



AMERICAN JOURNAL OF SOCIETY AND LAW (AJSL)

ISSN: 2835-3277 (ONLINE)

VOLUME 3 ISSUE 1 (2024)



PUBLISHED BY
E-PALLI PUBLISHERS, DELAWARE, USA

Unfolding the Experiences and Preparedness Mechanism of Senior Citizens in the Wake of Disaster: Towards a Disaster Resilient Community

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Article Information

Received: December 15, 2023

Accepted: January 20, 2024

Published: January 23, 2024

Keywords

Disaster Preparedness, Disaster Management, Senior Citizens, Local Government Unit

ABSTRACT

The physical, emotional, and psychological well-being of every individual is negatively affected by disasters. In particular, the aged people, or “Senior Citizens” are susceptible to the disproportionate and detrimental effects brought upon by any form of disaster. Thus, this study explored the lived experiences of senior citizens in any disaster and their corresponding preparatory mechanisms. Using a qualitative-phenomenological research design, this study interviewed eleven (11) participants to generate their experiences and preparatory mechanism in the wake of disaster. The use of Collaizi’s method was used in the analysis of the qualitative data. Analysis of data revealed two emergent themes: (1) Disaster-related challenges and (2) life security that describe the experiences of the participants. In addition, the results have shown that senior citizens experience difficulty in combating disasters due to a range of disaster-related challenges they encounter. On the other hand, their most common preparatory mechanism in order to combat the challenges primarily relates to safety measures. Thus, disaster preparations need to be strengthened and ensure that the needs of senior citizens are taken into account in local disaster planning and community response efforts.

INTRODUCTION

Disasters have been known to affect an individual’s physical, emotional, and psychological well-being, and the elderly or ‘Senior Citizens’ in particular are one of the most vulnerable to the disaster’s disproportionate and negative consequences. According to the Red Cross (2020), older adults are identified as a vulnerable population, which indicates that these specific groups of people are more likely to be at a greater risk of an incoming disaster. Moreover, the United Nations High Commissioner for Refugees (2023) identified the specific risks senior citizens face during disasters: a decline in sensory awareness, less mobility, diminished psychosocial capacities, chronic health problems, and specific nutritional needs. In addition, the vulnerabilities that senior citizens experience are also interconnected with factors such as physical condition, risks to well-being, and their ability to maintain autonomy (Zagorac 2017). As a result, all of these factors implicate and negatively affect how senior citizens efficiently prepare, handle, and respond to a disaster (Pekovic *et al.*, 2007, as cited by Kim & Zahour, 2017).

However, despite the increased awareness of disasters and the growing research pertaining to how disaster affects humans (Ngo, 2001, as cited by Tierney, 2019), extensive studies exploring the experiences and preparedness of senior citizens with disasters are still limited and undeveloped (Brockie & Miller, 2017; Phraknoi *et al.*, 2023). Furthermore, there is an overall lack of research that focuses on the unique needs of senior citizens in the context of disasters (Bodstein, 2014; Fountain *et al.* 2019). According to Kar (2016), although senior citizens are considered a vulnerable group, their needs are still

insufficiently dealt with in disaster situations. Therefore, uncovering disaster preparedness through the lens of senior citizens can help in creating inclusive frameworks, which is crucial in order to reduce and minimize disaster losses for all sectors of the community and promote holistic community resiliency.

Numerous studies revealed that the elderly people were considered as the most vulnerable during any form of disaster worldwide, having the most fatalities among the population (Bhadra, 2020; Brockie & Miller, 2017; Engelman *et al.* 2022; Zhu & Sun, 2018). Despite this, communities still continue to struggle with addressing disaster preparedness (Cox & Kim, 2017; Yarmohammadian, 2023). And even though senior citizens are at greater risk during a disaster, this population is reported to be less likely prepared for during the wake of a disaster (Al-rousing *et al.*, 2014 ; Loke *et al.*, 2012). Disaster preparedness involves taking proactive measures before a disaster occurs to ensure a sufficient response to its effects and facilitate recovery (Coppola, 2020). These preparations encompass a wide range of activities, starting from individual-level actions to household actions and extending to community efforts and governmental strategies (Chan & Ho, 2018).

Meanwhile, the Philippines is one of the most disaster-prone countries worldwide and is highly susceptible to both geophysical and climate-related disasters (Bollettino *et al.*, 2020). According to Guanio (2021), senior citizens experience a greater disproportionate impact from disasters, especially when they reside in a disaster-prone country with inadequate social safety nets. Moreover, in the wake of natural disasters, evidence suggests that older people in the country have been disproportionately

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affected by the consequences of disasters, along with the highest mortality rate among the population (Almazan *et al.*, 2019; Garcia *et al.*, 2016; Gray *et al.* 2022). Furthermore, along with poor physical and mental condition, it can be noted that the older population in the country generally have limited financial means, which makes it difficult for them to prepare for an upcoming disaster (Rizo *et al.*, 2020). They frequently lack the tools necessary to adequately prepare, such as the money needed to board up their home, a vehicle to utilize for an evacuation or even a place to stay in case they have to leave their home (Rizo *et al.*, 2020). On that note, disaster preparedness generally pertains to the efforts and actions taken to prevent or lessen the impact on vulnerable groups and to efficiently respond and deal with the effects of the disaster (Maac & Labatete, 2023).

