IMPACT OF A NATURAL DISASTER ON THE MENTAL HEALTH OF A RURAL MAYA COMMUNITY IN THE PHILIPPINES

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IMPACT OF A NATURAL DISASTER ON THE MENTAL HEALTH OF A RURAL MAYA COMMUNITY IN THE PHILIPPINES

A Project
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Social Work

by
Kaneez Batool
June 2015
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OF A RURAL MAYA COMMUNITY IN THE PHILIPPINES

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Approved by:

Dr. Cory Dennis, Faculty Supervisor, Social Work

Dr. Rosemary McCaslin, M.S.W Research Coordinator
ABSTRACT

The purpose of the study was to examine the impact of a natural disaster on the mental health of a rural Maya community in the Philippines. Specifically, the study assessed how an individual’s housing conditions, the household size, and general utilities can have an impact on a person’s mental health.

The study used a quantitative survey design with self-administered questionnaires. Center for Disease Control and Prevention Modified Community Assessment survey was used for this research investigation. A total of 84 participants completed the survey. Participants were asked of their perceptions regarding the habitability of their own homes, the safety of their homes, whether there was mold or water damage, the size of the household, whether the household was harboring guest and the presence of general utilities such as: running water, electricity, garbage pickup, natural gas, sewage service, and cell. Descriptive (e.g. mean and frequency,), chi-squares tests, and t-test were used to analyze the data.

Findings of the study showed that there was a relationship between safety of the home, the presence of mold, water damage, and running water and whether one develops symptoms of anxiety/stress. The study also found a relationship amongst garbage pickup, sewage service and whether one develops symptoms of agitated behavior. Findings of the study suggest a need for advocacy to implement mental health programs as a relief effort to disaster victims.
ACKNOWLEDGEMENTS

I would like to thank Rotary Club of Cebu Fuente, Cabahug family, and the people of Maya. To all of the participants of my project who took the time to complete my questionnaire, this would not be made possible without your help and I thank you all very much.

I would also like to take this time to thank my research advisor, Professor Cory Dennis. Thank you so much for your guidance, patience, empowerment and support.
DEDICATION

First and above all, I praise Allah S.W.A. for providing me the ability to proceed successfully.

To my family (Agha and Khwaja) to whom I owe all this to. Thank you for always reminding me of the great potential I carry within myself and for pushing me through my journey. There are no words that can express my appreciation for the unlimited amount of support you have given me and all of the sacrifices you have made to make this happen.

I also want to thank you my husband (Hussain) for your unconditional love, your endless patience, and your never ending support. You are always there to make me smile and lift my spirits. I love you and am thankful every day to have such wonderful husband.

Thank you everyone for always being there. This is a product of all of our efforts, there’s no way I could have done it without you all.
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CHAPTER ONE
INTRODUCTION

This chapter introduces the idea that natural disasters may have an impact on the mental health. Then, it explores how a natural disaster can affect different aspect of a person’s mental health. Finally, it explains the significance of the impact of natural disasters on mental health, and its importance to social work practice.

Problem Statement

The problem that is addressed in this study is the impact of a natural disaster on the mental health of a rural Maya community in the Philippines. Typhoon Yolanda, hit the Philippians in November 2013 and was the most powerful storm to make landfall in recorded history (Transparency Page of the Office of the President, 2014). Exposure to natural disasters has been demonstrated to increase the risk of developing both physical and emotional problems, including the increased expression of psychiatric conditions, health and lifestyle problems, and interpersonal and psychosocial difficulties (Acierno et al., 2009; Norris et al., 2002).

Post-disaster mental health has become a noticeable public health issue. Several large-scale epidemiological studies have demonstrated the high prevalence and significant burden to individuals, families, and greater societies from mental health disorders in general (Kessler et al., 2007). Post-disaster
researchers have noted that cultural variables may affect the appearance and reporting of post-trauma indicators and the trajectory of recovery. Also psychiatric diagnostic labels such as posttraumatic stress disorder (PTSD) may be culturally irrelevant and reflect a Westernized expression of distress (Chen et al., 2009). According to statistics from the Red Cross Society, Asia is the most disaster-prone region of the world (International Federation of Red Cross and Red Crescent Societies, 2010). One reason mentioned for the high occurrence of disasters in Asia is its geographic location. Earthquakes are common in the Asian region because of its location in the “Circum-Pacific Seismic Belt” (Rodolfo & Bumanglag, 1997).

There has been a significant amount of research on how natural disasters can affect the mental health of the community. A study conducted by Staab et al. (1996) found that subjects with probable acute stress disorder (ASD) were significantly more likely to develop posttraumatic stress disorder (PTSD) eight months after the first typhoon and were somewhat more likely to develop depression than other exposed individuals. Kristensen et al. (2009) found that the rate of newly developed mental disorders in individuals with direct exposure to the tsunami was two-times higher than those without direct exposure.
Purpose of the Study

It is important to remember that the survivors of disasters report other complications such as difficult sleeping, eating and concentrating that may not be diagnosed by traditional diagnostic instruments such as the grief scale, depression scale, etc. These scales cannot measure maladaptive substance use, sleep problems, and interpersonal conflict normally happening after disasters. Even though these may not be identified as mental conditions, they can nevertheless contribute to very persistent problems affecting people, families, and societies. Most people eventually adapt after disasters. Nonetheless, in the intermediate and long-term periods, there were a significant percentage of survivors who experienced a range of psychological and social difficulties (Bryant, 2009). Through observing previous research one can determine that a natural disaster affects the mental health of a community. In order to prevent mental problems from becoming a part of that community, social workers need to see that there is a correlation between the two. Social workers need to join in the effort and educate the individuals and be responsible for therapy for those who may require it. Hopefully, all survivors who undergo natural disaster presenting psychological problems will have access to mental health practitioners who can provide evidence-based strategies to help with their recovery. Because Typhoon Yolanda caused much disruption in the Filipino communities, more needs to be done in order to assist these communities. According to the National Disaster Risk Reeducation and Management Council, there were 16,078,181 people that
were affected by the typhoon. Specifically 6,201 people have been reported
dead, 28,626 injured and 1,785 people missing. The typhoon also caused
damage to the infrastructure: 140,332 houses were damaged and 1,959
transmission facilities were damaged. Although water supply has resumed, it is
still limited in some towns (National Disaster Risk Reduction and Management
Council (NDRRMC, 2014). Natural disasters have killed over 62 million people
world-wide since 1900 (OFDA/CRED, 2014).

Although numerous articles are published each year, inadequate
consideration has been given to natural disasters. Even though we recognize
that natural disasters can cause great impairment to the community and its
people, we have yet to see extensive research on this issue. For example, many
natural disasters have occurred in the recent decade which have caused
enormous amount of tragedy. A hurricane hit Katrina in 2005 and the death toll
elevated to about 16,000 and an estimated 300 Louisiana residents died out of
state. A tropical cyclone slammed into the city of Yangon and within days the
death toll was above 22,000 and more than 41,000 people were missing.
Furthermore, in 2010 an earthquake hit Haiti and 222,570 people were killed and
300,572 injured, and in 2013 due to the monsoon flooding in India 1,000 people
were dead and many more were missing (Timelines of History, 2015). In the
month of December 2003 alone, worldwide humanitarians and national Red
Cross chapters responded to natural disasters in China, Iran, Panama, Costa
Rica, Haiti, Indonesia, the Philippines, and Colombia (Reliefweb, 2014).
Governments develop programs from social welfare, political power, and money. The tendency of government is to spend resources in the regions that are politically aligned with the party in power (Cohen & Werker, 2008). Marginalized populations are typically unaware of available resources and information; therefore, individuals in these communities have difficulty obtaining help.

Disasters are stressful and can lead to psychiatric disorders. Disasters can have remarkable psychological impact on those directly and indirectly exposed to the natural disaster (Butler, Ponzer, & Goldfrank, 2003). Natural disasters, can lead to mental illness in the public. There are an increased amount of psychiatric admissions to the hospital following a disaster (Shukla, 2013). Obviously, there are direct mental health consequences. A small increase in post-traumatic stress disorder has been found to follow disasters (Kar, et al., 2007). This is associated with the severity of the disaster as indicated by the loss of family, friends, animals and property, or even living near the disaster, and damage to the home (Shukla, 2013).

Losing a loved one due to a disaster increases psychological risk factors for the surviving victims of disaster (Gleser et al. 1981). Remarkably, Shore et al. (1986) found that “disaster-related bereavement was significantly more likely to cause psychiatric morbidity than bereavement from other causes”. A study conducted by Phifer and Norris (1989) following a flood, found the psychological consequences linked with personal property loss to be somewhat short-term (less than one year), although exposure to extensive community destruction had
a longer-term impact (about two years), irrespective of person’s loss. The amount of exposure to a disaster shows a relational effect to individuals’ mental health. Gleser et al. (1981) found that more exposure to flood waters and the elements following a dam collapse predicted sleep disturbances, shock ratings, and higher stress in both adults and children two years following the Buffalo Creek disaster.

