapi, to die for Merapi is only natural. Kinahrejo citizens feel it is their destiny that they were born in order to guard, and to become the fortress for the safety of Keraton Ngayogyokarto as well as the kawula (nation) of Mataram” (Prasetya, 2001).

The importance of spiritualism on Javanese attitudes toward disaster, as well as their belief in the connectedness of the individual, society, nature and the cosmos can be traced back many centuries. Indigenous writings from the kingdom of Mataram in Central Java refer to the connections of the founder of the kingdom, Panembahan Senopati (A.D. 1575-1601) to the spirits of the Merapi volcano and the spirit-queen of the South Sea, Ratu Kidul. Before taking power he sent his uncle and close advisor to Merapi, while he went on a pilgrimage to the South Coast where he was already legitimized by Ratu Kidul. Since that time, the spirit-queen is considered to be the spiritual wife of all sultans. She is considered the first queen of the kingdom. Even today, the Sultan annually re-enacts his marriage to Ratu Kidul with a ceremonial journey to the crater of Merapi and to the Parangtritis Beach. The Sultan’s palace, the kraton, is intentionally situated half-way between Merapi and the sea. Ratu Kidul promised to support Senopati and all his successors, and as a result the kingdom of Mataram (now Yogyakarta) has been protected from Merapi
eruptions. Kyai Sapujagad, the spirit-ruler in the crater of Merapi, has to take care that lava never flows to the kraton in Yogyakarta. Both spirit-rulers are given garments and food as offerings by Maridjan and other devout villagers, rituals that are meant to maintain a harmonious relationship with the spirits.

2.4 Villager and Government Perspectives on Merapi Eruptions

The Indonesian government’s spiritual connection to Merapi is not always commensurate with their policies. This has led to conflict between the traditional wishes of the villagers versus the government’s reliance on scientific measurement and risk assessment in relation to Merapi. Modern environmental science and seismological detection systems are used by government officials to argue that Merapi is unsafe for habitation. The current sultan, a librarian at the Yogyakarta University with a background in the sciences, recognized the impending danger of Merapi in October 2010. Along with the Indonesian President he asked Maridjan to come down from the mountain, fearing for the safety of the villagers who stayed by his side. But Maridjan refused to leave. As a result, most of the residents of Kinahrejo Village were killed. Others waited until the last minute to flee the mountain, reluctant because of Maridjan’s insistence that they would be protected from the destructive eruption. Some sustained severe burns from the hot wind, ash, and fire covering the ground.
The villagers remain united with Maridjan’s devotion to Merapi despite the threat of destruction. Michael Dove (2008) describes the local communities living in villages on the slopes of Merapi as having “domesticated” the volcanic hazard into everyday life, accepting the eruptions as routine catalysts for productive change. It is the eruptions themselves that actually sustain the village’s material and economic well-being, and thus the villagers themselves must adapt to the volcanic environment. Those living on the slopes have been able to capitalize on the volcanic environment to increase production and their agricultural economy (Dove, 2008). In The Jakarta Globe’s article “Villagers Say Government’s Merapi Relocation Plan is Misguided”, Abdul Jalil, an architect who helped the people of Merapi to begin rebuilding their villages, says the following:

After each eruption, which many others see as a calamity, the soil becomes more fertile. For the locals, Merapi is simply cleansing itself of the greed and immorality of the people. For those whose lives are spared, they are rewarded with an abundance of high-quality crops and volcanic sand that they can sell for a good price. That’s why they feel a deep connection to Merapi and they’re frustrated that the government simply doesn’t get it.

Merapi is not viewed as a threat, but rather a part of the positive cycle of life and regeneration, and a reminder of man’s relative insignificance in the face of the forces of nature (Rayda & Malik, 2011). Bankoff argued of societies living in disaster-prone areas (as cited in Dove, 2008, p. 333) that villagers have a culture of disaster,
developed over many generations due to the frequency of eruptions and the constant threat that has been integrated into their psyche of everyday life and attitude.