This study is guided by the lens of Ageism which pertains to the unjustified discrimination solely based on age (Rueda, 2021). Ageism comes into play in disaster situations due to the negative stereotypes of seniors, such as their vulnerabilities in particular (Oostlander *et al.*, 2022). Moreover, in the context of disaster, older adults are often viewed as ‘victims’ who need to be taken care of, and they are usually portrayed as incapable of doing anything for themselves (Outlander *et al.*, 2021). In addition, the assumption that older adults are less able to prepare for disasters or less likely to survive them can result in a lack of targeted outreach and education efforts aimed at this population (Bodstein, 2014). This can leave older adults without the information, access, or resources they need to prepare for disasters, putting them at greater risk adequately.

This idea can further be integrated into Bronfenbrenner’s Ecological Systems Theory. Bronfenbrenner’s theory posits that an individual’s well-being is shaped by their social environment and the nature of their relationships with others, including family, neighbors, and institutional systems (Ettekal & Mahoney, 2017). The key concept in applying this principle is recognizing that those impacted by natural disasters are interconnected within systems and networks and are linked to other individuals and communities (Milner & O’Brien, 2009, as cited by Shokane, 2019). This theory also describes the different levels of influence on an individual’s development. Each level was further defined by Boon *et. al.* (2011) as follows: At the microsystem level, individuals interact directly with their family, peers, and school systems. The mesosystem examines how these microsystems interact with each other. The exosystem includes external factors that have an impact on the individual, such as extended family, neighborhood, or in the workplace. The macrosystem represents the broader societal and cultural influences, including government policies, cultural values, and the economy. Boon *et al.* (2011) further emphasized that these different levels of influence collectively shape an individual’s experiences, and it is important to note that it is at the macrosystem level where policy and planning take place, which can heavily affect individuals and communities as a whole. This means that it is at this level

where the great emphasis on involving people in both the identification and implementation of any disaster program activities and interventions takes place (Boon *et al.*, 2011). Overall, the ecological systems theory is concerned with how an individual can achieve balance with its environment or in contrary, how they sometimes fail to achieve balance caused by the influences on their environment (Zastrow, 2010 as cited by Shokane, 2019). Ageism, which encompasses the negative stereotypes and discrimination solely based on age, results in limited access to resources, inadequate support systems, and, worst of all, marginalization among senior citizens in the wake of disasters. In that sense, the macrosystem level of the Ecological Systems Theory, where the societal attitudes and values, policy resource allocation, and the strength of social support networks play a crucial role in addressing the needs and challenges faced by senior citizens. Therefore, to promote the well-being and preparedness of senior citizens in the wake of disaster, it is essential to uncover the experiences of senior citizens particularly the challenges they have endured due to the vulnerabilities and discrimination directed towards them and how it influences their corresponding preparedness mechanism. Doing so would significantly help develop inclusive disaster policies, hence fostering resilience and preparedness of senior citizens in the face of disaster emergencies.

The findings and results of this study would be beneficial to the community. Specifically, this study could be used to disseminate the concerns of senior citizens about the gaps in disaster programs. Considering the impending aging phenomenon and the inevitable disaster risks in the country, this study can be utilized by local government units as a basis to improve disaster planning and interventions in which it can address the problems and issues during the implementation of disaster preparedness programs, particularly in elderly communities. In addition, the findings of this study further expand the existing body of knowledge by providing information regarding the disaster-related challenges, experiences, and issues among senior citizens, further demonstrating the importance of adequate disaster preparedness mechanism.

RESEARCH OBJECTIVES

This study aims to uncover disaster preparedness through the lens of senior citizens in Digos City, Philippines. Thus, this study will be guided by the following research objectives;

1. What are the experiences of senior citizens during any form of disaster?
2. What are the preparatory mechanisms of senior citizens in any form of disaster in their area?
3. What disaster preparedness conceptual framework be created based on the lens of senior citizens?

METHODOLOGY

Participants

This study was conducted in Brgy. Soong, Digos City, Davao del Sur, Philippines. The chosen location

is a disaster-prone area where several fault lines are discovered, making it more dangerous to earthquakes than other areas. In addition, it is a rural area, which means that it is more susceptible to a range of natural disasters such as floods and landslides, posing additional problems since they are more likely to rely on local water sources for drinking. These factors can cause significant damage to properties and infrastructure, aggravating the risks experienced by seniors.

Upon choosing the participants, the researchers utilized snowball sampling. According to Naderifar *et al.* (2017), the snowball sampling technique is a method of gathering information to access specific groups of people. By introducing the researchers through a reliable social network, the snowball sampling technique directly addresses the uncertainties and mistrust that are typical in a conflicted environment (Cohen & Arieli, 2011). Researchers started with establishing a contact with one initial participant who was qualified from the inclusion criteria. Then, researchers requested the initial participant to identify more potential participants with the same case and so on. Sampling continued until the specified sample

size was accomplished and data saturation was reached. Moreover, the target participants of this study were as follows:

- (1) Senior citizens aged 60 years old and above,
- (2) Those who live in the disaster-prone area
- (3) Those whose income falls below the poverty threshold, and
- (4) Should be able to give his/her own perspectives without the guidance of others.