Significance of the Project for Social Work Practice

Disaster can generate trauma for entire communities by virtue of enormous disorganization, restriction of infrastructure, disruption of normal leadership, and all of which produce a sense of powerlessness, shock, and sorrow in individuals, families, and small groups (National Association of Social Work, 2000). Trauma and withdrawal resulting from disasters are often exaggerated for those with few resources and reduced opportunities to rebuild homes and replace losses (National Association of Social Work, 2000). Once the results of the study are understood, then social workers can provide mental health and social services to the survivors by normalizing and empowering the people and the community. Not only that, but social workers need to advocate for effective services, and to provide leadership in necessary collaborations among institutions and organizations such as individuals, families, groups, neighborhoods, organizations, schools, and whole communities. Nevertheless,
more research needs to be done on this topic since research on disaster is only now emerging (Ager & Zakour, 1995; Gillespie et al., 1986).

This study examines the effects on mental health due to living conditions (including habitability, household size, etc.) on a rural Maya community of the Philippines following the typhoon. The study implemented the assessing phases of the generalist modal (Hepworth, Rooney, Rooney and Strom-Gottfried, 2013, p. 41), by exploring and identifying the problem of the collation of mental health and natural disaster. Gathering relevant information about the problem tells us that more aide might be needed for the survivors.
CHAPTER TWO
LITERATURE REVIEW

Introduction
This literature review covers two basic dimensions: natural disasters related to mental health and poor housing conditions related to mental health. The first portion addresses the impact that a natural disaster has on stress, anxiety, loss of appetite, and depression. The second portion addresses how a person’s living condition can impact his or her mental health.

Definition
Recent literature defines a natural hazard as:

- a geophysical, atmospheric or hydrological event (e.g., tsunamis, earthquakes, windstorms, landslides, floods or droughts) that has the potential to cause harm or loss. A natural disaster is the occurrence of an extreme hazardous event that impacts communities, causing damage, disruption and casualties, and leaving the affected unable to function normally without outside assistance (Twig, 2007).

Natural disasters might follow seasonal patterns and geographic arrangements, as in the case of hurricanes and typhoons, or they may be highly irregular in relation to their reoccurrence as in the case of floods and droughts (National Geographic, 2014).
Mental Health

Mental health problems are significantly higher among displaced people following a natural disaster. Large-scale disasters leave people displaced from their homes and cause disruptions in the lives of the displaced. Displacement causes interruption of social networks, economic burdens, and health care availability problems. All of these factors put additional burden on deteriorating health care infrastructure (Larrance, Anastario, & Lawry, 2007). Some natural disasters affect vast populations, and due to their magnitude, it becomes almost impossible to deliver individual services to the affected population (Weiss, Saraceno, Saxena, & and Van Ommeren, 2003).

Short and Long-Term Effects

Short term mental health effects of disasters have been studied expansively, but there are only a few that have looked at long-term effects. Short-term effects of disasters include anxiety, PTSD, depression, somatic complaints (heartburn, stomach, constipation, vomiting, colitis, migraines, headaches, back/neck aches) and nightmares (Madakasira, O'Brien, 1987; Escobar, Canino & Rubio-Stipec 1992). The few studies regarding long-term effects show that the people who have experienced a disaster in the past will experience a higher degree of mental distress when exposed for a second time, compared with
individuals who have experienced a disaster for the first time (Bland et al. 1996). First time flood victims displayed higher rates of distress compared to individuals who have already experienced flood in the past (Norris, Murrell, 1988). Typically, following a disaster, symptoms decline as time passes. Research has shown that after a disaster, mental disorders can be directly linked to the disaster for up to one year, but after three and a half years the mental disorders are not related to the disaster. (Shore, Tatum, & Vollmer, 1986). The effects of the disaster to an individual are directly associated with degree of destruction caused by a disaster, (i.e. the greater the destruction, the greater the distress), but after some time, that distress is abridged (U.S Department of Veterans Affairs, 2014).

Proximity

Research has shown that the people living near to or about 80 kilometers away from the site of a disaster, experience greater mental distress than those living far from the area (Ford et al. 2003). Another study compared adolescent victims of an earthquake who received treatment to those adolescent victims who did not receive treatment. The first study was completed one and a half years after the earthquake and the second was completed three and a half years after that. At both one and a half years and five years after the earthquake, the maximum rates of PTSD were noticeable among the victims, who lived near the epicenter. Scholars call this “dose of exposure pattern” (Goenjian et al. 2005, pg.34). Middle age people are the ones that are most affected by disasters. It has
been witnessed that depression, anxiety, and long-term mental effects are significant among middle aged people compared to younger people or people older than 55 years of age (Gleser, Green, & Winget, 1981). Another study found that individuals between the ages of 36-50 years show extreme risk for developing new mental problems (Shore, Tatum, & Vollmer, 1986).

Depression/Anxiety

Survivors of disaster often have some type of mental health problem in the aftermath. One of the greatest common mental health problems for individuals who have experienced a natural disaster is depression. Depression can lead to a collection of diseases and poor health. It is significant to recognize what factors may give rise to depression following a natural disaster. Few studies have verified that occasionally there is a delay in the beginning of depression in both children and adults. Depression can be present for a few weeks or months after a natural disaster, but in some instances depression continues for years (Fichter, Kohlboeck, & Quadflieg, 2008; Rhebergen et al. 2011).

Another study by Armenian et al. (2002) found that depression was a common mental health issue among survivors who had experienced loss following an earthquake. Norris et al.’s (2002) research showed that 68% of the survivors in a disaster suffered PTSD. The second greatest common mental health problem was depression, found in 36% of the sample. Anxiety in different forms was present in 32% of the participants. Health difficult were also present
in 23% of the sample. It was not frequently clear whether survivors’ health concerns were accurate, or the effect of somaticizing the stress related to disaster.

Housing Investment

The association between housing conditions has both physical and mental health effects. There are a variety of specific housing issues which affect health. The association between housing quality and health is complex, thus, the relationship between different dimensions of housing and health work at a number of inter-related levels. Housing does not only function in isolation to influence health, but is related to physical injury, employment opportunities, educational achievement, and lifestyle. These factors fundamentally regulate health and health disproportions in society (Sharon, et al., 2006).

Damp Households

House dust mites and airborne mold spores can cause or exacerbate respiratory conditions such as asthma as well as other symptoms such as wheeze, aches and pains, diarrhea, nausea and headaches (Martin, Platt, & Hunt, 1987). Hopton and Hunt, (1996) found that ladies who were living in damp homes were likely to experience depression and anxiety. Damp households have also been associated with an unwillingness to invite friends into the home;
anxiety and feelings of shame and embarrassment may lead to social isolation (Markus, 1993).

Overcrowding and Density

Overcrowding and density have effect on mental health. Overcrowding is known as a long-term issue that is difficult to change, and is associated with the spread of infectious diseases (Marshy, 2014). Overcrowding is still recognized as a risk to physical and mental health and has been associated with the spread of infectious diseases, asthma, cardiovascular diseases, stress, and depression (ODPM, 2004).

Research done by Regoeczi (2008) looked at the relationship between crowding and depression. The study found that men became less depressed once an average level of crowding is reached; on the other hand, women’s depression increased as the crowding increased from low to average. But depression for both begins to increase once a higher level of crowding is reached. Women tend to internalize things which results in depression, while men tend to be more inclined to externalize, which can result in violence (Regoeczi, 2008).

Unsafe Homes

There are numerous studies linking poor housing and poor health. A study done by Evans et al. (2003) looked at the construction of a home and direct and indirect effects on mental health. What the study found was that poorer housing
quality can lead to poor mental health. Some of the mental health problems linked to this were an enhanced feeling of isolation, depression and excessive worrying (Evans et al. 2003). Another study found that if a person thought that their neighborhood was safe then they were more likely to have positive mental health. When looking at safety, they examined feeling safe while in the home, when walking around the neighborhood, and feeling attached to the community. On the other hand, when a person feels that his or her community is unsafe, they are more likely to have high levels of mental distress (Ziersch et. al. 2005). A recent study looked at how an individual’s home being damaged due to a flood can affect her or his mental health. The research included 1,031 households in the initial sampling frame, but only 247 individuals returned the survey. Of those individuals, 17.5 % reported experiencing depression and 8.6 % reported post-traumatic stress due to the disaster (Collins, Jimenez, & Grineski, 2013).

Theories Guiding Conceptualization

In order to better understand the impact of a natural disaster on mental health, researchers can examine systems theory. Systems theory is concerned with the person-in-environment and how an individual regularly relates with various systems around them such as: family, friends, work, community, religion, and the education system. Furthermore, systems are a set of fundamentals arranged and interconnected to make a functional whole (Kirst-Ashman, 2013).
One part of the system can have a significant effect on other parts. Thus, systems theory can help us better understand how a natural disaster can affect a person in various ways. For instance, natural disaster can cause depression to the survivors. Nonetheless, we must recognize the other factors that might cause depression to individuals. Few factors include: lost a loved one, house being damaged by the disaster, or close to the disaster when it occurred and etc. As previous data has shown that indicators to those stressors may cause an individual to experience depression and other symptoms related to natural disaster (Sharon, et al., 2006; Phifer and Norris 1989).

Issue

A concern that has been argued in the literature is that indicators of other illnesses are found after disasters and those indicators are part of PTSD. There are numerous of possible justifications for the overlay in the symptoms that are often witnessed. Clinical symptoms often overlap in diagnoses, and therefore one diagnoses can led to another, and former diagnoses might raise the vulnerability to PTSD (McMillen, North, Mosley and Smith, 2002). Specifically, depression and PTSD can both result from disaster. Greening, Stoppelbein, & Docter (2002) did an interesting study in which they observed the attributions for the undesirable outcomes of the Northridge earthquake. The researchers found that survivors who completed the survey were categorized with depression attributions. The survey results linked depression to inner and worldwide causes (Abramson,
Seligman, & Teasdale, 1978), for developing depressive indications, and not PTSD indications.

