

Flood Awareness and Preparedness of Residents in Barangay 343 A.H. Lacson Street, Sta. Cruz Manila

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Abstract

This quantitative-descriptive design study aimed to determine the overall strength of awareness and preparedness of the residents in Barangay 343 A.H. Lacson Street, Sta. Cruz Manila in response to the flood. This is a community that has been frequently affected by flood during the rainy season due to its geographical location, wherein the land elevation was approximately close to the sea level and its topographical location, wherein the features of the area were identified as a densely populated community. Although the land elevation in the City of Manila was slightly higher than the sea level, the difference was minimal. Thus, when the rainy season approaches, the community becomes vulnerable to flood. This condition led to flooding caused by excessive stagnant water that could no longer be absorbed by the land. Two modified standardized questionnaires developed by Talplacido et al. (2022) and Maminta (2019) were utilized and distributed to 185 heads of the families aged 18 to 60 years old and above in the community through a stratified random sampling method, and the data was analyzed using descriptive statistics and Spearman's rho correlations. Results revealed that the respondents have a strong level of awareness indicating 53.6% are quite aware with regards to the things that must be observed and done when a flood occurs, which indicated a strong level of awareness. On the other hand, the respondents' preparedness in response to the flood accounted for 52.3% indicating a quite prepared community engagement. Moreover, Spearman's rho correlations identified that there is a significant relationship obtained between flood awareness and



preparedness of the respondents; however, it represents a weak positive correlation between these two dependent variables. Thus, awareness and preparedness should be given equal importance in response to a flood to ensure their safety. The findings in this study emphasized the importance of enhanced community-based campaigns, active community engagement in flood drills, and community-led disaster-preparedness programs to build a resilient community.

Keywords: *Flood Awareness, Flood Preparedness, Disaster Risk Reduction and Management.*



Introduction

The Philippines is known as one of the disaster-prone country around the world that frequently experiences different types of disasters. Over the years, natural disasters such as flooding have been one of the major challenges that a community has to face and overcome during the rainy season, which has seriously led to economic loss, property or environmental damage, and human health risk due to diseases caused by flood. It was stated in the studies of Dulawan et al. (2024) that Manila, being known as the country's capital, is the most densely populated city. The City of Manila is susceptible to flooding primarily due to the land elevation that is close to sea level, congested infrastructure in a small urban community or the topographical location, and the geographical location of the community, which is surrounded by sea and rivers that cause flooding in the area as the water rises during the rainy season.

According to Gonzalo (2024), the effectiveness of flood preparation of the residents in a community is a crucial process that involves strong planning, decision making, strict compliance of every resident, and their community engagement to reduce the devastating impact of flood. Central to this process is the flood awareness and preparedness of the residents in Barangay 343 A.H. Lacson Street, Sta. Cruz Manila, which not only determined the efficacy of emergency responses of the residents in this study but also emphasized the importance of participation in a community-based campaign/seminars/drills to ensure their safety.

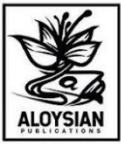
Furthermore, It was also emphasized in the study of Avelino et al., (2024) that a well-prepared community in response to flood should know how to implement the systematic guide for flood-related disaster program which is classified into three key phases: Before is the preparation phase which is the initial steps of the residents to build awareness and preparedness through attending disaster seminars, drills provided by the local government unit, develop an emergency plan which includes evacuation routes, meeting points, and communication strategies especially for families with children, elderly, or individuals with special needs. Additionally, the residents are advised to gather basic needs such as clean drinking water, dry goods or non-perishable food, first aid supplies, hygiene kit, and securing important documents in a sealed container and to stay vigilant by monitoring the weather update through reliable sources such as PAG-ASA or local radio station, news television, and social media post by the local government. This is to ensure that every member of the family knows what to do in the event of an emergency. During is the actual implementation of the knowledge acquired from the seminars, drills, and developed emergency plan which includes ensuring safety and taking the necessary action. Priority intervention is to evacuate promptly to designated centers guided by the community leaders, emergency kits should be carried with them, and ensure continued communication and coordination with family members. Additionally, Cayamanda et al. (2021) noted that community engagement is crucial activities to enhance the resident's mental readiness for disasters. And after the flood is the action plan taken to overcome the impact of the flood. In the event of post-flood, the residents are focused on restoration of their livelihood, clean up and repair of their structural houses, and reflect on the previous flood incident to further enhance their community resilience.