Participants who were excluded from the study are adults aged 59 and below, senior citizens who do not live in the specified disaster-prone area, and whose income is above the poverty threshold. Participants had the right to withdraw before or after the conduct of data collection. Upon his/her withdrawal, the participants should inform the researchers and he/she may or may not provide the reason for the withdrawal from the study. Finally, based on the inclusion criteria, a total of 11 senior citizens were included in the study (4 male and 7 female) ranging from 61 to 78 years of age and monthly income ranging from below 1000 pesos and not exceeding 8000 pesos.

Table 1: Profile of the Participants based on the inclusion criteria

Code Name	Gender	Age	Monthly Income	Location
Participant 1	Female	63	None	Soong, Digos City
Participant 2	Male	73	P2000	Soong, Digos City
Participant 3	Female	78	P5000	Soong, Digos City
Participant 4	Female	66	P8000	Soong, Digos City
Participant 5	Male	68	P8000	Soong, Digos City
Participant 6	Female	65	P5000	Soong, Digos City
Participant 7	Male	61	None	Soong, Digos City
Participant 8	Male	64	P3000	Soong, Digos City
Participant 9	Female	64	P5000	Soong, Digos City
Participant 10	Female	64	P2000	Soong, Digos City
Participant 11	Female	64	Below P1000	Soong, Digos City

Instrument

The researchers utilized an in-depth interview in gathering the necessary data. Furthermore, the research instruments that were used in this study are as follows; (a) the researchers - the main instrument of the study, (b) validated interview guide, (c) recorder, (d) notebooks, (e) pen, and (f) consent forms. According to Myburgh and Poggenpoel (2003), the researcher is the key person in obtaining the data from the participants in qualitative research. Thus, the main instrument that was utilized throughout the course of data gathering was the researchers. Furthermore, the researchers formulated validated interview guides to collect data from the participants; however, during the interview process, the interviewer may add or modify some questions if necessary. In addition, the rest of the instruments were utilized to ensure that the responses were recorded and transcribed properly to identify key ideas, phrases, and themes. According to Tessier (2012), in the conduct of

an interview, choices on how to document the data are made, and one usually uses tools such as field notes, a recording device, or both. Lastly, consent forms were also used to gain the participants' permission, and they were guaranteed that all of the responses gathered from them were kept and treated with utmost confidentiality and anonymity by the researchers.

Design and Procedure

This study utilized phenomenology - qualitative research design. According to Creswell (2009), phenomenology is a research design wherein the researchers identify the core of human experiences that pertain to a certain phenomenon as described and narrated by the participants. Furthermore, this study mainly focuses on understanding the participants' experiences with regard to the various forms of disasters they've experienced, with the earthquake and landslides as the most recent phenomenon. As such, this research design is utilized to

properly show the significant lived understanding based on how they are perceived by the individuals involved in the phenomenon (Lester 2014).

In gathering the data, the following steps were observed in the process to obtain the appropriate data. First, the researchers formulated a set of research interview questions to obtain the appropriate data needed for the research from the participants, which were checked and validated by experts. Second, before gathering data, the researchers submitted a letter of permission to the UM Digos College to conduct an interview outside the institution's premises. Third, the researchers looked for willing participants who fit in the inclusion criteria. Fourth, the participants were asked to sign an informed consent form to ensure that they were willing to participate in observing ethical goods and regulations for the subject's research. The fifth step was to conduct an in-depth interview in a quiet and comfortable room for each participant, depending on their availability, to gather the necessary data for the study. Lastly, the qualitative data, which is in the form of responses and narratives from the participants, were analyzed using Colaizzi's thematic analysis method. This method was used to identify the underlying themes from the data and was utilized to clarify the study's qualitative result.

Colaizzi's seven steps for data analysis method were used in this study. The following steps, as cited by Sanders (2003) and Speziale and Carpenter (2007), are as follows: The first step was to get a feel of the entire content, where each transcript was read several times. Second, significant sentences relating to the phenomenon being studied were removed from each transcript. Third, deducing meanings from these important utterances was done. Fourth is sorting the stated meanings into categories and theme clusters. Fifth, the study conclusions were included in a thorough description of the phenomenon being investigated. It is also necessary to characterize the phenomenon's basic structure. Then, the phenomenon's basic structure was articulated. Lastly, to match the researcher's descriptive results, with the research's participant's experiences, validation of the findings was requested from them.

Ethical Considerations

The researchers adhered to comprehensive ethical guidelines in conducting the study. This involved following the study protocol assessments and standardized criteria, specifically in handling the population and data such as, but not limited to:

Voluntary Participation

All participants were allowed to freely choose their participation without facing any consequences. Hence, once the purpose and benefits of the study were communicated to the participants, their rights to contribute to the study were thoughtfully taken into account and respected. Individuals who decided not to take part in the study for any reason were given the

option to withdraw at any time, and their involvement was discontinued without any negative consequences.

Privacy and Confidentiality

The personal and/or professional information of the participants, which may have been necessary for the study, was treated with strict confidentiality. The researchers took measures to ensure that the participants' data remained private and protected, preventing its disclosure to unauthorized individuals or entities outside of the research setting.