Summary

Uninhabitable or habitable housing, utilities, and household size can impact the mental health of an individual who has survived a natural disaster. The individual can experience symptoms such as depression, losses of sleep and others mental disorders as a result of the natural disaster.
CHAPTER THREE

METHODS

Introduction

In order to carry out this study a survey was given to individuals in ten different sub-cities of Maya. This study implemented the survey approach because this allowed the researcher to obtain information from a larger number of people. In order to examine the impact of natural disasters on the mental health of a rural Maya community in the Philippines, a quantitative methodology was utilized and the researcher used a survey which was created by the Center for Disease Control and Prevention (2012). The Statistical Package for the Social Sciences program was used to analyze the data.

Study Design

The purpose of this study was to examine the impact of natural disasters on the mental health of a rural Maya community in the Philippines. A Center for Disease Control and Prevention Modified Community Assessment survey was used for this research investigation. This allowed the researcher to assess the impact of natural disasters on the mental health of the rural Maya community. Furthermore, a survey was used because it is a good way to obtain information from a larger number of people who may not have the time to attend an interview or take part in experiments. A survey enables people to take their time, think
about it and come back to the questions later. Participants can state their views or feelings privately without worrying about the possible reaction of the researcher (Alzheimer Europe, 2014). The methodological framework implemented in this study is quantitative. This study examines the effects on mental health due to living conditions including habitability, the safety of their homes, whether there was mold or water damage, the size of the household, whether the household was harboring guest and the presence of general utilities.) on a rural Maya community of the Philippines following the typhoon.

Sampling

The sample consisted of 100 citizens of the city of Maya. The researcher used the cluster sampling procedure for this research investigation. This sampling technique allowed the researcher to collect data from more people than interviews alone. This study focused on the characteristics of uninhabitable or habitable housing, utilities, household size, and mental health. Individuals who were directly affected by the typhoon were identified. Those participants included individuals who were directly exposed and were physically present at the time of the event. Thus, the sample consisted of the population from various sub-cities of Maya. Once the individuals were identified, each sub-city was given a sample code from one to ten. After this phase was completed, the first ten citizens in the selected sub-city were randomly selected to participate in the study. In general,
any adult, regardless of gender, race, ethnicity, or religion, was eligible to participate in the assessment.

**Data Collection and Instrumentation**

After a detailed review of the literature the researcher was able to assess the need and use of the Center for Disease Control and Prevention Modified Community Assessment survey (Centers for Disease Control and Prevention, 2012). Thus, one instrument was used for this research study to access the impact of a natural disaster on the mental health. The instrument was the Community Assessment for Public Health Emergency Response a modified version which was first published in 2009 (Centers for Disease Control and Prevention, 2012). The strength of using the Community Assessment for Public Health Emergency Response (CASPER) is its assessment of critical health needs related to the impact of the disaster. It consists of 13 items to assess the intensity of the impact of the typhoon. The CDC Community Assessment is self-administered, and took between 10–15 minutes to complete. Additionally, there are a few limitations to using this instrument. One limitation is that people may not understand the questions. Another is that some questions might not be culture sensitive and therefore some of the question might not be answer and/or answered wrong. The CDC Modified Community Assessment is reliable but further study of the instrument’s validity is needed (Centers for Disease Control and Prevention, 2012).
Independent and Dependent Variables

The independent variables used in this research are the perceptions of individuals regarding the habitability of their own homes, the safety of their homes, whether or not there was mold or water damage, the size of the household, whether or not the household was harboring guest and the presence of general utilities such as running water, electricity, garbage pickup, natural gas, sewage service, and cell phone. The habitability level of a home was organized in to four categories, two of the categories were for inhabitable homes and the other two of the categories were for uninhabitable homes. The categories included: (1) none/minimal, (2) damaged but habitable. (3) damaged, uninhabitable, (4) destroyed. An inhabitable home was a home that could be lived in due to minimal or no damage. An inhabitable was also a home that was damaged but was still habitable. An uninhabitable home was a home that was damaged to the severity that one could no longer live or a home that was destroyed. The safety of a home along with a presence of mold/musty odor and water damage was measured through yes/no answers. The household size and the presence of guest was measured by counting the number of people in a given household.

Whether one had general utilities in their home was measured by yes, no, or never had. The dependent variables in this study were mental health: agitated behavior, anxiety or stress, depressed mood, difficulty concentrating, loss of
appetite, and trouble sleeping or nightmares, each of those was were measured by either responding yes or no.

**Procedures**

In order to conduct the research, the Barangay Captain (Mayor/Village Leader) of Maya who help select 10 sub-cities. Once the sub-cities were selected, contact was made with the appropriate person in their home with the help of the Barangay Official (Village Secretary). Additionally, after being informed about the research, the participant’s verbal assent was either done in English and/or Cebuano/Visayan by each of the participants. Once consent was given, the survey was given to participants at the homes and the researcher asked participants to return the survey to their local health worker within two days from reserving the survey. The researcher retrieved the data for statistical analyses.

**Protection of Human Subjects**

Anonymity and confidentiality were assured due to the fact that all information was placed in a password secure drop-box. Furthermore, the surveys were filled out anonymously and did not contain the participant’s name or any identifiable information. Those who received the surveys were briefed on its purpose, on the meaning of confidentiality, and on its voluntary nature. Consent was ultimately given by turning in the survey to the health worker. The IRB
approval indicated that participants, who chose to complete the survey, were then to submit it to their sub-city Health Worker (one assigned to each neighborhood) by the end of the day. The Health Worker would accept these surveys without any questions and without tracking the submissions (name and number of surveys) – which would then be submitted to the Barangay Official (Village Secretary) by the following morning.

Data Analysis

Data were analyzed using frequencies, chi-squares tests, and t-test using Statistical Package for the Social Sciences (SPSS). The data analysis was carried out to determine if there is a relationship between a natural disaster and mental health.

Summary

In order to conduct the study the researcher utilized a survey which was created by the CDC. Surveys are a great means of collecting data because it allows the participants to answer freely and take breaks if needed. The researcher sampled people that were affected by the typhoon to examine the relationship between natural disasters and mental health. Furthermore, an analysis was done by using the SPSS program.
CHAPTER FOUR

RESULTS

Introduction

The purpose of this study was to determine if there is a correlation between whether participants had a habitability homes, the safety of their homes, whether or not there was mold or water damage, the size of the household, whether or not the household was harboring guest and the presence of general utilities such as running water, electricity, garbage pickup, natural gas, sewage service, and cell phone after the typhoon and weather it effected their mental health. This researcher will discuss the results from the various analyses that were performed. The researcher will discuss the general characteristics of each of the variables and explain the univariate, and bivariate statistical analysis used to analyze the data. Finally, the results obtained from the statistical analysis will be discussed.

Presentation of the Findings

As shown in Table 1, 44.0% of the participants reported that the house was habitable, 46.4% reported uninhabitable home and eight participants (9.5%) chose not to answer that question. Approximately 48% of the participants felt that their home was safe to live in while at least half (50.0%) of the participants felt that their home was not safe to live in and 1.2% of the people did not answer
the question. When asked about mold/musty odor 35.7% of the people reported their home as having mold/musty odor and over half (57.1%) reported not having mold/musty odor; six people chose not to answer that question. Participants were asked to report whether or not they had water damage and 31% reported having water damage and 43 people reported that they had no water damage (51.2%). 17.9% of the participants did not respond to this question.

Table 1. Housing Conditions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yes</th>
<th>No</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe Home</td>
<td>48.80%</td>
<td>50.50%</td>
<td>1.20%</td>
</tr>
<tr>
<td>Mold/ Must Odor</td>
<td>35.70%</td>
<td>57.10%</td>
<td>7.10%</td>
</tr>
<tr>
<td>Habitable/Uninhabitable Home</td>
<td>44.00%</td>
<td>46.40%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Water Damage</td>
<td>31.0%</td>
<td>51.2%</td>
<td>17.9%</td>
</tr>
</tbody>
</table>

Participants were asked about their household size and the average household size was 5.24. Respondents were questioned regarding other household members in their home which ranged from zero to eleven and 21.4% of the participants had 4 other people in their homes.

As shown in Table 2, 54 participants had running water, 18 had no water, 2 had never had water in their home, and 10 responses were missing. Fifty-nine participants had electricity, 17 had no electricity, and 7 responses were missing. Forty-two participants had garbage pickup, 22 had no garbage pickup, 4 have
never had garbage pickup in their home, and 16 responses were missing. Six participants had natural gas, 37 did not have gas, 9 have never had natural gas in their home before, and 32 responses were missing. Seventeen participants had sewage services, 28 did not have sewage services, 6 had never has sewage services before, and 33 responses were missing. Sixty-two participants reported having a cell phone, 11 did not have a cell phone, 4 never had a cell phone before, and 7 responses were missing (See Table 2).