Dove (2008) contrasts these observations of the villagers with the Indonesian government’s view of Merapi, who he says view volcanic eruptions as episodic threats to well-being. This can best be illustrated in the government’s persistent efforts to relocate the Merapi villagers. After every major eruption, including the one in 2010, the government has made every effort to deter residents from returning to and rebuilding their destroyed villages. Transitional shelters are erected, disaster zone restrictions are kept in place long after the threat of continued eruption has passed, and financial assistance for rebuilding is refused if that rebuilding is occurring on Merapi. In fact, after the 2010 eruption the government has used scientific records and statistics to insist that the protected forest site of Merapi be extended to a radius of 10km around the crater, forcing villagers to relocate elsewhere (Rayda & Malik, 2011). Dove (2008) cites government resettlement attempts after eruptions in 1961, 1978, and 1994, all with limited success. The villagers are remarkably united on their resistance to resettlement. “We already have a new house back in our village, but we won’t move back until everyone in the village has a house,” commented a 29 year old participant in this research from Pangukrejo Village.
2.4 Indonesian Perspective on Mental Health

Mental health services are not widely accepted in Indonesia, particularly in more traditional rural villages such as those along the slopes of Mt. Merapi. While primary health care services are made available to remote areas in puskesmas (community health centers), primary health services do not include mental health as a priority (Irmansyah, Prasetyo & Minas, 2009). Health workers in the puskesmas are not properly trained to detect and treat mental health disorders. When I asked people in the Yogyakarta area where individuals with mental health problems can go to get help, they said “crazy” people would just be “sent away” to a hospital (personal conversation, August 2011). In fact, involuntary hospital admission is common. If anyone feels a person’s behavior is strange they can have them admitted without the person’s consent or any legal review of the reasons for admission (Irmansyah, Prasetyo & Minas, 2009). Some Indonesians still see mental illness as a curse of black magic. Families will seek out spiritual healers as opposed to physicians for treatment (Schonhardt, 2011). These views make it more difficult for mental health professionals to educate communities on evidence-based services for mental health disorders. They also contribute to the challenge of getting communities to accept and utilize mental health services.

The Indonesian government has done little to raise the priority of mental health services. Only 2.3% of the country’s national budget goes to health care, and less than 1% of that goes to mental health (Schonhardt, 2011). Indonesia’s health
minister has said she understands the need for more resources, but the ministry has a limited amount of money to dedicate to the country’s health care needs. Treatment for individuals struggling with mental health issues is left to concerned psychiatrists and dedicated volunteers. These advocates say not only does access to services need to be increased, but also the quality of the existing mental health hospitals (Schonhardt, 2011).
Chapter Three: Methods

3.1 Research Participants

The research participants included twelve women aged 18 and over who were affected by the Mt. Merapi eruption through one or more of the following; damage to home, damage to livelihood, and/or death or serious injury to a relative or loved one. Eight of the twelve participants were living in transitional shelters built by the Indonesian government for families who were unable to return to their homes after the eruption. The other four participants were able to return to their village and continue living in their homes after the eruption.

3.2 Transitional Shelter Description:

I visited two transitional shelter communities on the southern slope of Mt. Merapi, each in remote forested areas within 15 kilometers of Mt. Merapi’s summit. The transitional shelter communities were built by the regional administrations of Yogyakarta and Central Java. Several months after the eruption, families who had been staying in temporary shelters set up in schools and athletic centers were offered space in the newly built transitional shelter sites. Families could not return to their permanent homes because they are located within the government-designated danger zone. Entire affected villages were relocated together in the transitional shelter.
communities. Being able to stay together as a community of families and neighbors was a source of comfort and relief for the shelter residents.

Residents of the transitional shelters have to travel several kilometers to access basic daily supplies. Yuli Kisworo, an architect from Yogyakarta, told the Jakarta Globe that villagers tried to live in the shelters but due to poor construction, unsuitable land for farming, and the hardship of traveling a distance to get supplies, many eventually returned to their former homes to rebuild (Rayda & Malik, 2011). Many do not have transportation because it was destroyed in the eruption. The shelter communities are physically isolated from the rest of Merapi and Yogyakarta. Each individual shelter consisted of a dirt floor, woven bamboo walls, and a thatched leaf roof. The interior was split into three sections, one half and two quarter sections. There was a door and a window in each room. The doors had padlocks on them. There was electricity in the shelters for the use of small cooking stoves and even TVs and radios. The government also put in one water tank at each shelter site. There was one bathroom for the entire community that consisted of two stalls with squat toilets.