Informed Consent Process

The research questionnaires provided in Appendix G were designed in a manner that avoided the use of technical terms, ensuring they were easily comprehensible to the participants. Additionally, no questionnaire was administered to any participant without obtaining permission first from the authorized command channels and the individuals themselves. Furthermore, the questionnaires prompted participants to confirm that they had been informed about the study's benefits and potential consequences, as outlined in the Informed Consent Form.

Risks

The researchers addressed the risk by conducting the survey through in-depth interviews utilizing the same design and structure validated by experts.

Plagiarism

The study maintained a strict policy against plagiarism, ensuring that no content or ideas were presented as original when they were not. Grammarly, which is an editing platform was utilized to ensure grammatical accuracy and enable the researchers to express ideas in his/her own words, drawing from various academic resources. Additionally, Turnitin was employed to monitor the similarity index and ensure the integrity of the study's content.

Deceit

The study took precautions to prevent any potential harm arising from the data provided by the participants. The researchers conducted the study with integrity, refraining from any deceptive practices or misleading tactics toward the participants. Ethical concerns and undesirable feedback were proactively managed by appropriately addressing relevant provisions.

RESULTS AND DISCUSSION

Experiences of Senior Citizens in Any Form of Disaster

The image below demonstrates the experiences of senior citizens during any form of disaster. Based on the data gathered, Disaster-related challenges were generated as the emergent theme based on the emergence of the cluster themes, namely: Emotional distress, Tangible damage, Health-related issues, and financial hardship.

In the context of this study, Disaster-related challenges refer to the various difficulties resulting from any form of disaster. It is the difficulties covering multiple areas of life including emotional

(how we feel), financial (sources of income), physical (state of our well-being), and external: (impairment of houses and buildings).

Disaster is a phenomenon that results in great damage

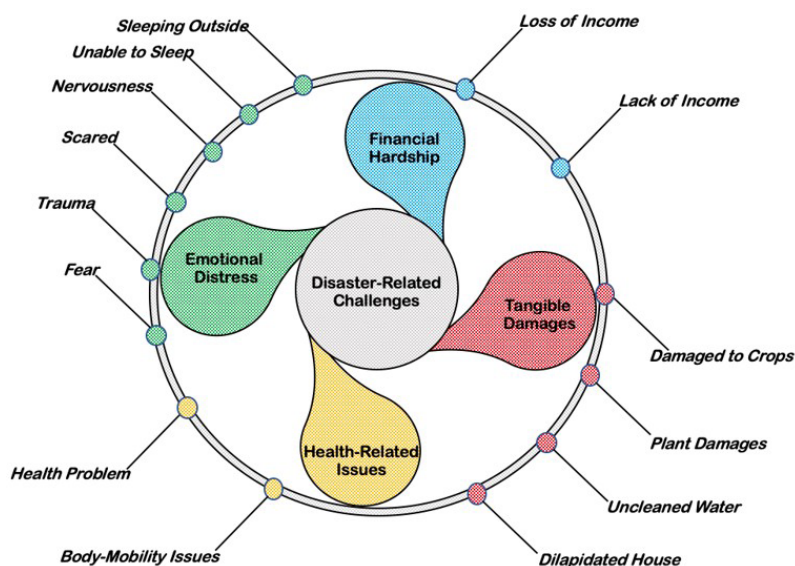


Figure 1: Disaster-Related Challenges Experienced by Senior Citizens in the Wake of Disasters

to properties and challenges to humans. In terms of Emotional distress, this is the range of negative emotions that can sufficiently disrupt the normal life patterns of an individual (e.g sleeping patterns) due to fear that something bad might occur. According to Maslach and Leiter (2016), emotional distress refers to a wide range of negative affective responses, including feelings of anxiety such as fear, nervousness, fear, etc. This collection of intense and fearful emotions resulted from the emotional toll that the effects of a disaster have caused (Smith & Seagal, 2015). In relation to, (Parker *et al.* 2016) also noted that disasters elevate the likelihood of vulnerability towards emotional trauma among older adults. Furthermore, Magee and Carmin (2010) stated that these negative emotions of emotional distress further increase the risk of sleep disturbances among older adults. According to Bui *et al.* (2020), large-scale disasters present stressors that affect the emotional well-being of vulnerable individuals, including the elderly. As such, based on the participants' perception, the factors that constitute the emotional distress they experience are emotions of fear, nervousness, trauma, and sleeping difficulty. Participants experienced being scared because of the possibility that something bad might happen to them.

Participant 1 mentioned that;

"First is the earthquake. And we were so scared because our house might fall on us.)" [line 66]

Participant 10 added that;

"The rain was very heavy, then the storm. Sometimes... I just get scared as to what will happen to us at home." [line 52]

In addition, nervousness is another contributor to emotional distress. Participants experienced nervousness

because of the idea that their house would get destroyed. Participant 11 even mentioned that;

"My body is shaking, I'm nervous. I was just nervous inside the house because I thought our house would be destroyed." [line 80]

In addition, trauma is another contributor of emotional distress. Participant experienced trauma because of the feeling that no matter where they go, they are unsafe.

Participant 7 even mentioned that;

"Oh, it were traumatizing. No matter where you run... During those time, we're really looking for an open space. That we will never be stuck. We will definitely leave our house." [line 65]

In addition, sleeping difficulty is another contributor of emotional distress. Participant experienced sleeping difficulty because of the fear of getting trapped inside their house.