Table 2: General Utilities

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>Never Had (%)</th>
<th>Missing (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running Water</td>
<td>54 (64)</td>
<td>18 (21)</td>
<td>2 (2)</td>
<td>10 (12)</td>
</tr>
<tr>
<td>Electricity</td>
<td>59 (70)</td>
<td>17 (20)</td>
<td>0</td>
<td>7 (8)</td>
</tr>
<tr>
<td>Garbage Pickup</td>
<td>42 (50)</td>
<td>22 (26)</td>
<td>4 (4)</td>
<td>16 (19)</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>6 (7)</td>
<td>37 (44)</td>
<td>9 (11)</td>
<td>32 (38)</td>
</tr>
<tr>
<td>Sewage Services</td>
<td>17 (20)</td>
<td>28 (33)</td>
<td>6 (7)</td>
<td>33 (39)</td>
</tr>
<tr>
<td>Cell Phone</td>
<td>62 (74)</td>
<td>11 (13)</td>
<td>4 (4)</td>
<td>7 (8)</td>
</tr>
</tbody>
</table>

As shown in Table 3, over 54% of participants reported having agitated behavior, 69.1% had anxiety/stress, 11.8% had depressed mood, 27.9% reported difficulty concentrating, 40.6 % had loss of appetite, and 27.9% of participant reported trouble sleeping or nightmares.
Table 3: Mental Health

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agitated Behavior</td>
<td>65</td>
<td>(54.40)</td>
</tr>
<tr>
<td>Anxiety/Stress</td>
<td>82</td>
<td>(69.10)</td>
</tr>
<tr>
<td>Depressed Mood</td>
<td>14</td>
<td>(11.80)</td>
</tr>
<tr>
<td>Difficulty Concentrating</td>
<td>33</td>
<td>(27.90)</td>
</tr>
<tr>
<td>Loss of Appetite</td>
<td>48</td>
<td>(40.60)</td>
</tr>
<tr>
<td>Difficulty Sleeping</td>
<td>33</td>
<td>(27.90)</td>
</tr>
</tbody>
</table>

Analysis of the Data by Variables

There were several variables that were the bases of this research study of impact of a natural disaster on the mental health. These included habitability of their homes, the safety of their homes, whether or not there was mold or water damage, the size of the household, whether or not the household was harboring guest and the presence of general utilities such as running water, electricity, garbage pickup, natural gas, sewage service, and cell phone.

Habitable/Uninhabitable Home

The results for the chi-square tests using the independent variable habitable home and dependent variables agitated behavior, anxiety/stress, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping showed no significant relationship between the independent and dependent variables. Results from the chi square test can be found on Table 4.
Table 4: Habitable/Uninhabitable

<table>
<thead>
<tr>
<th>Variables</th>
<th>$X^2$</th>
<th>df</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitable and Agitated Behavior</td>
<td>.051</td>
<td>1</td>
<td>.821</td>
</tr>
<tr>
<td>Habitable and Anxiety/Stress</td>
<td>.033</td>
<td>1</td>
<td>.855</td>
</tr>
<tr>
<td>Habitable and Depressed Mood</td>
<td>.742</td>
<td>1</td>
<td>.389</td>
</tr>
<tr>
<td>Habitable and Difficulty Concentrating</td>
<td>.184</td>
<td>1</td>
<td>.668</td>
</tr>
<tr>
<td>Habitable and Loss Of Appetite</td>
<td>2.241</td>
<td>2</td>
<td>.326</td>
</tr>
<tr>
<td>Habitable and Trouble Sleeping</td>
<td>1.090</td>
<td>1</td>
<td>.296</td>
</tr>
</tbody>
</table>

Safe Home

As shown in Table 5, there was no relationship between the independent variable safe home and dependent variables agitated behavior, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping. On the other hand, there was a statistically significant relationship between living in a safe home and anxiety and those was ($X^2 (1, N=84) = .7.788, p = .005$).
Table 5: Safe Home

<table>
<thead>
<tr>
<th>Variables</th>
<th>X2</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe Home and Agitated Behavior</td>
<td>.304</td>
<td>1</td>
<td>.581</td>
</tr>
<tr>
<td>Safe Home and Anxiety/Stress</td>
<td>7.788</td>
<td>1</td>
<td>.005</td>
</tr>
<tr>
<td>Safe Home and Depressed Mood</td>
<td>.281</td>
<td>1</td>
<td>.596</td>
</tr>
<tr>
<td>Safe Home and Difficulty Concentrating</td>
<td>.948</td>
<td>1</td>
<td>.330</td>
</tr>
<tr>
<td>Safe Home and Loss Of Appetite</td>
<td>1.697</td>
<td>2</td>
<td>.428</td>
</tr>
<tr>
<td>Safe Home and Trouble Sleeping</td>
<td>.033</td>
<td>1</td>
<td>.856</td>
</tr>
</tbody>
</table>

**Mold/ Musty Odor**

Referring to Table 6, which shows that there was no significant difference between the variable mold/musty odor and the dependent variables agitated behavior, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping. However, there was a statistically significant relationship between mold/musty odor and anxiety/stress ($X^2 (1, N=84) = 11.281, p = .001$). This showed that having mold in the home or a musty odor related to symptoms of anxiety/stress.
Table 6: Mold/Musty Odor

<table>
<thead>
<tr>
<th>Variables</th>
<th>$X^2$</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mold/Musty Odor and Agitated Behavior</td>
<td>.772</td>
<td>1</td>
<td>.380</td>
</tr>
<tr>
<td>Mold/Musty Odor and Anxiety/Stress</td>
<td>11.281</td>
<td>1</td>
<td>.001</td>
</tr>
<tr>
<td>Mold/Musty Odor and Depressed Mood</td>
<td>1.545</td>
<td>1</td>
<td>.214</td>
</tr>
<tr>
<td>Mold/Musty Odor and Difficulty Concentrating</td>
<td>.007</td>
<td>1</td>
<td>.933</td>
</tr>
<tr>
<td>Mold/Musty Odor and Loss Of Appetite</td>
<td>2.376</td>
<td>2</td>
<td>.305</td>
</tr>
<tr>
<td>Mold/Musty Odor and Trouble Sleeping</td>
<td>.515</td>
<td>1</td>
<td>.473</td>
</tr>
</tbody>
</table>

**Water Damage**

Looking at the results from Table 7, which indicates that there was no relationship between the variable water damage and the dependent variables agitated behavior, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping. Nonetheless there was a significant relationship between the variable water damage and anxiety/stress ($X^2 (1, N=84) = 6.155, p = .013$).
Table 7: Water Damage

<table>
<thead>
<tr>
<th>Variables</th>
<th>$X^2$</th>
<th>$df$</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Damage and Agitated Behavior</td>
<td>.154</td>
<td>1</td>
<td>.695</td>
</tr>
<tr>
<td>Water Damage and Anxiety/Stress</td>
<td>6.155</td>
<td>1</td>
<td>.013</td>
</tr>
<tr>
<td>Water Damage and Depressed Mood</td>
<td>.112</td>
<td>1</td>
<td>.738</td>
</tr>
<tr>
<td>Water Damage and Difficulty Concentrating</td>
<td>1.644</td>
<td>1</td>
<td>.200</td>
</tr>
<tr>
<td>Water Damage and Loss Of Appetite</td>
<td>2.436</td>
<td>2</td>
<td>.296</td>
</tr>
<tr>
<td>Water Damage and Trouble Sleeping</td>
<td>3.417</td>
<td>1</td>
<td>.065</td>
</tr>
</tbody>
</table>

**Household Size**

The results for the t-test using the independent variables household size and the number of people that slept in home and the dependent variables agitated behavior, anxiety/stress, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping showed no significant relationship between the independent and dependent variables (See Table 8).
### Table 8: Household Size

<table>
<thead>
<tr>
<th>Variables</th>
<th>t-value</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Size and Agitated Behavior</td>
<td>-.784</td>
<td>59</td>
<td>.436</td>
</tr>
<tr>
<td>Household Size and Anxiety/Stress</td>
<td>.374</td>
<td>59</td>
<td>.710</td>
</tr>
<tr>
<td>Household Size and Depressed Mood</td>
<td>-.976</td>
<td>59</td>
<td>.333</td>
</tr>
<tr>
<td>Household Size and Difficulty Concentrating</td>
<td>.313</td>
<td>59</td>
<td>.755</td>
</tr>
<tr>
<td>Household Size and Loss Of Appetite</td>
<td>.486</td>
<td>59</td>
<td>.629</td>
</tr>
<tr>
<td>Household Size and Trouble Sleeping</td>
<td>1.582</td>
<td>59</td>
<td>.119</td>
</tr>
<tr>
<td>Number People Slept Home and Agitated Behavior</td>
<td>.633</td>
<td>57</td>
<td>.529</td>
</tr>
<tr>
<td>Number People Slept Home and Anxiety/Stress</td>
<td>.642</td>
<td>57</td>
<td>.524</td>
</tr>
<tr>
<td>Number People Slept Home and Depressed Mood</td>
<td>1.349</td>
<td>57</td>
<td>.183</td>
</tr>
<tr>
<td>Number People Slept Home and Difficulty Concentrating</td>
<td>1.121</td>
<td>57</td>
<td>.267</td>
</tr>
<tr>
<td>Number People Slept Home and Loss Of Appetite</td>
<td>.440</td>
<td>57</td>
<td>.662</td>
</tr>
<tr>
<td>Number People Slept Home and Trouble Sleeping</td>
<td>-.688</td>
<td>57</td>
<td>.494</td>
</tr>
</tbody>
</table>

**Running Water**

As shown in Table 9, there was no significant relationship between the independent and dependent variables agitated behavior, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping. However there was a significant relationship between running water and anxiety/stress \( \chi^2 \ (2, N=84) = 11.343, p = .003 \). The results indicated that there was an association between
whether or not one has running water and one develops indicators of anxiety/stress.

