

Research Article

Disaster Preparedness: Difficulties of Frail Elders in Preparing For the Big One

Molina G. Rizo¹, Gladys P. Bustos² and *Leandro R. De Luna

^{1,2}Camp Vicente Lim Integrated School, Laguna, Philippines

*National University, Philippines, Laguna, Philippines

Corresponding Author Email: lrdeluna@nu-laguna.edu.ph

Received: Aug 28, 2020

Accepted: Sep 9, 2020

Published: Sep 17, 2020

Abstract: This study aimed to deeply analyze the preparation of the frail elders in Canlubang, Calamba City for the Occurrence of “The Big One.” The study made use of qualitative approach specifically a phenomenological research. The participants of this study were three elderly individuals that came from the Barangay Canlubang. The data analysis employed IPA in analyzing the data that the researchers were able to gather. The results disclosed that as to the state of being elderly, the participants suffered illnesses such as the diminish of their sensory awareness and their mobility. As to the participants’ preparation to disaster, they divulged that they are unaware of the catastrophic event called “The Big One” hence they are unprepared when this happens. Lastly, the most frightening part was that they did not practice earthquake drills which will somehow prepare them when this event happens. More so, it was found the elders were very vulnerable to the said event because of their physical condition as aged individuals. Based on the results, the researchers recommend that the government should establish disaster preparedness program and livelihood projects together with the Non-Government Organization (NGO) for the elderly individuals of Barangay Canlubang. They also recommended that the elders should fully participate in governments disaster programs and make themselves ready for the upcoming the big one.

Keywords: Big One, Disaster preparedness, Earthquake, Elderly.

Introduction

The Philippines is a seismically and volcanically active region where damaging earthquakes have struck numerous times within the 400-year historical period. The seismically active Marikina Valley fault system (MVFS) near Manila is a significant seismic source to the city and the region (Wong, *et al.*, 2014). The MVFS or simply West Valley Fault’s movement is expected to cause the ‘Big One’, a hypothetical earthquake of magnitude ~8 or greater. The last earthquake attributed to this fault happened in 1658. The West Valley Fault, a 100-kilometer fault, is one of the segments of an active fault, the Valley Fault System. It transects portions from Quezon City all the way to Cavite, including Laguna.

The movement of the West Valley Fault is expected to greatly affect the country since the region is not only highly populated, it also hosts the seat of government and the country’s business capital. This pose impacts such as structural damage to buildings, bridges and highways, fires, landslides, liquefaction, tsunami, and more importantly loss of lives. The final extension of the West Valley Fault Line in Laguna is found in Casile in Cabuyao, north of Canlubang Golf & Country Club and it passes along the left side of the park and ends at Mabato near Riomonte in the west side of Calamba. Clearly, the West Valley Fault System will affect the residents of Barangay Canlubang as it intersects the Sta. Rosa and Tagaytay road.

In an article by Reyes-Aguila in (2019), she mentioned that a Metro Manila Earthquake Impact Reduction Study (MMEIRS) report Risk Analysis Project in 2013 estimates that the strong quake will result in 31,000 human fatalities. This is in addition to the 14,000 people who will suffer very serious injuries. A total floor area of 88,142,000 square meters will be completely collapsed, while 172,924,000 square meters will experience "slight to extensive damage." In total, the country is expected to experience an estimated economic loss of around P2.269 trillion.

Another important consideration is the impact of disasters on the elderly population. As Harney (2011) stated, about one-in-three residents in the areas of Japan worst hit by the disaster are more than 65 years old, a significantly higher ratio than the national average of 22.7 percent. Some 22 percent of Japan's elderly are poor, according to the Organization for Economic Co-operation and Development. This report is supported by the study on the psychosocial impact of an earthquake on the elderly by Ticehurst *et al.*, (1996). They studied the psychosocial effects of an earthquake which occurred in Newcastle, Australia in 1989. They concluded that older people may be more at risk for experiencing post-traumatic stress reactions despite having fewer disaster-related experiences.

These present the importance of preparedness in the face of natural disasters. The World Health Organization (WHO) describes preparedness as activities and measures in advance to ensure effective response to the impacts of hazard including the issuance of timely and effective early warnings and temporary evacuation of people and property from threatening locations. It also pertains to the pre-disaster activities, including an overall strategy, policies, and institutional and management structures that are geared to helping at-risk communities safeguard their lives and assets by being alert to hazard and taking appropriate actions in the face of an imminent threat on the actual onset of a disaster.