The government gave the shelter communities several fish harvesting containers as a source of income for the residents. These consisted of blue plastic liners put in a dug-out hole then filled with fish that are harvested and eventually sold in local markets. Some residents cared for chickens and others tried to grow crops around the shelter site. Others sell pictures of Merapi to tourists visiting the area or even drive tourists
up to the summit for a personal tour of the eruption site. Bartering amongst the shelter families is common.

3.3 Measurement

An interview guide with several open and close-ended questions was used to guide the interviews. Questions were developed with input from fellow OSU students from Indonesia to ensure cultural sensitivity and competence. An interpreter was present during the interviews to provide verbal translation of the interviewer’s questions.

The co-investigator worked with Christine, a volunteer from a church in the Sleman district of Yogyakarta that provided aid to people affected by the 2010 Merapi eruption. The volunteer referred the researcher to a potential participant in the Tangkisan Village, located less than 10 kilometers from the Merapi crater. Additional participants were referred through snowballing. All interviews in the Tangkisan Village were done in the volunteer’s friend’s home.

The volunteer also accompanied the researcher to two Merapi transitional shelter sites. The researcher approached women in the camps, with translation provided by the volunteer, then described the research and asked if they wanted to participate. If a woman was interested in participating in the study, a meeting was arranged at an agreed upon date, time and location. All the interviews done at the transitional shelters were done in the participant’s shelter. A verbal consent script translated into
Bahasa Indonesia was given to the potential participants and read out loud by the translator. Verbal consent was obtained before the actual interviewing process began. All the informed consent techniques used in this research were approved by the Institutional Review Board of The Ohio State University, USA. After conducting 12 interviews, there seemed to be repetition of information and since no new information was coming out of the interviews, the researchers determined that saturation was reached.

Each participant was offered a token of appreciation in the amount of 50,000 Rupiahs (~$5.00 US Dollars) for participating in the study. This was detailed in the verbal consent prior to starting the interview. Participants were also offered a contact card that included information for reaching the principal investigator, the researcher, and the translator Christine who agreed to provide counseling services to any participants who requested it. Christine has a degree in pastoral services and had provided counseling to community members directly after the eruption in 2010. Each interview took approximately 45 minutes to complete. It took approximately 1 week of fieldwork to collect data. The Institutional Review Board of The Ohio State University approved this research protocol.
Chapter Four: Results

This chapter includes a description of the social demographics of the participants and analysis of the interviews. For the purpose of analysis notes from the interviews were rewritten into narratives. Direct quotes were included to capture the participant’s voice. Notes about the participant’s body language, environmental observations, and overall impressions were collected separate from the narratives. Common themes emerged from the narratives. Many of the participants experienced similar PTSD symptoms and engaged in similar coping strategies. After discovering these themes, a line by line analysis was done of the narratives to determine several factors; 1) the level of impact of disaster based on their description of damage to property and injury or death, 2) the number of PTSD symptoms as described by the women in their interviews, and 3) the number of both positive and negative coping strategies used by the women. Finally, the researcher developed matrices to uncover relationships between themes and categories.

4.1 Social Demographics:

The mean age of participants was 45 years, with a range of 20-90 years. All women were married and all had children. All the women lived with members of their extended family prior to the eruption. The women were from three different villages, all located within approximately 15 km of the crater of Mt. Merapi. Four women
were from Plumbon Village, four were from Pangukrejo Village, and four were from Tangkisan Village.

Figure 3. Map of villages from where the participants are from (Pangukrejo, Tangkisan, and Plumbon) and Sleman Regency near the city of Yogyakarta via Google Earth. Plumbon Village is approximately 11.4 km from the summit of Merapi.

4.2 Impact of Disaster:

3 of the 12 women reported their house was completely destroyed; 4 of the 12 women reported their house was damaged; and 5 of the 12 women reported their house only required cleaning, with little to no structural damage. 7 of the 12 women reported their crop fields were completely destroyed. 2 of the 12 women reported personal injury; 3 of the 12 women reported family injury; and, 2 of the 12 women reported a family member died in the eruption. One woman describes her injuries:
(From the shelter) I went to a big hospital and had surgery on the burns on my hips. I was there for 100 days. My family stayed with me in the hospital. It was very crowded with Merapi victims. I apply Vaseline to the burns. I still have pain but don’t take any medications. I can’t stand straight. When I want to use the toilet it’s hard because of my injuries.