Participant 1 even mentioned that;

"And during sleeping time, I also get scared to sleep because I might get trapped inside our house." [line 89]

Participant 3 added that;

"In terms of how we sleep, it was very difficult! We sleep at the side of the road! There, we slept at the side of the road. We can't even stay inside our house because we're too afraid." [line 108]

Meanwhile, financial hardship is another challenge experienced by senior citizens in the wake of a disaster. Financial hardship refers to the inability to obtain funds due to the loss of sources of income, particularly livelihood. According to Mirowsky and Ross (2001), financial hardship results from the difficulty in meeting the basic necessities of life due to insufficient financial resources. Furthermore, the lack of economic resources during disasters reduces access to basic necessities such

as food, health care, and personal security (Bui *et al.* 2020). Morrow-Howell *et al.* (2020) stated that financial challenges are experienced more severely by older adults compared to younger adults since they have less access to resources that could otherwise help them recover from financial setbacks. Jachimowicz *et al.* (2020) further stated that individuals with less income resources experience increased financial hardship associated with higher levels of economic inequality. Based on the participant's perception, the factors contributing to their financial hardship are the loss and lack of income.

Participants experience a loss of income due to the inability to obtain money brought upon by disasters.

Participant 1 even mentioned that;

"Second is when the Covid came, and we cannot go outside, I also can't sell so it was hard, it was difficult for me where to find my expenses. Since even my kids aren't allow to sell, to roam around because of Covid." [line 68]

Participant 5 added that;

"We were affected that time because we lost our income. You aren't able to obtain income since you cannot sideline for the students." [line 62]

In addition, lack of income is another contributor of financial hardship. Participants experience lack of income as a result of their difficulty finding enough finances since their livelihood was affected by disaster.

Participant 4 even mentioned that;

"Our livelihood, that is [affected], Our income was very low." [line 60]

On the other hand, health-related issues pertain to an individual's issues mainly due to physical ailments and body movement difficulties that render their proper movement. According to Indiana University Health (2016), health-related issues pertain to any physical, emotional, and mental condition that can hurt an individual's capability to perform safely and competently. Garcia *et al.* (2020) emphasized that the greater need of elderly people for healthcare increases their vulnerability. Furthermore, according to Greiner *et al.*, (2016), the elderly experience physical challenges due to chronic illnesses or health problems they have which require thorough treatment. In addition, less mobility combined with hindering support altogether increases their susceptibility to risks. As such, based on the participant's perception, the factors that contribute to the health-related issues they experience are health problems and body mobility issues.

Participants experience health problem because of poor health conditions.

Participant 2 even mentioned that;

"I haven't even gone in our little area there at the top because I was recently hospitalized due to my body where I always collapse. It only happened to me recently, during this year. I always faint, I fainted seven times here. Every day I check my blood pressure." [line 132]

In addition, body mobility issues is another contributor of health related issues. Participants experience body mobility issues as an effect of difficulty moving during disaster thus, rendering them the need of assistance or

support from others.

Participant 6 even mentioned that;

"It already happened that I fell down during earthquake and then I was standing there....my clothes got really dirty... it was so dirty from where I fell. They just look at me and then I go to the store because that's where I hold, it's really hard..." [line 150]

Lastly, tangible damages are the physical damages caused by disasters as seen through the destruction of crops and houses. According to Veldhuis (2011), tangible damages refer to material damages to structures, including buildings and properties. Moreover, Rajeev (2016) identified the loss of household and livelihood assets as one of the key challenges experienced by the elderly due to disasters. In addition, the limited availability of safe drinking water and damage to sanitation facilities threaten the well-being and survival of the affected individuals (Khurshed and Habibur, 2019). These external challenges result from direct losses caused by the destruction of infrastructures, including floods, heavy rains, high winds, or ground shaking (UNDDR, 2023). As such, based on the participant's perception, the factors that contribute to tangible damages are: house damage, crop/plant damage, and unclean water.

Participants experience house damages due to the effects brought by disasters like strong winds and earthquakes.

Participant 8 even mentioned that;

"Yes, strong winds, our roof is sometimes blown away. This roof will then leak. It will be flowing because of the intensity of the wind" [line 64]

Participant 9 also added that;

"That's why the [house] collapsed, but I haven't touched it, until now it's still there, and I still live in it." [line 87]

In addition, plant damage is another contributor to tangible damage. Participants experience plant damage through their crops being washed away due to the intensity of the rain and landslide.

Participant 8 even mentioned that;

"A lot of our plants were damaged. Corn, abacca plant, so much was damaged." [line 71]

Participant 10 added that;

"The taro and banana plants. It was washed away. Those plants of ours, sometimes we can't eat them anymore, we can't take them anymore because they all fell down." [line 74]

Participant 11 also stated that;

"There's a lot of damaged. Plants were damaged due to the intensity of the rain." [line 39]

In addition, unclean water is another contributor to tangible damages. Participants experience unclean water, resulting in them boiling it first before drinking or rendering them unable to bath since it has become dirty after experiencing disaster.