Moreover, Haimes (2012) stated that preparedness connotes a decision process for future anticipated events with estimate probabilities of occurrences and of consequences, in which decision and their associated actions are implemented in advance of a natural or human-made disaster and are aimed at reducing disaster consequences to levels considered. Thus, in the light of impending danger posted by the occurrence of the Big One, and the increased risk of the elderly population to this phenomenon, it is timely to identify the difficulties faced by the elderly as they are the vulnerable member of the population in the face of natural disasters.

This study aims to determine how elders of Barangay Canlubang were set to survive the occurrence of "The Big One"

Specifically, it aims to answer the following questions:

- ✓ How vulnerable are the elderly individuals to the Big One phenomenon?
- ✓ How prepared are the elders to the occurrence of the Big One phenomenon?
- ✓ What are the difficulties in preparing for occurrence of the Big One phenomenon?
- ✓ What Earthquake disaster preparedness program may be proposed for the community members in Barangay Canlubang, Calamba City?

Scope and Limitation of the Study

The purpose of this study is to determine the following: (1) susceptibility/ vulnerability of the elders to earthquakes, (2) their preparations for the "The Big One", (3) the difficulties faced by the elders in their preparation for earthquakes, and (4) possible program proposals for the elders.

The study used a qualitative research design in which the researchers conducted interviews. The researchers included three (3) elders that are residing in Canlubang, Calamba City. The scope of this study included the current situation, health condition, and awareness of the three elderly respondents. This study is however limited to the three elders aged 60 and above who were residing in Canlubang, Calamba City.

Material and Methods

This part presents the research design, the participants of the study, the data gathering instrument, the data gathering procedure and the data analysis.

Research Design

This study utilized a qualitative research design to gain awareness and explore and in-depth investigation on the difficulties inherent in the current situation and condition of the elderly population. In order to better understand the preparations of the elderly individuals, an Interpretative Phenomenological Analysis (IPA) was employed. IPA is committed to the value of attempting to understand the world from the perspective of one's participants" (Smith and Osborn, 2008). This study therefore was aimed at understanding the context of disaster preparedness from the perspective of the elders. In addition, phenomenology is the study of the lived experience of the respondents, thus this study was anchored on the real-life situation and immediate experience of the people (i.e. elders) rather than theories, conceptualizations, and categories. The goal of such is to approach is to arrive at a description of the nature of the phenomenon. Thus, in this study, the experiences of the elders in preparation for the coming "The Big One" will be investigated, analyzed and evaluated.

Respondents of the Study

The respondents of the study were three (3) selected elders residing in Canlubang, Calamba. The participants of the study were chosen through a purposive sampling method based on the set criteria.

Research Instrument

The researchers used an in-depth interview in gathering information. This study conducted an interview with the three respondents. Questions involved basic demographic profile and background, current health condition and status, and awareness on the Big One phenomenon. Questions were formulated by the researchers, however, during the interview process, the interviewer had the liberty of adding or modifying the questions as deemed necessary. The questions were open-ended and responses were recorded. Responses were transcribed to be able to identify key words, phrases and ultimately themes. The researcher comprehensively observed and analyzed the research participants' experience and situation. These were important in interpreting their responses. All the responses, answers, and information gathered are kept and treated with utmost confidentiality by the researcher.

Data Gathering

Researchers created a preliminary draft of the guide questions. The questions focused on the current situation, health conditions and preparation of the elderly individuals in the occurrence of "The Big One" phenomenon. Trust was first established between the participants and the interviewer. The researcher presented the informed consent to the respondents, explained the purpose of the study to them and finally asked for the permission to conduct an in-depth interview. The respondents were assured that the information gathered were confidential. It was also reiterated that the participants were not forced to answer questions they were uncomfortable with.

The researchers asked for the availability of the respondents. The interview proper was conducted at the respondent's house. Enough time was allotted to have enough time to establish rapport with the respondents. The conversations were recorded with the permission of the participants. After the interview, the researcher retrieved the data gathered and transcribed them in detail. The researcher then interpreted and analyzed the data gathered.

Data Analysis

The data gathered were analyzed using the following steps:

The first step of the analysis was looking for themes in the first case. This involved a detailed reading and rereading of the transcripts and a free textual analysis to allow salient themes to emerge. The second stage involved connecting the themes. This layer of analysis was aimed to produce initial lists of themes, a clustering of themes into major or superordinate themes, and a table of superordinate themes and sub-themes. The analysis at this stage was checked with the data.

The third stage was analysis of other cases. Convergences and divergences across cases were identified towards developing the final set of superordinate themes. The fourth and the last stage was the writing up of the narrative account where themes were explained and illustrated. Throughout the analysis, the researcher engaged in an interactive process of going back and forth from analysis to text to ensure the validity of the analysis (Smith, 2006).