In addition, several researchers had highlighted the significance of public awareness and preparedness to flood in a flood-prone urban setting such as Barangay 343, A.H. Lacson, Sta. Cruz Manila. Penelope et al. (2024), found that residents actively participating in a flood awareness campaign program demonstrated a greater readiness to effectively respond during a flood. It was also confirmed by Cayamanda et al. (2021), that the educational attainment of an individual, which is under the demographic profile, showed a more positive effect on preparedness. Unson and Cariaso (2024), however, mentioned that structural deficiencies, such as clogged drainage systems and informal settlements near waterways, continued to be one of the factors of flood risks. And lastly, Calamba (2024) and Pelone and Arellano (2024) identified that limited resources and insufficient access to disaster community-based campaigns become a barrier to preparedness, especially among low-income households.

Furthermore, this study assessed the residents' knowledge when it comes to flood awareness, along with their corresponding efforts in terms of preparedness. Survey forms were distributed among the 185 heads of the families in Barangay 343, A.H. Lacson, Sta. Cruz Manila. The survey questionnaire measured the awareness and preparedness of the respondents, the correlations between these two dependent variables, and the factors that limit the residents' ability to take action.

Moreover, to assess the flood awareness and preparedness in the community, the researchers adopted the study of the Neuman System Model by Betty Neumann and the Adaptation model by Sister Calista Roy. The Neuman System Model by Betty Neuman explained that the client is an open system that responds from the stressors based on their previous experiences which influence their awareness and preparedness. There are three levels of prevention and phases on how the individuals interact with the stressors; these are input, output, and feedback. The primary prevention is the input phase which are guidelines set by the barangay, weather announcements from television and radio stations, NDRRMC SMS alert and warning notifications. Somehow, the secondary prevention is the output phase where actions take place, and refers to different adaptive strategies to manage the stressors such as preparing flood disaster kits (food, clothes, first aid kit), awareness of the evacuation plan, and attending disaster seminars. Lastly, the tertiary prevention is the feedback phase which takes place after the stressors occur, this enables the clients to evaluate their previous awareness and preparedness to improve future adaptation. Moreover, Adaptation model by Sister Calista Roy explained how the adaptation responds to the residents' stimuli which is the flood. There are four types of Adaptive Modes, which includes The Physiological-Physical Adaptive Mode, Self- concept Group Identity Adaptive Mode, Role Function Adaptive Mode, and Interdependence Adaptive Mode. The Physiological-physical Adaptive Mode pertains to survival needs including food, clothes, first aid kit, etc. Somehow, the self-concept group identity adaptive mode relates to understanding of one's identity and role in society. The role of the Barangay official in flood awareness and preparedness is to inform the residents about the flood, while the residents' role is to take responsibility in following the community guidelines to enhance their awareness and preparedness. Moreover, The Role Function Adaptive Mode, pertains to how the residents handle the stressors during the stressors. Lastly, The interdependence adaptive mode, pertains to the barangay's interaction with each other before, during, and after the flood occurs.



Statement Of The Problem

This study aimed to assess the awareness and preparedness of the residents of Barangay 343, A.H. Lacson Street, Sta. Cruz, Manila. It sought to identify the factors that influence the residents' awareness and preparedness for floods, and aimed to address the following questions:

1. What is the demographic profile of the respondents in terms of:
 - 1.1 Age
 - 1.2 Gender
 - 1.3 Educational attainment?
 - 1.4 Where is the house located according to respondents?
2. What are the preparations of the respondents to flood in terms of the following? 2.1
Attending Disaster Preparedness Seminar
 - 2.2 Emergency Plans
 - 2.3 Emergency Flood Disaster Kit
3. To what extent does the level of flood awareness of the residence.
4. Does Flood Awareness influence the family's preparedness for flood?