Table 9: Running Water

<table>
<thead>
<tr>
<th>Variables</th>
<th>$X^2$</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running Water and Agitated Behavior</td>
<td>1.032</td>
<td>2</td>
<td>.597</td>
</tr>
<tr>
<td>Running Water and Anxiety/Stress</td>
<td>11.343</td>
<td>2</td>
<td>.003</td>
</tr>
<tr>
<td>Running Water and Depressed Mood</td>
<td>2.704</td>
<td>2</td>
<td>.259</td>
</tr>
<tr>
<td>Running Water and Difficulty Concentrating</td>
<td>2.658</td>
<td>2</td>
<td>.265</td>
</tr>
<tr>
<td>Running Water and Loss Of Appetite</td>
<td>1.227</td>
<td>4</td>
<td>.874</td>
</tr>
<tr>
<td>Running Water and Trouble Sleeping</td>
<td>2.923</td>
<td>2</td>
<td>.232</td>
</tr>
</tbody>
</table>

Electricity

As seen in Table 10, there was no relationship between the variables electricity and dependent variables agitated behavior, anxiety/stress, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping.
Table 10: Electricity

<table>
<thead>
<tr>
<th>Variables</th>
<th>$X^2$</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity and Agitated Behavior</td>
<td>1.370</td>
<td>2</td>
<td>.504</td>
</tr>
<tr>
<td>Electricity and Anxiety/Stress</td>
<td>3.180</td>
<td>2</td>
<td>.204</td>
</tr>
<tr>
<td>Electricity and Depressed Mood</td>
<td>1.937</td>
<td>2</td>
<td>.380</td>
</tr>
<tr>
<td>Electricity and Difficulty Concentrating</td>
<td>.361</td>
<td>2</td>
<td>.835</td>
</tr>
<tr>
<td>Electricity and Loss Of Appetite</td>
<td>1.281</td>
<td>4</td>
<td>.865</td>
</tr>
<tr>
<td>Electricity and Trouble Sleeping</td>
<td>.420</td>
<td>2</td>
<td>.810</td>
</tr>
</tbody>
</table>

Garbage Pickup

As shown in Table 11, there was no significant relationship between the independent and dependent variables anxiety, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping. However, there was a significant relationship between garbage pickup and agitated behavior ($X^2 (2) = 6.339, p = .042$). The results indicated that there was an association between whether one has garbage pickup and one develops agitated behavior. Additionally, the relationship between garbage pickup and anxiety/stress approached significance ($p=.087$) as did the relationship between trouble sleeping (.093).
Table 11: Garbage Pickup

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garbage Pickup and Agitated Behavior</td>
<td>6.339</td>
<td>2</td>
<td>.042</td>
</tr>
<tr>
<td>Garbage Pickup and Anxiety/Stress</td>
<td>4.884</td>
<td>2</td>
<td>.087</td>
</tr>
<tr>
<td>Garbage Pickup and Depressed Mood</td>
<td>1.259</td>
<td>2</td>
<td>.533</td>
</tr>
<tr>
<td>Garbage Pickup and Difficulty Concentrating</td>
<td>.060</td>
<td>2</td>
<td>.970</td>
</tr>
<tr>
<td>Garbage Pickup and Loss Of Appetite</td>
<td>2.634</td>
<td>4</td>
<td>.621</td>
</tr>
<tr>
<td>Garbage Pickup and Trouble Sleeping</td>
<td>4.746</td>
<td>2</td>
<td>.093</td>
</tr>
</tbody>
</table>

**Natural Gas**

Referring to Table 12, there was no significant relationship between the variable natural gas and the variables agitated behavior, anxiety/stress, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping. However, the relationship between natural gas and anxiety/stress ($p= .068$) approached significance.
Table 12: Natural Gas

<table>
<thead>
<tr>
<th>Variables</th>
<th>$X^2$</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas and Agitated Behavior</td>
<td>4.474</td>
<td>2</td>
<td>.107</td>
</tr>
<tr>
<td>Natural Gas and Anxiety/Stress</td>
<td>5.375</td>
<td>2</td>
<td>.068</td>
</tr>
<tr>
<td>Natural Gas and Depressed Mood</td>
<td>2.064</td>
<td>2</td>
<td>.356</td>
</tr>
<tr>
<td>Natural Gas and Difficulty Concentrating</td>
<td>.796</td>
<td>2</td>
<td>.672</td>
</tr>
<tr>
<td>Natural Gas and Loss Of Appetite</td>
<td>2.231</td>
<td>4</td>
<td>.693</td>
</tr>
<tr>
<td>Natural Gas and Trouble Sleeping</td>
<td>4.704</td>
<td>2</td>
<td>.095</td>
</tr>
</tbody>
</table>

**Sewage Service**

When examining the variable sewage service with the variables agitated behavior, anxiety/stress, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping showed that there was no significant connection between sewage service and anxiety/stress, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping. There was a significant relationship between whether or not one had sewage service after the typhoon and whether one developed agitated behavior ($X^2$ (2, N=84) = 6.659, $p = .036$). (See Table 13).
Table 13: Sewage Service

<table>
<thead>
<tr>
<th>Variables</th>
<th>$X^2$</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewage Service and Agitated Behavior</td>
<td>6.659</td>
<td>2</td>
<td>.036</td>
</tr>
<tr>
<td>Sewage Service and Anxiety/Stress</td>
<td>4.19</td>
<td>2</td>
<td>.811</td>
</tr>
<tr>
<td>Sewage Service and Depressed Mood</td>
<td>2.377</td>
<td>2</td>
<td>.305</td>
</tr>
<tr>
<td>Sewage Service and Difficulty Concentrating</td>
<td>2.158</td>
<td>2</td>
<td>.340</td>
</tr>
<tr>
<td>Sewage Service and Loss Of Appetite</td>
<td>1.240</td>
<td>2</td>
<td>.538</td>
</tr>
<tr>
<td>Sewage Service and Trouble Sleeping</td>
<td>1.851</td>
<td>2</td>
<td>.396</td>
</tr>
</tbody>
</table>

Cell Phone

Referring to Table 14, there was no relationship between the independent variable cell phone and the dependent variables agitated behavior, anxiety/stress, depressed mood, difficulty concentrating, loss of appetite and trouble sleeping when using the chi square test.
### Table 14: Cell Phone

<table>
<thead>
<tr>
<th>Variables</th>
<th>$X^2$</th>
<th>df</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell Phone and Agitated Behavior</td>
<td>.913</td>
<td>2</td>
<td>.634</td>
</tr>
<tr>
<td>Cell Phone and Anxiety/Stress</td>
<td>.229</td>
<td>2</td>
<td>.892</td>
</tr>
<tr>
<td>Cell Phone and Depressed Mood</td>
<td>1.331</td>
<td>2</td>
<td>.514</td>
</tr>
<tr>
<td>Cell Phone and Difficulty Concentrating</td>
<td>2.340</td>
<td>2</td>
<td>.310</td>
</tr>
<tr>
<td>Cell Phone and Loss Of Appetite</td>
<td>1.038</td>
<td>4</td>
<td>.904</td>
</tr>
<tr>
<td>Cell Phone and Trouble Sleeping</td>
<td>1.207</td>
<td>2</td>
<td>.547</td>
</tr>
</tbody>
</table>

**Summary**

The results obtained from the t-tests and chi-square tests were used to test the hypotheses. The results overall, indicated that there was not a significant relationship between variables such as habitability of one’s home and mental health and participants household size and mental health. Therefore, the hypotheses were not supported by the data. However, the chi-square tests indicated there were some significant relationships between the independent variables safe home, mold/musty odor, water damage, and running water and whether a person developed symptoms of anxiety/stress. There was also a significant relationship between agitated behavior and the independent variables garbage pickup and sewage service.
CHAPTER FIVE
DISCUSSION

Introduction

A quantitative investigative research was done to examine the correlation between whether or not one had a habitable or uninhabitable home, home physically safe, mold, water damage, household size, other household members in your home, general utilities such as running water, electricity, garbage pickup, natural gas, sewage service, and cell phone after the typhoon and weather it effected their mental health. 84 surveys were given to answer the research question: the impact of a natural disaster on the mental health of a rural Maya community in the Philippines.

Discussion

The present study examined the relationship between habitable/uninhabitable home, safe home, mold/musty odor, water damage, household size, other household members, running water, electricity, garbage pickup, natural gas, sewage service and cell phone and mental health aspects such as agitated behavior, anxiety/stress, depression mood, difficulty concentrating, and trouble sleeping.

The first hypothesis was that living in an uninhabitable home effects a person’s mental health. This hypothesis was based on the assumption that
depression can be noticed few weeks or months after a natural disaster (Rhebergen et al. 2011). According to Norris (2002) disaster survivors experience PTSD, depression, and anxiety. The results showed that the safety of the home and anxiety/stress had a relationship. However, the results also showed no significant correlation between habitability of s person’s home and whether one develops signs of mental health such as agitated behavior, depression mood, difficulty concentrating, and trouble sleeping. This supports the finding of Evans et al. (2003) who found that poor housing quality can led to poor mental health some mental health problem linked was feeling of isolation, depression and excessive worrying. Collins, Jimenez and Grineski (2013) found that an individual’s house damaged due to disaster can lead to depression and post-traumatic stress. A possible reason for why the current study did not find any significant relationship between habitable/ uninhabitable home and mental health could be because other factors may reduce signs of mental health following natural disasters (Du Plooy, Harms, Ingliss, Muir, & Martin, 2014).