Impact of Disaster

![Bar chart showing impact of disaster]

Table 1. Impact of Mt. Merapi eruption

4.3 PTSD Symptoms:

I asked women questions derived from the six-part diagnostic criteria for PTSD under the DSM-IV-TR. These include; exposure to trauma; persistent re-experience of trauma; persistent avoidance of stimuli associated with trauma and numbing of general responsiveness; persistent symptoms of increased arousal; duration of
disturbance is more than one month; and finally, the disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Questioning was qualitative in nature, encouraging the women to describe their experiences and feelings within their own narrative framework. Open-ended questions such as, “Tell me what kind of thoughts you have about Merapi” were asked in the beginning of the interviews. Closed-ended questions such as, “How often do you have those dreams?” or, “Has your appetite changed since the eruption?” were asked later to garner a more accurate diagnostic picture.

The women reported a range of 0-7 PTSD symptoms. The average number of symptoms was 3.6. All twelve women interviewed met criteria A, being exposed to a traumatic event. All 12 participants experienced, witnessed and were confronted with the eruption of Mt. Merapi. This threatened death or serious injury from the fire and hot wind to both themselves and their loved ones. All women described feelings of intense fear and helplessness during the event. One woman from Plumbon Village narrates her experience of the eruption:

We were all sleeping around 11pm. We heard sound of the eruption, rocks falling around our house. We all prayed together at home then I stepped out the door. There was already fire all over the ground, I was burned on my feet and hands when I stepped out. We all ran from the house, about 500 meters to look for help.
One of my sons and his family died, they lived next door. I had to run on my injured feet. It was all very traumatic and scary, I was crying. A stranger who was also running found me a bike and I rode about 2 kilometers to a relative’s house. I got separated from my husband and family, I stayed overnight until an ambulance arrived in the morning.

Most of the stories about the days of the eruption were similar. All of the women reported hearing the siren, hearing the eruptions, or seeing the smoke billowing down the mountain which prompted them to leave. They ran downhill on foot, motorcycle and bicycle. Many women said they were confused about where to go and which roads to take, everyone was panicked. The first few nights after the eruption most stayed with relatives that lived farther down the mountain or in small shelters built by the local community members. Families returned to their homes to feed livestock and check on damage. A few days after the initial eruption the government opened a mass shelter at an athletic stadium in Yogyakarta. Women talked about moving around from small shelters to the larger shelter, trying to take care of their injured family members and gathering supplies needed to start their recovery process. A woman from Pangukrejo Village describes her experience in the few months after the eruption:

I ran with my family to the first shelter. We were there for 3 days. We then moved to the second shelter further down the mountain, and were there one week. Then we went to the stadium in Yogyakarta to get food, then went to the university shelter for 35 days. We then went back to the stadium shelter and
stayed there for 4 months. My entire family was together there, actually the entire village stayed together, about 250 people. We all stayed together in one huge hall. Then after 4 months we were instructed to move to this camp.

Eleven of the twelve women (92%) met criteria B which states the traumatic event is persistently re-experienced. Four women reported daily recurrent and intrusive distressing recollections of the eruption; five women reported having these thoughts weekly. These recurrent distressing thoughts are described by a woman from Plumbon Village, “I think about Merapi every day. It’s sometimes challenging to get through the day because I think about it so much. It’s hard to do work.”

Four women reported having distressing dreams about the Merapi eruption, with frequency ranging from weekly to once per month. “Sometimes I have dreams about the people who died in Merapi, they tell me it’s ok to come back up. I feel uncomfortable and upset when I have those dreams,” remarked a woman from Pangukrejo Village.

Eight women reported experiencing distress at exposure to external cues, including rocks falling, loud noises, electricity going off, fireworks, and thunderstorms. Three women said they had trouble getting through their day and doing chores when they had thoughts of Merapi. “I still think of it, most of the day, every day. I feel scared, sad, like crying. My grandpa was badly hurt by the eruption. Sometimes it’s hard for me to do chores, I think my thoughts are so sad,” commented a woman from Tangkisan Village. Finally, six women reported symptoms like crying, panicking,
increased heart rate, trouble breathing, dizziness, and headaches upon internal and external cues to the event. “Sometimes I cry uncontrollably, and I get headaches about once per week,” commented a woman from Tangkisan Village.