Literature Review

Flood is a type of natural disaster that occurs particularly in land areas. It takes place due to overflow of water due to heavy rains (Dormino, 2024). In view of the fact that the Philippines is located in the pacific typhoon belt, the country experiences floods and storms, with an average of 19-20 typhoons annually. Based on the statistics of Natural Risk Index of Natural Disasters in the Philippines, Coastal flood is in fourth place with an estimated 8.9 risk index score, somehow in fifth place with an estimated 6.7 risk index score is the river flood (Balita, 2024). In addition, according to the Department of Environment National Resources (DENR), Metro Manila is included in the list of highly prone to flood in urban and rural areas of the Philippines, especially to areas located in a low-lying coastal area, with insufficient drainage systems which make the area highly prone to flood (Cariaso, 2024). This study highlights the vulnerability of the country to experience this type of disaster. This information provides valuable insight to the community to attain adequate awareness and preparedness to different disasters, specifically to flood to have a higher rate of survival during the occurrence of the typhoon.

The significance of adequate awareness and preparedness is important for the reason that insufficiency to flood awareness and preparedness increases the likelihood of the community to be vulnerable to floods. This phenomenon causes widespread loss of life and infrastructural damages to the public and private sector affecting middle to low income groups in the



community around the world (Dormino, 2024). These studies helped the researchers to understand the impact of insufficient awareness and preparedness of the community from different income groups in the community. Community flood awareness and preparedness are the starting point to minimize the flood calamity's impact in the country. To accomplish this, the barangay officials and the residents collaborate together in disaster programs, prepare first aid kits, plan on evacuation, and supply food. Additionally, a localized flood water warning system, electronic flood water warning system, and fast direct notice of the barangay strengthen the community in flood (Penelope et al., 2024). This study emphasizes the importance of participation of the community to minimize the impact of the phenomenon and the preparation needs to be established by the residents and barangay officials.

Furthermore, there is a significant influence on the demographic profile of the residents' awareness and preparedness. Despite that awareness and preparedness can be performed at any age, middle adults ranging from 40-65 years old are more focused on parenting and community engagement which enable them to fulfill their sense of generativity (McLeod, 2025). On the other hand, there's a different family structure in the community that differs by gender. In patriarchal, the heads of the family are the males; somehow in matriarchal, the heads of the family are the females. In recent days, as gender equality has been recognized in the society, women have an opportunity to be head of the family (Scroope, 2020). In addition, the secondary education level has adequate awareness and preparedness for disaster prevention. This emphasizes the advantage of education in enhancing awareness and preparedness to disaster in regards to prevention, mitigation, response, and recovery from its devastating impact (Ventura & Madrigal, 2020). These studies highlight the residents' age, gender, and educational attainment that has a potential to have adequate awareness and preparedness to disaster. In addition, Geographical location of communities with a higher risk to experience flood has an adequate awareness and preparedness as they expected it to happen that is why they tend to be prepared for its possible occurrence (Lanclos, 2020). This study illuminates the influence of geographical location of community in their awareness and preparedness. Somehow, in enhancing the awareness and preparedness of the community, involvement in participating in DRR (Disaster Risk Reduction) is paramount. It provides education to increase the survival rate of the community before, during, and after the disaster, which resulted in a low rate of losses in the community (Bali, 2022).

This study serves as an eye opening, that the participation of disaster risk programs enhance the awareness and preparedness of the community. Peers' households with adequate awareness and preparedness possibly influence their family members to be aware and prepare for disaster. Influenced family members might exhibit disaster insurance preparedness, house reinforcement preparation, important items placement preparation and relocation preparation (He et al., 2022). This Flood Awareness and Preparedness... Perpetual Help College of Manila 23 College of Nursing study highlights the influence of family's awareness and preparedness to disaster in participation in programs to minimize the impact of disaster in the community.