Results

This part covers the presentation, analysis and interpretation of the data gathered in the investigation.

Table 1 presents the major themes and sub-themes of the participant's vulnerability, preparation, and difficulties of the elders for the upcoming the Big One.

Table 1. Major Themes and Sub- Themes of Participant's Vulnerability, Preparedness, and Difficulties on the Occurrence of the Big One.

Major Themes	Sub- Themes
Vulnerability	
Different Illnesses	✓ Suffering from different chronic illnesses
Diminished Sensory Awareness	✓ Experiencing poor eyesight ✓ Hearing impairment
Mobility	✓ Easily get exhausted
Preparedness	
Awareness	✓ Lack of cognizance by the Government ✓ Insufficient knowledge about The Big One
Preparation	✓ Emergency contacts are on hand ✓ They only know how to store food and water. ✓ Inadequate earthquake drills
Difficulties in Preparation	
Financial	✓ Limited Financial resources ✓ Low Income
Physical	✓ Difficulty lifting and storing heavy items
Health Condition	✓ Poor Mental Health ✓ Deterioration in mobility

Vulnerability was clustered into three major themes, namely:

- (1) Different illness encountered by the elders,
- (2) Diminished sensory awareness and
- (3) Decreased mobility.

The first theme describes the chronic diseases the elders are experiencing that make them susceptible. Diminished sensory awareness, the second theme, enumerates the conditions of the participants with regards to their poor eyesight and hearing impairment. Lastly, mobility shows how elders experience a decrease/ slowing down of their movement resulting to being more easily exhausted.

Preparedness was clustered into two major themes:

- (1) awareness and
- (2) preparation.

The first theme suggests that the elders are not given priority by the government, and they have lacking knowledge about the Big One. The second theme presents the strategies that the elders are undertaking as preparation for the Big One-these are: having contacts to their families in case of emergency and knowing how to store food and water. Lastly, the most alarming revelation is they have never experienced having earthquake drills.

Difficulties in preparation was clustered into three major themes:

- (1) Financial,
- (2) Physical and
- (3) Health conditions.

The first theme describes how the elders have limited source of income, the second theme defines how elders suffer from declining physical condition (having fragile body) that results to being prone to any danger. The last major theme unveils the health conditions being experienced by the elders, such as poor mental health, deterioration in mobility and movement. All of these made them difficult to prepare for the upcoming the Big One.

Discussion

Elders 65 years and older were easy to acquire chronic diseases that make them suffer. It could be that these chronic diseases made them more vulnerable part of society. Elders experience aches from these chronic diseases that make them very susceptible to different disasters. These chronic conditions, combined with physiological, sensory and cognitive changes as experienced as part of aging, result in frail older adults having special needs during an emergency. Moreover, elders have diminishing hearing ability and poor eyesight. Both contributed to their vulnerability which indicates that every elder that experiencing decreasing ability to hear and poor eyesight were all vulnerable to every disaster. Lastly, elders were more likely to endure and perceive fatigue because of their failing body. This fatigue makes them more vulnerable to disaster.

These observations were supported by Al-Rousan *et al.*, (2014) when they reported that increasing age and physical disability were independently and significantly associated with worse overall preparedness. This observation supports the idea that diminished sensory awareness, chronic health limitation prevent adequate preparation for disaster and hinder the capability of the elders during the disaster. Thus, elders with such illnesses, diminished sensory awareness and decreased mobility have a high risk in a disaster.

In terms of preparation, it was evident that the information about the Big One phenomenon was not cascaded to the elderly members of the community. This shows that local government officials might have overlooked the consideration of the elderly in the preparations for the Big One phenomenon. Stakeholders generally understood the value of resilience for older adults; thus, they often perceived that other organizations were responsible for the information dissemination for the elders.

In other words, the responsibility of informing the elders were assumed to be accomplished, but reality, nobody was doing the work. Moreover, the elders in the Canlubang have little knowledge about the Big one. They resort to the gadgets or media like television but unfortunately, no one taught them how to use it. They don't even have time to watch television which was supposed to give them such information. All they have were the contacts on hand in case that this Big one will happen. They know who should contact in times of emergency. Storing food and water is essential in preparation for disaster. The elders of Canlubang also know how to store food and water. It implies that the elders of Canlubang were prepared in terms of emergency contacts and storing in food and water.

The most alarming revelation in terms of preparation was that these elders never practiced earthquake drills based on their responses. Accordingly, they have no time for preparing for disaster because their priority was making money. Moreover, according to them, one can't be ready for earthquakes unless you've experienced it. These responses imply that the elders were not prepared to disaster because they have no interest in preparing for it.