None of the women interviewed met criteria C, which is persistent avoidance of stimuli related to the event and numbing of general responsiveness. The criteria require indication from three or more specific symptoms. While none of the women report three or more symptoms, nine women did report avoiding thoughts of Merapi and/or avoiding talking about it, which is one of the symptoms in criteria C. A woman from Tangkisan Village describes how she avoids thoughts of Merapi, “I try to be happy and not think about it. We (my family and I) don’t talk about Merapi. I only feel sad now when I think about Merapi, so I try to forget it.”

Finally, only one of the twelve women met criteria D of persistent symptoms of increased arousal. The criterion for D requires indication from two or more specific symptoms. This participant from Plumbon Village reported difficulty sleeping and difficulty getting through her day:

I think about Merapi every day. It’s sometimes hard to get through the day because I think about it so much. It’s hard to do work. When I think about Merapi I get panicky, dizzy, and feel a headache. I try not to think about it to avoid these bad feelings. I have trouble sleeping because of it.
While only one participant met this criterion, four other women did report difficulty sleeping and two different women reported difficulty getting through their day. One woman from Tangkisan Village said she had difficulty doing everyday chores; “I am worried about my daughter whose school is near the bridge that collapsed, when I think about it I feel like crying.” Another woman from Plumbon Village said, “Almost every night I wake up thinking about Merapi.”

PTSD symptoms

<table>
<thead>
<tr>
<th>Criteria A</th>
<th>Criteria B</th>
<th>Criteria C</th>
<th>Criteria D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure to traumatic event</td>
<td>Recurrent thoughts of eruption</td>
<td>Distressing dreams about eruption</td>
<td>Distress at exposure to cues</td>
</tr>
<tr>
<td>Difficulty getting through the day</td>
<td>Somatic symptoms</td>
<td>Persistent avoidance of stimuli</td>
<td>Persistent increased arousal</td>
</tr>
</tbody>
</table>

![Bar chart showing PTSD symptoms based on DSM IV-TR criteria](chart.png)

Table 2 Number of PTSD symptoms using DSM IV-TR criteria

4.4 Coping Strategies:

Questioning about coping strategies began with an open ended question such as, “how have you been able to cope with the eruption?”. Most women needed encouragement to think about the question. I gave examples of both positive and negative coping strategies, such as using prayer, talking to friends and family about it, trying to avoid thinking about it, and using alcohol or drugs to forget about the
eruption. Collectively their answers fell into five coping strategies. For the purposes of this research the strategies were coded as either positive or negative. The positive coping strategies were prayer, engaging in activities to stay busy, and talking about the eruption with friends and family; the negative coping strategies were avoiding talking about the eruption and avoiding thoughts about it. The decision on how to code the strategies as positive or negative was based on cognitive behavioral theory that encourages trauma victims to verbalize their experiences. Cognitive-behavioral theory holds that avoidance of reminders of a traumatic event can limit the survivor from coming to terms with the event (Walser, 2004). Mental health professionals who align with a cognitive approach suggest talking about a traumatic event with family and friends can be a useful positive coping tool. Completely avoiding any thoughts or feelings about the event is viewed as a maladaptive coping strategy that either pushes out awareness or memory of the event, or gives the individual a false sense of accomplishment (Richmond).

Eleven of the twelve (92%) women interviewed used at least 1 positive coping strategy. Five of the twelve (42%) used two or more positive coping strategies, and two of the twelve (17%) used three positive coping strategies. “For relaxation I listen to Javanese music with my family,” said a woman from Tangkisan Village. Several women mentioned the community religious activities set up at the shelter; “The community has a tent where we pray together. We also do religious activities like singing.”
Nine of the twelve (75%) women used at least one negative coping strategy and five of the twelve (42%) used two negative coping strategies. Most of these women said they avoid thoughts about Merapi and avoid talking about it because it made them feel sad. A woman from Pangukrejo Village describes her coping with Merapi:

The thoughts make me feel sad, especially when I think about my parent’s house being destroyed. I feel closer with my family and community since the eruption because we all stuck together. We avoid talking and thinking about Merapi. All will be ok.