Participant 8 even mentioned that;

"Ah, there is no way to bathe as long as the water is dirty. We just wait for it to clear." [line 94]

Participant 10 also added that;

"Sometimes there is no water, sometimes we only drink

water from that pipe, we just boil it.” [line 34]

As seen through the lens of the participants’ experiences, disaster-related challenges indeed encompass a wide range of difficulties that arise in the aftermath of any disaster. These challenges can impact multiple aspects of an individual’s life, including emotional well-being, financial stability, physical health, and even external circumstances such as property damage. This is further supported by Rajeev (2016), who identified the common challenges that the elderly face during disasters, such as emotional concerns, financial issues, health issues, and physical issues. Overall, disaster-related challenges involve the hardships and obstacles that individuals face across various domains of their lives following a disaster.

Preparatory Mechanisms of Senior Citizens in Any Form of Disaster

The image below demonstrates senior citizens’ preparatory mechanisms in any disaster. Based on the data gathered, Life security was generated as the emergent theme based on the emergence of the cluster themes: prioritizing basic needs, safety measures, financial security, and being attentive. In the context of this study, Life security refers to the set of preparations and actions taken to ensure safety and well-being by reducing the risks that any disaster can cause.

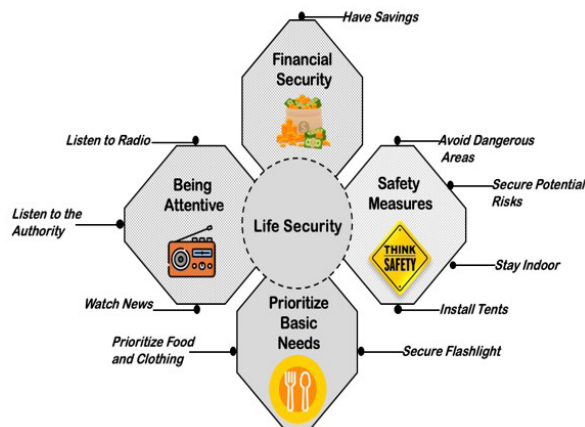


Figure 2: Life Security as an Emerging theme of Preparatory Mechanisms as Perceived by Senior Citizens in the Wake of Any Form of Disaster

Preparatory mechanisms are essential for survival in the wake of any form of disaster. In line with this, prioritizing basic needs means preparing the most essential needs, such as food and clothes, that must be prepared in advance to survive disasters. According to Chiappero-Martinetti (2014), to meet the fundamental needs in life, it is necessary to prioritize basic commodities, including food, clothing, and shelter. Furthermore, the Red Cross (2023) identified the essential items that must be prioritized in the wake of disaster. These items include food, a flashlight, medications, sanitation, and personal hygiene items. These essential items in particular are the most basic needs that individuals must attend to to

survive disasters (Jordan, 2015). In relation to, based on the participant’s perception, the factors that constitute prioritizing basic needs are prioritizing food and clothing as well as securing a flashlight. Participants experienced prioritizing food and clothing through preparing essential items in advance.

Participant 1 even mentioned that;

“ Yes, and then I put a few clothes in my bag. So that if I evacuate, I would be able to bring something. I also put my medicines and the things I need like rubbing alcohol.” [line 207]

Participant 3 added that;

“ Yes, we prepare things in advance. We put everything inside our bag. Such as rice, sugar, we put everything to be ready. So that whatever happens, we’re already prepared. We evacuate and have something with us.” [line 168]

Participant 6 also added that;

“ In fridge, it is important that you have food. You have rice, you have something to eat. Because during earthquake we cannot go out easily.” [line 120]

Participant 7 also added that;

“ Let’s just get ready, what’s important to us is, take care of ourself, prepare what we’re going to bring when we evacuate. We have portable clothes, food. What are the laws of the government, we will follow them.” [line 168]

Participant 10 also added that;

“I prepare everything. Sometimes I put clothes in the bag, also money.” [line 110]

In addition, securing flashlight is another contributor of prioritizing basic needs. Participants experienced securing flashlight to ensure having a source of light during night time.

Participant 8 even mentioned that;

“ Sometimes I make sure to always have a spot (flashlight). Because at night, if there is a strong wind, or there is an earthquake you will have something to use.” (participant 8, line 137-138)

Meanwhile, safety measures are the precautions to protect one from being harmed. According to Aldandani (2010), safety measures are a collection of accepted practices and techniques to guarantee the protection of life and property before an incident. The foundation of safety measures is awareness and readiness in times of disaster. Being competent during times of disaster makes an individual prepared (Olores *et al.*, 2023). Avoiding dangerous areas before evacuation, securing potential risks such as checking fragile items within the household, and making reinforcements to prevent damages were further identified to help ensure safety (Kansai Transmission and Distribution, 2020). In addition, the practice of staying indoors or within a designated safe area during disasters is proven to enable an individual to ensure his or her safety (Paveglia *et al.*, 2008, as cited by Siam *et al.*, 2022). Senior citizens, in particular, might find it hard to evacuate and therefore decide to stay and defend inside their homes (Lach *et al.*, 2005, as cited by Cho, 2019). Hence, seeking shelter is also a critical part of disaster responses and is crucial for the safety of disaster victims (Ekaputra *et al.*,

2022). Based on the participants' perception, the factors contributing to safety measures are avoiding dangerous areas, staying indoors, securing potential risks, and installing tents for temporary shelter.