In terms of difficulty in preparation, it can be noted that the elders have very limited financial resources. Many low-income families live in areas prone to natural disasters, such as floodplains, where land is typically cheaper. They often lack adequate resources to prepare for and recover from disasters, such as the funds to board up their house, a car to evacuate, or a place to stay if they must leave their home. With fewer assets, little insurance, and less diversified income sources, families that are already struggling can be pushed into destitution when disaster strikes. Physical limitations also contribute to the difficulty in disaster preparation. The fragility of the elders makes it difficult for them to lift and store heavy items. Poor mental and emotional condition caused by their increasing age also adds to the difficulty of the elders to prepare for a disaster. This condition results from mood swings and memory loss. This is largely because they are, overall, more fragile physically and less resilient emotionally than their younger counterparts. Moreover, a high proportion of older people, especially those over 80 years old, have one or more chronic conditions or physical limitations which make them more vulnerable than healthy people after a disaster.

Lastly, the decline of mobility and movement experienced by the elders contributes to the difficulties in preparing for a disaster. This condition makes the elders easily get tired that make them be difficult preparing. It hinders them to prepare and survive in any disaster. All these factors make it difficult for the elders to prepare for the upcoming the Big One phenomenon.

Conclusions

The results disclosed that as to the state of being elderly, the participants suffered illnesses such as the diminish of their sensory awareness and their mobility. As to the participants' preparation to disaster, they divulged that they are unaware of the catastrophic event called "The Big One" hence they are unprepared when this happens. Lastly, the most frightening part was that they did not practice earthquake drills which will somehow prepare them when

this event happens. More so, it was found the elders were very vulnerable to the said event because of their physical condition as aged individuals.

Based on the results, the researchers recommend that the government should establish disaster preparedness program and livelihood projects together with the Non-Government Organization (NGO) for the elderly individuals of Barangay Canlubang. They also recommended that the elders should fully participate in governments disaster programs and make themselves ready for the upcoming the big one.

Acknowledgement

The authors would like to extend their gratitude to the participants of the study who extended their time towards the completion of this paper.

Declaration of ownership

This report is our original work.

Conflict of interest

None.

Ethical clearance

This study was approved by the institution.

References

1. Al-Rousan, T.M., Rubenstein, L.M. and Wallace, R.B. 2014. Preparedness for natural disasters among older US adults: a nationwide survey. *American Journal of Public Health*, 104(3): 506-511.
2. Haimes, Y.Y. 2012. Systems-based approach to preparedness for, response to, and recovery from natural and human-made disasters. *Leadership and Management in Engineering*, 12(4): 288-298.
3. Harney, A. 2011. Japan's Earthquake and the Hazards of an Aging Population. [online] *The Atlantic* Available at: <https://www.theatlantic.com/international/archive/2011/03/japans-earthquake-and-the-hazards-of-an-aging-population/72892/>.
4. Iweb.ph. 2019. West Valley Fault Line in Laguna (Part 9)–iWeb.ph. [online] Retrieved from <https://www.iweb.ph/west-valley-fault-line-in-laguna-part-9>.
5. Reyes-Aguila, J. 2019. How strong an earthquake will the "Big One" be? You need to sit down for the answer. [online] ABS-CBN News. Available at: <https://news.abs-cbn.com/ancx/culture/spotlight/05/02/19/should-you-be-afraid-of-the-big-one>
6. Smith, J.A. and Osborn, M. 2008. Interpretative phenomenological analysis. In: Smith, J.A. (Ed.), *Qualitative Psychology: A practical guide to research methods* (pp. 53-80). London: Sage.
7. Ticehurst, S., Webster, R.A., Carr, V.J. and Lewin, T.J. 1996. The psychosocial impact of an earthquake on the elderly. *International Journal of Geriatric Psychiatry*, 11(11): 943-951.
8. Who.int. 2019. WHO Preparedness. [online] Retrieved at: https://www.who.int/environmental_health_emergencies/preparedness/en/.

9. Wong, I., Dawson, T. and Dober, M. 2014. Evaluating the Seismic Hazards in Metro Manila, Philippines. Retrieved from http://www.iitk.ac.in/nicee/wcee/article/14_07-0109.PDF

Citation: Molina G. Rizo, Gladys P. Bustos and Leandro R. De Luna. 2020. Disaster Preparedness: Difficulties of Frail Elders in Preparing For the Big One. International Journal of Recent Innovations in Academic Research, 4(9): 21-28.

Copyright: ©2020 Molina G. Rizo, et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.