Table 3. Coping Strategies

4.5 Relating Number of PTSD Symptoms with Positive and Negative Coping Strategies:

When relating the number of PTSD symptoms reported by each woman to their reported positive and negative coping strategies, a positive relationship was found between PTSD symptoms and negative coping strategies and a negative relationship
was found between PTSD symptoms and positive coping strategies. These relationships show that when women utilize more negative coping strategies they will suffer from more symptoms of PTSD; when women engage in more positive coping they will experience fewer PTSD symptoms.

![Comparing PTSD Symptoms to Coping Strategies](image)

**Table 4. Comparing PTSD Symptoms to Coping Strategies**

4.6 Relating Significant Impact (Destroyed House, Personal Injury, Family Injury, Family Death) to Number of PTSD Symptoms:

Women who had a significant impact as a result of the eruption had a higher average number of PTSD symptoms. They had an average of 4.8 PTSD symptoms, as compared to an average of 2.5 symptoms for participants who did not experience a significant impact. Significant impact is defined as a destroyed house, personal injury, family injury, or death of a family member. Six of the twelve women interviewed (50%) experienced significant impact from the eruption of Mt. Merapi.
These results indicate that those with significant disaster impact are at greater risk for experiencing more PTSD symptoms than those with less significant impact. These results suggest that initial mental health efforts should be targeted to the population that is most impacted by a disaster.

**Comparing Level of Impact to Number of PTSD Symptoms**

<table>
<thead>
<tr>
<th>Number of PTSD symptoms</th>
<th>Significant Impact</th>
<th>No significant impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5. Comparing level of impact to number of PTSD symptoms. Significant impact is defined as destruction of house, injury to self or family member, or death of family member.
Chapter Five: Discussion

The results of this study provide extensive information on the impact of disaster on women living near Merapi and their perceptions of mental health symptoms and coping strategies. The women interviewed for this study all experienced symptoms of PTSD, although none qualify for a clinical PTSD diagnosis. While these results differ from disaster research literature that indicates an average of 20% of developing country populations affected by a natural disaster will develop clinical PTSD, the significance of their reported symptoms cannot be ignored. Participants told the researcher that their symptoms affected their ability to get through their day, their thoughts of the disaster were distressing, and their adaptive coping strategies were limited. The results reveal an identified need in this population for psycho education on the mental health impact of traumatic disaster and how to use positive coping tools. Mental health counseling also needs to be made a priority in disaster recovery efforts to reduce the severity of trauma-related symptoms.

The interviews of this study reflect the literature discussing the culture of disaster that exists in the villages of Merapi. The topic of a culture of disaster emerged as a theme within this research. Evaluation of the unique culture in the villages around Merapi provides insight into why PTSD incidence is lower in this region. The participants have an attitude of acceptance about their situation, including the pervasive threat of
disaster. Disaster is viewed as a part of life in their villages, and while the eruptions create hardships they also create opportunity for agricultural improvements and renewal. Their attitudes were evident in the demeanors of the participants, noted as smiling, calm, and tolerant.

The culture of disaster is also reflected in their commitment to rebuilding their communities. Several participants said they believed staying together as a community was most helpful in the recovery process. “Because the people from my village all came to this shelter, the situation is as normal, comfortable and safe as it can be,” described a woman from Pangukrejo Village. The conflict between the government’s insistence that villagers permanently move their communities away from Merapi and the villagers desire to maintain their traditional communities that are rooted there must be mediated. Those affected by the 2010 eruption are struggling to gather the financial and material resources to rebuild their homes and lives that were destroyed by the eruption. The Indonesian government has offered aid in the form of land, housing and money to residents of villages that were badly affected by the eruption. However, many residents are rejecting the offer because they cannot use the aid to build houses in their previous neighborhoods (Indonesia: Government, 2011). Participants in this study said they have not even regularly received the monthly government food allowance. “We are supposed to get donations from the government, but I’ve only received it 2 out of the 5 months,” an elderly woman living in the transitional shelter told me. This has left entire communities in a state of limbo,
existing in the transitional shelters without any plan for their future and no financial resources to start rebuilding in their previous neighborhoods. A woman from Pangukrejo Village who lives in the transitional shelter said, “I want to move back to Merapi but we don’t have the money to rebuild.” Another woman from the same village said:

It would be easier to make money if we lived farther up the mountain. We haven’t received any money from the government for rebuilding, we’ve never seen papers to fill out. The government hasn’t talked to us at all.