Participants experienced avoiding dangerous areas by looking for places that are safe.

Participant 1 even mentioned that;

"I look for places where nothing could fall on me. I look for places where there are post, I look at where the earthquake would go, and I also avoid post as well as my neighbour's fences." [line 226]

In addition, staying indoors is another contributor to safety measures. Participants experienced staying indoor by making sure not to go outside in times of disaster.

Participant 2 even mentioned that;

"Yes. Which is why here in our house, that's what we do. If there is a disaster, we make sure not to go outside." [line 173]

Participant 5 also added that;

"Of course, we would just stay here inside the house and listen to the passage of events. You just have to make sure not to be rattled." [line 143]

In addition, securing potential risks is another contributor of safety measures. Participants experienced securing potential risks by means of tying down fragile items to prevent the risk of it from falling unto them.

Participant 4 even mentioned that;

"Oh yes, only the TV. Well not really, we only tied the TV, even until now, its still tied down." [line 178]

Participant 6 also added that;

"It's in the cabinet, but is it tied so that it doesn't fall, we put wires to prevent them from falling, like those broken glasses, plates, or whatever." [line 129]

In addition, installing tents is another contributor of safety measures. Participants experienced installing tents for them to have a temporary shelter and avoid being trapped.

Participant 4 even mentioned that;

"We just installed a tent right there. Yes, right here. There were no people in their rooms because they still have to run, so that if there would be an earthquake, they would be outside straight away." [line 194]

Financial security, on the other hand, means securing money regardless of the amount for it to be utilized when needed and for preparation for future events. Furthermore, Horton (2022) defined financial security as having enough money to cover expenses, financial setbacks, or future happenings properly. Generally, finance is one of the key determinants of the capacity of households to deal with disasters (Lauren *et al.*, 2020). Consequently, effective financial planning and adherence to financial plans are some of the most important practices to alleviate hardships (Mekonen *et al.*, 2022). Moreover, Coburn *et al.* (1994) as cited by Sowman and Raemaekers (2018), further emphasized that it is ensured that a level of protection is developed by encouraging people to protect themselves through financial insurance. As such, based on the participant's perception, the factor that constitutes financial security is having savings.

Participants experienced having savings for them to have access to something when the need arises.

Participant 6 even mentioned that;

"Yes we should have a little savings so that we have something to use when needed." [line 157]

Participant 8 added that;

"Take a little money. Have a little money so that if something happens, you have savings that you can use." [line 120]

Participant 11 also added that;

"I'll save a little amount of money around 100 or 50 pesos." [line 127]

Finally, being attentive is about paying attention and being updated of the current happenings related to the environment by means of information received from authorities. According to Arvidson (2006), being attentive or paying attention is a direct observation of the environment. In particular, the Red Cross (2023) emphasized listening to television or radio for instructions coming from the authorities as a mechanism to stay safe in the wake of disasters. Garai (2018) further emphasized that radio and television are important mass-media outlets to learn about the upcoming hazards of disasters. Based on the participant's perception, the factors that constitute being attentive are listening to the radio, listening to authority, and watching the news on television.

Participants listened to the radio so that they could prepare for the upcoming disaster.

Participant 11 even mentioned that;

"(I'll listen news from the radio. So that we can prepare.)" [line 119]

In addition, listening to the authority is another contributor of being attentive. Participants experienced listening to the authority by being aware of the warnings that are being implemented.

Participant 7 even mentioned that;

"The only thing we can do is listen to the warning. Let's listen to what the law is, because there is already a report so we can know." [line 137]

In addition, watching the news is another contributor of being attentive. Participants experienced watching the news because they wanted to know what would happen for them to be prepared.

Participant 8 even mentioned that;

"I sometimes watch the news. Because I want to know what is happening. That there is an earthquake coming, it will be known on television." [line 141;152]

Participant 11 also added that;

"I watch news, just like whenever there's a news that strong winds are coming, the TV would tell us to prepare." [line 156]

Throughout history, humanity has faced disasters and crises as an inherent part of the human experience. While these events may be unpredictable, significant actions can be taken in advance to mitigate the potential damage and reduce the threat they pose. (Sibanda *et. al.*, 2022). Through the lens of the senior citizens' actions, it can be seen that life security encompasses comprehensive

measures and proactive steps that are taken to safeguard the overall safety and well-being of individuals to mitigate the risks posed by any disaster. It involves a range of preparations and actions aimed at minimizing potential harm and adverse impacts that may arise. Life security aims to enhance resilience and promote the overall security and well-being of a person and community as a whole. Moreover, with the application of life security, the potential damages that can be brought by natural disasters such as earthquakes, storms, or floods could be significantly reduced through implementing preventive measures (UNDP, 2023). In addition, According to Loke *et al.* (2012), the senior citizen's perception and preparedness for disasters will be able to lessen damage to their well-being and the imposing threats to their lives during disaster.

Relationship of Life Security and Disaster-Related Challenges as Perceived by Senior Citizens

As perceived by senior citizens, the results have shown that in the context of disaster preparedness, the two emergent themes demonstrate a relationship with one another. That is to say that life security is interrelated with the disaster challenges experienced by senior citizens. Specifically, if life security increases, then the disaster-related challenges decrease and vice versa. Some variables

compose disaster-related challenges and life security, each influencing one another.