The second hypothesis examined whether the presence of musty odor, mold damage, or water damage to the participants home had an effect on their mental health. Overall the results from the chi-square test did not support whether the presence of musty odor, mold damage, and water damage to the participant’s home and its effect on agitated behavior, depression mood, difficulty concentrating, and trouble sleeping. Material damage such as loss furniture, car and other commodities can impact ones mental health (Armenian et al. 2002)
and the participant were not considering material damage while they were answering the question mold/musty odor, water damage rather they were responding to material damage. Also, the current study did not examine the difference between female and male mental health. A study done by Hopton and Hunt (1996) indicated that women living in damped homes were likely to experience depression and anxiety. Gender has shown to be associated with the development of PTSD, with women being more susceptible than men (Lee & Young, 2001) and this style has correspondingly been found in people exposed to disasters (Galea et al., 2008; Grievink et al., 2006; Norris et al., 2002). Furthermore, people lacking experience with the disaster would have no sense of personal experience/affiliation with the outcome of a disaster, and would feel less threatened. However, individuals with previous experience of disasters are likely to develop a psychological disorder following a disaster. There are inconclusive reports regarding the direction of this effect (Galea et al., 2005; Norris et al., 2002), the current study did not examine the number of disaster experienced by the participants.

There was a correlation between mold/musty odor, water damage and anxiety/stress. Research indicates that if one has a damp home than this can be associated with reluctance to invite friends into the home, the feeling of anxiety and sense of shame and embarrassment (Markus, 1993). Furthermore, psychological disorders such as post-traumatic stress disorder were significantly higher for six months following the flooding (Azuma, et al., 2014). The research
supports the results of this study that there is a relationship between the presence of a mold/musty odor and water damage to the home and feeling anxiety/stress.

The third part of the hypothesis examined whether household size, and number of household members affects whether one develops any signs of mental distress. The findings from the t-test did not support the research. However, other variables such as socioeconomic level can cause an effect on the finding which was not considered in this study. For instance, Corcoran et al. (2008), “found that socioeconomic status can have an impact on the mental disorders”. In addition, as stated by Taanila et al. (2004), “it is likely that when family size is not associated with social disadvantages, it is not a risk factor for mental disorders”. Another factor that could have affected the outcome for participant’s household size, whether the household was harboring guests and its effect on mental health could be due to gender. In a recent study of 822 Inuit adults in Nunavik, Quebec's northernmost region found overcrowding is significantly associated with raised stress levels, especially in women (Riva, 2015).

The fourth hypothesis that there is a relationship between the variables running water, electricity, garbage pickup, natural gas, sewage service and cell phone and mental health. Overall, the results from the chi-square partially supported my hypothesis. The researcher was not able to find any existing research that found correlation between the presence of general utilities such as
running water, electricity, garbage pickup, natural gas, sewage service and cell phone and mental health. Nevertheless, the data indicate a relationship between the presence of garbage pickup, sewage service and agitated behavior. Again there is no research that can support why one might have agitated behavior due to not having garbage pickup and sewage service.

Limitations

There were several limitations to this study. The participant exclusively self-reported, which means that they may have under reported their mental health. People in Asian culture do not discuss emotions that deal with emotional distress, such as shame or stigma (Harpham & Tuan, 2006). The drawback is likely a fairly low response rate to their survey. Also participants do not always answer all the questions and/or they might not answer the questionnaire correctly. Some people may still be inclined to try to give socially acceptable answers. It is also possible that the cultural fit of these more Western mental health terms may not fit for the Filipina culture. Filipino culture may have protective factors that the researcher did not assess. For example, family cohesion, connectedness, and social support. These factors may be important buffers to mental health distress in the wake of disasters (Davis, 2000). Additional, the researcher did not account for gender as it relates to mental health. Female gender typically is a risk factor for affective disorders and some anxiety disorders (Kessler, Chiu, Demler, & Walters, 2005). Furthermore, in two
studies heir et al. (2011) and Kessler et al., (2005) found that female are at a higher risk for psychiatric disorders such as PTSD. Also, the current study was done after 8 months after the typhoon and according to Fichter, Khlboeck, and Quadflieg (2008), that occasionally there are delays in the manifestations of depression in both children and adults. Finally, having participants report on their own mental health can be difficult. Finally, the researcher did not use a mental health survey, but rather a community needs survey, which was in English. Therefore, the translator might have misinterpreted words or used some that the locals were unfamiliar with.

Recommendations for Social Work Practice,
Policy and Research

Despite the fact that the results of the present study were really not supportive of the hypotheses, the data collected indicated that there are some relationship existed between a person’s housing conditions, the presence of utilities and mental health. It is recommended that social workers should not underestimate a person’s living environment and its relationship to anxiety/stress. Rather they should keep in mind that the presence of mold and water damage to the person’s home can cause anxiety and stress. Therefore, social worker should assess the living environment when assess the person. Furthermore, social workers should also note that there is relationship between utilities and whether one develops agitated behavior. Additionally, researcher suggest that social
workers working with disasters should keep in mind that the lack of basic needs such can affect a person’s mental health.

Natural disasters occur throughout the world but the less fortunate communities are more vulnerable to the undesirable impacts. Not only that but disaster risk management focus on “reducing exposure to covariate risk to minimize loss of life and reduce the damage and economic losses from such events. Less attention is given to indirect impacts on livelihoods and the developmental trajectory of potentially affected societies” (Benson & Clay, 2004). Thus, social workers need to advocate for addressing mental health as an important element of disaster relief efforts.

Future research should include a wider range of possible variables that may account for variance in symptom presentation, including gender, income, and factors that may be protective. Social worker should identify that risk and resilience factors may help identify those in need of services and support in the wake of a disaster. Social workers should be part of the effort to educate regarding the effects of natural disasters and on the mental health. Future efforts, should consider potential follow-up which should include examination of family cohesion and whether there is family separation. This will provide very important long-term data that might suggest that a person’s family cohesion and/or separation can affect the course of mental health problems precipitated by disaster. Future studies may consider this limitation and customize the questionnaire to include questions regarding family cohesion and/or separation.
Conclusion

This study examined the relationship between the independent variables: habitability of the home, the safety of the home, whether there was a mold/musty order, water damage, the size of the home. Whether the participants were harboring guests. The presence of general utilities such as running water, electricity, garbage pickup, natural gas, sewage service, and cell phone and the dependent variables agitated behavior, anxiety/stress, depression mood, difficulty concentrating, and trouble sleeping. The present study revealed that there was not a significant relationship between some of the variables. However, the chi square tests indicated there was significant relationships between the independent variables perceptions of individuals regarding the safety of the home, whether there was mold/musty order, water damage to the home, and presence of running water and whether a person developed symptoms of anxiety/stress. There was also a significant relationship between agitated behavior and the independent variables garbage pickup and sewage service. The findings further suggest that social workers need to increase their knowledge about the relationship between natural disaster and whether it affects a person’s mental health. Also, there is a need for advocacy for addressing mental health as an important element of disaster relief efforts. In result it will enable social workers to better assist victims of disasters and provide much needed services.
APPENDIX A

ENGLISH CENTER FOR DISEASE CONTROL AND PREVENTION MODIFIED COMMUNITY ASSESSMENT QUESTIONNAIRE

CDC Modified Community Assessment
Please circle or write in answers that apply.

**DEMOGRAPHICS**

1. Do you have a primary residence?
   - Yes
   - No

2. How many people lived in your household before the typhoon? ________________

3. How many people slept in your home last night? ________________

   **If NONE, where did you and members of your household sleep?**
   - Shelter
   - Family/Friend’s Home
   - Other:

4. How many people from other households slept in your home last night? ________________

5. How many people in your household are:
   - Less than 2 years old
   - 2-17 years old
   - 18-64 years old
   - Over 64 years old

6. How many people living in your household are:
   - Male
   - Female

7. Is anyone in your household pregnant?
   - Yes
   - No

8. Do you own or rent a residence?
   - Own
   - Rent
   - Other: ________________

9. Did your household evacuate your home any time during or before the typhoon?
   - Yes
   - No

   **If YES:**
   - Where did your household evacuate to?
     - Shelter
     - Hotel
     - Friend/Family Home
     - Other: ________________

10. What prevented your household from evacuating?
    - No need to evacuate
    - No place to go
    - Lack of transportation
    - Other: ________________

**DAMAGE/REPAIR**

1. How would you describe the damage to your home?
   - None/Minimal
   - Damaged, but habitable
   - Damaged, uninhabitable
   - Destroyed

   **If damaged, do you need a tarp?**
   - Yes
   - No

2. Do you feel your home is physically safe to live in?
   - Yes
   - No

   **Why not? (circle all answers that apply)**
   - Structural hazards
   - Surface dust
   - Air quality
   - Fear of future typhoon
   - Other: ________________

3. When do you expect this home to be physically safe to live in?
   - Less than 1 month
   - 2-3 months
   - 4-6 months
   - More than 6 months
   - Never

4. What is the condition of your home now?
   - Uninhabitable – Not living at home
   - Clean up – Not living at home
   - Clean up – Living at home
   - Living in home – No clean up
   - Home never damaged
   - Other: ________________
5. Where does your household expect to be living in one month?