The results of this study will be useful for disaster responders who want to draw on the strengths of the communities around Merapi. Their culture of disaster has instilled coping strategies that mitigate the negative mental health effects that research has shown typically occur in communities after experiencing a natural disaster. The villagers’ resolute attitudes toward resettlement and preservation of their traditional communities need to be a factor in the Indonesian government’s policies regarding the rebuilding efforts of Merapi. Community-wide planning should take place to prepare villagers living in danger zones to better respond to future eruptions. This should include the importance of immediate evacuation, an emergency communication system to rural and isolated villagers, and a clear evacuation route. Social workers can serve as mediators between the villagers and government in macro-level practice to help find viable resolutions.
There are some potential limitations of this study. First, all the interviews were conducted through a translator who spoke Bahasa Indonesia and English. Translations may have put the data at risk for being misinterpreted or having lost some of its meaning during the translation process. Secondly, all data are the result of handwritten notes that were taken by the researcher during the interviews. The integrity of the original data was maintained in many instances with verbatim remarks, although some of the data were paraphrased into the third person. This type of data analysis runs the risk of over-involvement and misinterpretation on the researcher’s part. Finally, sampling bias may have played a role in data collection efforts because the researcher was led by the local contact and translator to particular areas to secure participants. This may have resulted in sampling bias because women affected by the eruption who lived in other areas may have been unfairly excluded. Moreover, the snowballing technique led women to be invited to be a part of this research project who were known to the selected participants. This may have excluded other potential subjects from being a part of this study.
References


Appendix A: Contact Information Card

Contact Information Card

Lori Murphy
Graduate Student, College of Social Work
The Ohio State University
Columbus, OH 43210
USA
Phone: 011-614-940-9192
Email: Murphy.973@osu.edu

The faculty supervisor for this research project is:
Dr. Sharvari Karandikar-Chheda
College of Social Work
The Ohio State University
Columbus, OH 43210
USA
Phone: 011-614-292-0653
Fax: 011-614-292-6940
Email: karandikar-chheda.1@osu.edu

You may contact her with questions or if you feel you have been harmed as a result of your participation.

For questions about your rights as someone taking part in this study, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-614-688-4792 or 1-800-678-6251. You may call this number to discuss concerns or complaints about the study with someone who is not part of the research team.
Translation in Bahasa Indonesia

Kontak Informasi Kartu

Lori Murphy
Mahasiswa Pascasarjana, College of Social Work
The Ohio State University
Columbus, OH 43210
Amerika Serikat
Telepon: 011-614-940-9192
Email: murphy.973@osu.edu

Pengawas fakultas untuk proyek penelitian ini adalah:
Dr Sharvari Karandikar-Chheda
College of Social Work
The Ohio State University
Columbus, OH 43210
Amerika Serikat
Telepon: 011-614-292-0653
Fax: 011-614-292-6940
Email: karandikar-chheda.1@osu.edu

Anda dapat menghubungi dengan pertanyaan atau jika Anda merasa Anda telah dirugikan sebagai akibat dari partisipasi Anda.

Hello, my name is Lori. I am a graduate student in the College of Social Work at The Ohio State University which is in the United States. I am in Indonesia undertaking research that will be used in my graduate studies.

I am studying women’s experiences and mental health needs after the October 2010 Mt. Merapi eruption. I would like to ask you questions about your experience and feelings after the eruption.

The information you share with me will be very valuable and sharing your experiences will be very helpful to me and other researchers on helping women affected by natural disasters.

This interview will take about 1 to 1 1/2 hours of your time.

There is a very small risk of a breach of confidentiality. I will not link your name to anything you say, either in the transcript of this interview or in the text of my thesis or any other publications.
Ada resiko yang sangat kecil dari pelanggaran kerahasiaan. Aku tidak akan link nama Anda untuk apapun yang Anda katakan, baik dalam transkrip wawancara ini atau dalam teks tesis saya atau publikasi lainnya.

I will not attach your name to any data collection instruments. Your answers will be anonymous.

Saya tidak akan mencantumkan nama dan data ibu-ibu dan saudara-saudara skalian dan jawaban atau hasil wawancara ini bersifat rahasia.