First, regarding disaster-related challenges in financial hardship, the more actions you take to secure your finances, such as through saving, the lesser the chances of financial shortages. Further suggests that an individual's financial behaviors can positively affect their financial well-being (Brugeen *et al.*, 2017; Rahman *et al.*, 2021). Second, in terms of tangible damages, one can be protected from the possible risks and potential tangible damages by strongly adhering to the safety measures. This implies that through understanding and managing the risks, major disaster losses can be avoided (UNDDR, 2023). Third, in terms of Health-related issues, one must be provided with basic needs such as medicines, nutritious foods, and proper shelter to lessen the risk of aggravating diseases. As such, difficulty in meeting an individual's basic needs negatively impacts his/her well-being (Chou & Chi, 2002; Western & Tomaszewski, 2016). Finally, in terms of emotional distress, to minimize emotional distress, one must become attentive and aware of the current happenings within their surroundings, resulting in appropriate planning and management decisions. According to Srivastava (2010), the psychological distress caused by disasters can either be increased or decreased by planning and management decisions, which also enhances or slows recovery.

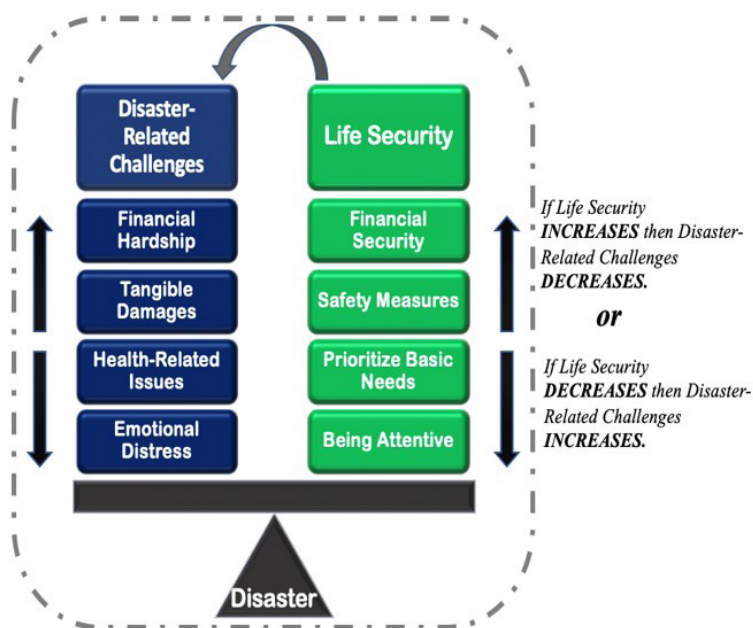


Figure 3: Relationship of Life Security and Disaster-Related Challenges as Perceived by Senior Citizens

Thus, the preparations and actions taken for life security must be able to balance the potential effects of disaster-related challenges to maintain the safety and well-being of senior citizens in any disaster. Considering that senior citizens are part of the most vulnerable group, they are disproportionately subjected to the challenges brought by any disaster, be it emotional, physical, financial, or external. Therefore, taking action to prepare and reduce the potential risks brought by any disaster results in

lessening the challenges related to the disaster. This is in accordance with Bronfenbrenner's Ecological Systems theory, which emphasizes how an individual can achieve balance with their environment or, on the contrary, how they sometimes fail to achieve balance caused by the influences on their environment (Zastrow, 2010, as cited by Shokane, 2019). It supports the idea that life security measures, which encompass various systems and levels of influence, can lessen disaster-related challenges.

It highlights the importance of considering the interconnectedness of individuals and their environment in preparing and responding to disasters, which ultimately promotes safety, well-being, and resilience.

Summary

This study explored the lived experiences of senior citizens in any form of disaster and their corresponding preparatory mechanisms. The study's findings revealed that senior citizens are disproportionately affected by disasters' consequences. It was shown in the experiences of seniors that they are greatly subjected to challenges that are related to emotional distress and tangible damages. Furthermore, in the wake of disaster, their most common preparatory mechanism to combat the challenges includes avoiding dangerous areas, securing potential risks, staying indoors, and installing tents. This study also found that there is a relationship between life security and disaster-related challenges as perceived by senior citizens. Both of them influence one another wherein if life security increases, then the disaster-related challenges decrease and vice versa. This is further supported by Bronfenbrenner's Ecological Systems theory, which highlights the importance of considering the interconnectedness of individuals and their environment in preparing and responding to disasters, which ultimately promotes safety, well-being, and resilience.

CONCLUSION

The findings of this study have several implications, specifically for the community, policymakers, and researchers. First of all, the results have shown that senior citizens experience difficulty in combating disasters due to the following disaster-related challenges they encounter in the wake of disaster: emotional distress, health-related issues, financial hardship, and tangible damages. Therefore, disaster preparations need to be strengthened and ensure that the interests of elderly people would be integrated into community disaster planning and response mechanisms. Policymakers should allocate resources specifically for them, promote inclusive disaster planning and collaborate with the community to ensure effective implementation. Finally, additional research is required for the evaluation and assessment of existing policies in order to address the evolving needs of senior citizens in disaster situations.

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