   In my residence  With family/friends
   Buy/rent different residence in Philippines  Buy/rent different residence outside Philippines
   Shelter  Other: ________________

6. Do you see mold or smell moldy, musty odor in your home?
   Yes  No

7. Is there 10 sq. ft. of water damage and/or mold anywhere inside your home?
   Yes  No

8. Since the typhoon, have you had any significant loss to your crops?
   No loss  Yes, minor loss
   Yes, significant loss  Not applicable

9. Does your household need financial or physical assistance for cleanup or repair of your home?
   Yes, financial  Yes, physical
   Yes, financial and physical  No

**GENERAL UTILITIES**

1. Do you currently have the following services in your home? (✓ those that apply)

<table>
<thead>
<tr>
<th>Service</th>
<th>Yes</th>
<th>No</th>
<th>Never Had</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running Water</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Garbage Pickup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Gas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sewage Service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell Phone</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. What is your current source of electricity?
   No electricity  Generator
   Power Company  Never Had

3. Do you have a working indoor toilet?
   Yes  No  Never Had
   **IF NO:**
   Do you have access to a working toilet?
   Yes  No  Never Had

**CARBON MONOXIDE EXPOSURE**

1. Since the typhoon, have you used a generator?
   Yes  No
   **IF YES:**
   Where is/was the generator located?
   Inside  Garage  Outside, < 25 feet  > 25 feet
   **IF OUTSIDE:**
   Is/was the generator near an open or broken window?
   Yes  No

2. Since the typhoon, have you used a gas/grill camp stove?
   Inside with windows open  Inside with windows closed
   Outside  No
   **IF OUTSIDE:**
   Is the grill/camp stove near an open or broken window?
   Yes  No

**ANIMAL SAFETY**

1. Since the typhoon, have you noticed an increase in mosquitoes around your home or neighborhood?
   Yes  No
2. Are you or your household members doing anything to protect yourselves from mosquitoes?
   
   Yes  No

   **If YES:**

   What type of protective measures are you using? (circle all that apply)
   
   Wearing repellant  Eliminating standing water
   
   Wearing protective clothing (long sleeves, pants, etc.)  Other:

3. Since the typhoon, have you or anyone in your household been bitten by an animal or insect other than mosquitoes?
   
   Yes  No

   **If YES, what animal?**

   SUPPLIES AND RELIEF

1. Do you have access to adequate drinking water?
   
   Yes  No

2. What was your primary source of drinking water BEFORE the typhoon?

   No drinking water  Well
   
   Public/Municipal  Bottled

   What is your primary source of drinking water NOW?

   No drinking water  Well
   
   Public/Municipal  Bottled

   If using **WELL** or **MUNICIPAL** water, are you treating the water?

   Yes, chemical  Yes, boiling  No

3. Have you received bottled water as part of the disaster relief effort?
   
   Yes  No

4. Do you have adequate food for everyone in your household?
   
   Yes  No

5. Have you received food as part of the disaster relief effort?
   
   Yes  No

6. Have you or your family received any type of aid as part of the relief effort?

   **If YES:**

   What type of aid?

   Food  Water
   
   Shelter  Clothing
   
   Financial Assistance

   **If NO:**

   Why not?

   No aid needed  Did not know aid was available
   
   No transportation to aid/relief location  Other:

7. Do you currently have access to transportation if needed?
   
   Yes  No  Never Had

8. Do you have access to fuel?
   
   Yes  No  Never Had

9. Do you, or does anyone in your household need clothes?
   
   Yes  No  Never Had

10. What is your greatest need at this time?

   ___________________________
HEALTH STATUS

1. Since the typhoon, have you or anyone in your household been injured?
   Yes      No
   If YES:
   What was/were the injuries?
   Animal bite  Abrasion/Laceration
   Broken bone  Fracture
   Head injury  Strain/Sprain
   Other: __________________________

   What part of the body was injured?
   Arm(s)      Back
   Body/Torso  Foot/Feet
   Head        Leg(s)
   Neck        Other: ________________

   Were you or the member of your household injured while repairing the residence or retrieving items?
   Yes      No
   If YES, what caused the injury?
   ________________________________

2. Has everyone in your household had a tetanus shot in the past 10 years?
   Yes      No

3. Has any member of your household died as a result of the typhoon?
   Yes      No
   If YES:
   how many? _____________________
   how did they die?
   ______________________________

4. Since the typhoon, has anyone in your household experienced: (✓ those that apply)

<table>
<thead>
<tr>
<th>Illness</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nausea/Stomachache/Diarrhea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe headache with dizziness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sore throat/cold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worsening of chronic illness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   If YES, what type of illness? ________________

5. Has anyone in your household become ill since the typhoon?
   Yes      No

6. Have you or a member of your household ever been told by a healthcare professional that he/she has: (✓ those that apply)

<table>
<thead>
<tr>
<th>Illness</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical disability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychosocial/Mental Illness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Since the typhoon, has anyone in your household experienced an increase in: (✓ those that apply)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agitated behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety or Stress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressed Mood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentrating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of appetite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble sleeping or nightmares</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol/Drug Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Witnessed or experienced violence</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   Other: ____________________________
8. Since the typhoon, have you or any member of your household been unable to perform your/their daily tasks?
   Yes  No

9. Since the typhoon, are emotional concerns preventing you or any member of your household from taking care of yourself/themselves or others?
   Yes  No

**MEDICAL CARE AND PRESCRIPTIONS**

1. Since the typhoon, have you or anybody in your household required medical care?
   Yes  No

2. Since the typhoon, are you able to get the care you need for everyone in your household?
   Yes  No

   **If NO, why not?**
   - No need
   - Clinic/physician closed
   - Pharmacy closed
   - No transportation
   - Money/Cost
   - Other: ____________

3. Is there anyone in your household who currently requires urgent medical care?
   Yes  No

4. Since the typhoon, is everyone in your household getting the prescription medications they need?
   Yes  No

   **If NO, why not?**
   - No need
   - Clinic/physician closed
   - Pharmacy closed
   - No transportation
   - Money/Cost
   - Other: ____________

5. Is there anyone in your household who currently needs the following? (✔ those that apply)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplemental oxygen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dialysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home health care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other type of care:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMMUNICATION**

1. What is your household’s main source of information regarding disaster or emergency events?

<table>
<thead>
<tr>
<th></th>
<th>TV</th>
<th>Radio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated phone call</td>
<td></td>
<td>Newspaper</td>
</tr>
<tr>
<td>Neighbor/Friend/Family</td>
<td></td>
<td>Poster/Flyer</td>
</tr>
<tr>
<td>Church or other groups</td>
<td></td>
<td>Internet</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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APPENDIX B

TRANSLATED CENTER FOR DISEASE CONTROL AND PREVENTION

MODIFIED COMMUNITY ASSESSMENT QUESTIONNAIRE

CDC Linain nga Pagsuta sa Komunidad
Pailthug lingini og markahi ang motumong kanimo.

DEMOPRAGIYA

1. Naa kay pinuy-anan?
   Oo            Dili

2. Pila ka tawo ang nagpuyo sa imong
   panimahalay saw ala pay bagyo?

3. Pila ka tawo ang taulog sa inyong balay sa
   miaging gabii?

   Kon wala gani, diin man diay mo matulog
   kabgii?
   Sa Shelter  Sa Paryente  Ubang pa:

4. Pila ka tawo nga gikan sa laing panimalay
   nga matulog sa inyong balay?

5. Pila kabuok tawo ang naa sa ninyong
   panimalay basis sa edad:
   2 katuig og ubos  2 ngadto sa 17 anyo
   18 ngadto sa 64 anyo  Labaw sa 64 anyo

6. Pila kabuok ang nagpuyo sa inyong
   panimalay:
   Babaye     Lalaki

7. Duna bay mabdos dinhi sa inyo?
   Oo
   Pila kabuok?
   Wala

8. Unsa man ni imong gipuy-an, imoha ni o
   gaabang ka?
   Gaabang    Tag iya    Ubang pa:

9. Mibakwit ba mo saw ala pa og sa diha na ang
   bagyo?

   Kon mibakwit man gani:
   Diin man sad mo miadto?

10. Anaa ka ba gihapon sa dili permanente nga
    puy-anan?
    Oo            Dili

KAGUBA/PAG-AYO

1. Unsaon nimo paghulaqway ang kadaot nga
   nahiogman sa imong panimalay?
   Walay kadaot  Naguba pero mapuy-an
                  pa
   Naguba, din a mapuy-an  Natumpag

   Kon naguba, kinahanglan ka ba og
   trapal?    Oo            Dili

2. Sa imong paminaw, luwas pa ba karon puy-
   an ang imong balay?
   Oo            Dili

   Kon dili luwas:
   Ngano man? (lingini ang tanang rason kon
   ngano)
   Dili na lig-
   on  Abogon  Bati  Hadlock
   kaya     hangin  and
   dihi     usban og  bagyo

   Konus-a man kaha kini mamahimong luwas
   puy-an?
3. Unsa katasa ang tubig nga misuold og miabot sa imong balay?