Research Methodology

Research Design

The researchers utilized a quantitative method and descriptive design in Brgy343, Sta Cruz, Manila City, to determine the flood awareness and preparedness among residents. The researchers used a modified standardized questionnaire design developed by (Talplacido et al., 2022) from the previous published case study titled “The Level Of Disaster Awareness And Preparedness Of Families In The Flood-Prone Barangays Of San Leonardo, Nueva Ecija - A Case Study”, and from the published journal of Physics of (Maminta, 2019), a school principal of Mimbalot Elementary School, Buru-un Iligan City titled “Level of Awareness on Disaster Preparedness, incorporating Likert-scale. Furthermore, the researchers employ spearman rho correlation to measure the strength and relationship of two variables. The researchers in this study collected data from the residents of Barangay 343, A.H. Lacson Street, Sta. Cruz, Manila, who consisted of 185 heads of the families aged Flood Awareness and Preparedness... Perpetual Help College of Manila 25 College of Nursing 18-60 years old above, and were able to comprehend and acknowledge the provided questionnaires with consent form employing a stratified random sampling.

Participants and settings

The study focused on the Flood Preparedness and Awareness of Barangay 343 A.H Lacson St., Sta Cruz, Manila. The population sample size using Slovin’s formula is estimated at 277. On the other hand, the research adviser and the panelists decided to proceed with a reduced sample size from 277 respondents to 185 respondents. The respondents will be residents aged 18-60 years of age, manage to comprehend and acknowledge the stratified random sampling, and a head of the family that can be liable for decision-making.

Instrument of the Study

A structured questionnaire was used to collect data for this study on the flood awareness and preparedness of the residents in Barangay 343 A.H Lacson Street, Sta. Cruz, Manila. The questionnaire was divided into five sections: (1) Demographic Profile, which included information on age, gender, education attainment; physical settings (2) Preparation of respondents to flood, which was measured using a 5-point Likert scale that ranged from 1 (Strongly Disagree) to 5 (Strongly Agree); (3) Flood awareness of the residents, which was also measured using a 5-point Likert scale that ranged from 1 (Strongly Disagree) to 5 (Strongly Agree); and (4) relationship between the flood awareness and family’s preparedness for floods.



Procedure

Once the permit to conduct our study is granted by the Research Professor RubyD. Vargas, PhD, MAN, RN, and Mr. Darwin Aznar, Dean of the College of Nursing, a letter of request will be given to the Hon. Jacqueline Jagonoy, secretary of Barangay 343A, H. Lacson Street, Sta. Cruz, Manila. This letter seeks for approval of the administration of the survey questionnaires among the residents of the Barangay. The researchers would ask for the consent based on the Data Privacy Act of 2012, by explaining the purpose of the study, and the risks and benefits in participating in the study. Then, the survey questionnaires will be administered and distributed among the respondents by implementing a stratified random sampling. All collected data will be stored securely that can only be accessible by the research team. Survey forms that will be collected are anonymized to maintain the confidentiality of the respondents.

Data Analysis

The data collected from the survey questionnaire were analyzed using a five-point Likert scale to measure the degree of opinions, perceptions, and attitudes of the respondents toward various questions, with the following legend: Strongly Disagree (1.00–1.80), Disagree (1.81–2.60), Neutral (2.61–3.40), Agree (3.41–4.20), and Strongly Agree (4.21–5.00).

Furthermore, the weighted mean was computed, and Spearman's rho correlation was used to measure the strength and direction of the relationship between the residents' awareness and preparedness for floods, with the following coefficient interpretation: $R = -1$: Perfect Negative; $-1 < r < -0.5$: Strong Negative; $r = -0.5$: Some Negative; $-0.5 < r < 0$: Weak Negative; $r = 0$: No Correlation; $0 < r < 0.5$: Weak Positive; $r = 0.5$: Some Positive; $0.5 < r < 1$: Strong Positive; $r = 1$: Perfect Positive.