4. Unsay kahimtang sa imong balay sa pagkakaron?

5. Asa man magpuyo ang imong pamilya ning buwana?

6. Dunay ka bay natimahoon sa imong balay nga kapan-osen o agop-opon?

7. Adunay bay 10 sq. ft. nga kadaot sa imong balay o gani pan-os sa sulod sa imong balay?

8. Sukad niadtong bagyo, dunay ka bay kadaot nga nahiogaman sa imong pananom?

9. Kinahanglan ba og tabang pinansyal o tawo makatabang sa imong pagpanlimpyo sa imong balay?

   Oo, pinansyal   Oo, tawo motabang
   Oo, pinansyal og tawo   Di kinahanglan

**MGA KAGAMITAN**

1. Adunay kaba niining nga serbisyo sa imong balay? (✔ ang motumong kanimo)

<table>
<thead>
<tr>
<th></th>
<th>Aduna</th>
<th>Wala</th>
<th>Wa makagamit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linya sa tubig</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kuryente</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kinuhang basura</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panlimpyo sa tubig hugaw</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telepono</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selpon</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Asa man gikan ang imong kuryente?
   Walay kuryente   Generator
   Kompaniya sa kuryente   Makagamit

3. Naa bas a sulod sa inyong balay ang inyong kasiliyas?
   Oo   Wala   Wa makagamit
   **Kon wala:**
   Dunay ka bay magamit nga maayong kasiliyas?
   Oo   Wala   Wa makagamit

**PAGKAHANGGAP SA CARBON MONOXIDE**

1. Sukad niadtong bagyo, nakagamit ba kamo og generator?
   Oo   Wala
   **Kon nakagamit man:**

   Asa man kini nahimutang?

   Sa sulod sa balay   Sa garahe
   Sa gawas pero wa kaabot of 25 ft. ang glay-on
Kon naa siya sa gawas:
Duol ba kini sa abli og guba nga bintana?

<table>
<thead>
<tr>
<th>Oo</th>
<th>Dili</th>
</tr>
</thead>
</table>

2. Sukad niadtong bagyo, migamit ka sugbaan o stove nga gas?

<table>
<thead>
<tr>
<th>Sa sulod unya sirado</th>
<th>Sa sulod pero abli ang bintana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sa gawas</td>
<td>Wala</td>
</tr>
</tbody>
</table>

Kon sa gawas:
Duol ba ang sugabaan o stove nga gas sa ablo o gubaon nga bintana?

<table>
<thead>
<tr>
<th>Oo</th>
<th>Dili</th>
</tr>
</thead>
</table>

KALUWASAN SA MANANAP

1. Sukad niadtong bagyo, nakamatikod ba ikaw nga midagahan ang lamok sa palibot sa imong balay og sa kasailingan?

<table>
<thead>
<tr>
<th>Oo</th>
<th>Wala</th>
</tr>
</thead>
</table>

2. Adunay ba kamo’y gibuhat para mapanalipdan kamo sa mga lamok?

<table>
<thead>
<tr>
<th>Oo</th>
<th>Wala</th>
</tr>
</thead>
</table>

Kon oo:
Unsa may imong gibuhat para makapanalipod sa lamok? (markahi ang tanan imong gibuhat)

<table>
<thead>
<tr>
<th>Gamit og haplas nga di kadul ang lamo</th>
<th>Gipangyabo ang tubig way gamit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sul-ob og tag-as nga sinina</td>
<td>Ubang pa:</td>
</tr>
</tbody>
</table>

3. Sukad niadtong bagyo, duna bay napaaakan laing sayop o insektu nga dili lamok imong mga kauban sa balay?

<table>
<thead>
<tr>
<th>Oo</th>
<th>Wala</th>
</tr>
</thead>
</table>

Kon duna man, unsa mang mananapa o insektu?

GALAMITON OG MGA RELIEF

1. Adunay ka bay igong tubing nga mainom?

<table>
<thead>
<tr>
<th>Pagkaon</th>
<th>Tubig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puy-anan</td>
<td>Sinina</td>
</tr>
<tr>
<td>Kwarta</td>
<td></td>
</tr>
</tbody>
</table>

Kon nakadawat man:

Unsa mang klaseha sa hinabang?

Kon wala ka kadawat:

Ngano man?
7. Adunay ka bay kasakyanan kon kinahanglanon gyud?
   Oo  Wala  Wa makagamit

8. Adunay ka bay makuha nga sugnod?
   Oo  Wala  Wa makagamit

9. Nagkinahanglan ba ikaw o ang imong kaubanan sa balay og sinina?
   Oo  Wala

10. Unsa ang pinaka kinahanglan nimo sa pagkakaron?
    ______________________________________________________

KAHIMTANG SA PANLAWAS

1. Sukad sa bagyo, duna bay nasamdan sa kaubanninyo sa balay?
   Oo  Wala

Kon naa man:

Naunsa man pagkasamad?

Pinaakan sa mananap   Nasamdan sa ulo
Nalista/napiang      Nagupok ang bokog
Nabali ang bukog     Naspangos/nasamdan

Uban pa:
    ______________________________________________________

Unsang parteha sa lawas ang nasamdan?

Bukton      Bukobuko
Lawas       Tiil
Ulo         Paa

2. Duna bay na injeksyon og tambal sa tetanus sa inyoha sa maging napulo ka tuig?
   Oo  Wala

3. Adunay bay kauban sa pamilya namatay tungod sa bagyo?
   Oo  Wala

Kon oo:
Pila man kabuok?  _________________________
Naunsa sila og kamatay?

4. Sukad sa bagyo, adunay bay kauban sa balay nga gitakboyan og: (√ ang motumong kanimo)

<table>
<thead>
<tr>
<th></th>
<th>Oo</th>
<th>Wala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ubo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hilanat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suka-suka/Sakit sa tiyan/Kalibang</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulapula sa gamit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sakit ulo nga may panglipong</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karat sa totonlan, sip-on</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nisamot ang sakit nga balikbalik</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Kon oo man, unsa man klasehang sakit?

5. Duna bay kauban sa imong balay nga nasakit sukad niadtong bagyo?
   Oo  Wala
6. Adunay bay kauban nimo sa balay nga na ingnan ng mananambal nga adunay siya aning mga sakita: (✔ ang motumong kanimo)

<table>
<thead>
<tr>
<th></th>
<th>Oo</th>
<th>Wala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hubak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taas og dugo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical disability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sakit sa pangisp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ubay pa:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Sukad sa bagyo, adunay bay usa sa inyong panimalay nga nakasinati ang pagsaka sa: (✔ ang motumong kanimo)

<table>
<thead>
<tr>
<th></th>
<th>Oo</th>
<th>Wala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pagganguro</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kabalisa/pangapoy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Way kasibot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maglisod og totok</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sa gimbuhaton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wala gana mokaon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maglisod og</td>
<td></td>
<td></td>
</tr>
<tr>
<td>katulug/ilromon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inom og</td>
<td></td>
<td></td>
</tr>
<tr>
<td>alcohol/drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Makakita o kasinati</td>
<td></td>
<td></td>
</tr>
<tr>
<td>og pagpanghazi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ubay pa:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Sukad sa bagyo, naatiman ba gihapon nimo ang panginhanglanon sa imong panimalay?

- Oo
- Wala

Kon wala man, ngano man diwy?

<table>
<thead>
<tr>
<th></th>
<th>Oo</th>
<th>Wala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Way kinahanglan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serado ang klinika/way mananambal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serado ang botika</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Way sakyanan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Way kwarta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ubay pa:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Adunay bay usa sa inyong panimalay nga kinahanglang mahiling dayon og mananambal?

- Oo
- Wala

4. Sukad sa bagyo, adunay bay tambal kanunay ang kauban ninyo sa panimalay nga nagkinahanglan niini?

- Oo
- Wala

Kon wala man, ngano man?

<table>
<thead>
<tr>
<th></th>
<th>Oo</th>
<th>Wala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Way kinahanglan</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Way kwarta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ubay pa:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Adunay bay usa sa inyong panimalay nga nagkinahanglan niini? (✔ ang motumong kanimo)

<table>
<thead>
<tr>
<th></th>
<th>Oo</th>
<th>Wala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplemental oxygen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dialysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atimanonon sa balay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ubay pang klase sa pag-atinan:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SULOD SA TAMBALAN OG PATUMAR OF TAMBAL

1. Adunay bay usa sa imong panimalay nga nahiinlod og tambalanan?

- Oo
- Wala

KOMUNIKASYON

1. Sa unsang pamaagi nga ikaw makakuha og impormasyon sa nga umaabot nga katalagman?

- TV
- Radio
<table>
<thead>
<tr>
<th>Tawag sa telepono</th>
<th>Mantalaan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siingan/kaila/pamilya</td>
<td>Poster/Flyer</td>
</tr>
<tr>
<td>Simbahan/kahugpong</td>
<td>Internet</td>
</tr>
</tbody>
</table>

Uban pa:
REFERENCES


Collins, T., Jimenez, A., & Grineski, S. (2013). Hispanic health disparities after a flood disaster: Results of a population-based survey of individuals
experiencing home site damage in El Paso (Texas, USA). *Journal of Immigrant & Minority Health.*, 415-426.


Hopton J and Hunt S (1996) Housing conditions and mental health in a disadvantaged area of scotland. *Journal of Epidemiology Community Health* 50
International Federation of Red Cross and Red Crescent Societies. (2010). Disaster in Asia: The Case for Legal Preparedness. *International Federation of Red Cross and Red Crescent Societies*.


http://environment.nationalgeographic.com/environment/natural-disasters/


Reliefweb. (September 2014) “Natural Disasters.” URL: http://www.reliefweb.int/w/rwb.nsf/vLND