Ethical Consideration

Before distributing the survey questionnaires, the respondents have received a clear understanding and explanation about the purpose of the research, risks and benefits in participating. Informed consent is obtained by signing the form, and respondents have the right to reject answering the survey questions at any time. To protect the privacy of the respondents, survey forms are anonymized, and the data are only accessible to the research team.

RESULTS

Respondent's Demographic Information (Table 1.1, 1.2, and 1.3)

Demographic Profile

Table 1.1. Age

Age	Frequency	Percentage
18 - 23 years old	26	14.1%
24 - 29 years old	10	5.4%
30 - 35 years old	18	9.7%
36 - 41 years old	27	14.6%
42 - 47 years old	29	15.7%
48 - 53 years old	24	13%
54 - 59 years old	25	13.5%
60 years old and above	26	14.1%
Grand total	185	100%

Table 1.1 summarizes the age profile of the respondents, with a total of 185 participants. The majority, 15.7% of the responses, are from the 42–47 years old age group (with a total count of 29 respondents); 14.6% of the responses are from those aged 36–41 years (27 respondents); 14.1% are from both the 18–23 years old and the 60 years old and above groups (26 respondents each); 13.5% are from the 54–59 years old group (25 respondents); 13% are from the 48–53 years old group (24 respondents); 9.7% are from the 30–35 years old group (18 respondents); and lastly, the smallest proportion, 5.4% of the responses, are from the 24–29 years old age group (with a total count of 10 respondents).

Table 1.2. Gender

Sex	Frequency	Percentage
Female	106	57.3%
Male	79	42.7%
Grand total	185	100%

Table 1.2 above summarizes the sex profile of the respondents. With a total of 185 respondents, the majority, 57.3% of the responses, are female (with a total count of 106 respondents), while the smallest proportion, 42.7%, are male (with a total count of 79 respondents).

Table 1.3. Educational Attainment

Number of years graduated	Frequency	Percentage
Associate Degree	3	1.6%
Bachelor's Degree	22	11.9%
College Undergraduate	37	20%
Highschool Graduate	50	27%
Highschool Undergraduate	47	25.4%
Elementary Graduate	18	9.7%
Student	6	3.2%
Vocational Degree	2	1.1%
Grand Total	185	100%

Table 1.3 summarizes the educational attainment of the respondents. With a total of 185 respondents, the majority, 31.1% of the responses, are from those with a Vocational Degree (with a total count of 58 respondents); 27% are High School Graduates (50 respondents); 25.4% are High School Undergraduates (47 respondents); 20% are College Undergraduates (37 respondents); 11.9% have a Bachelor's Degree or higher (22 respondents); 9.7% are Elementary Graduates (18 respondents); 3.2% are Students (6 respondents); and the smallest proportion, 1.6% of the responses, are from those with an Associate Degree (with a total count of 3 respondents).

Table 1.4. Physical Settings

House Settings	Frequency	Percentage
Along the road	142	76.8%
Informal settlers	37	20.0%
Near the river	6	3.2%
Grand Total:	185	100%

Table 1.4 summarizes the house setting of the respondents. With a total of 185 respondents, the majority, 76.8% of the responses, live along the road (with a total of 142 respondents); 20% live in informal settlements (with a total of 37 respondents); and the smallest proportion, 3.2%, live near the river (with a total of 6 respondents).

Flood Preparedness

Respondent's Preparedness to flood (Table 2.1, 2.2, and 2.3)

Table 2.1. Attending Disaster Preparedness Seminar

Questions	Weighted Mean Value	Verbal Interpretation
1. I believe my family is adequately prepared in the event of flooding.	4.15	Agree
2. My family's preparation to respond during the flood is sufficient to ensure our safety and be able to evacuate safely.	4.09	Agree
3. I participate in community disaster preparedness seminars because it is important to our safety.	3.66	Agree
4. Attending Disaster Preparedness seminars influence my family's ability to respond during floods.	3.76	Agree

5. My family's participation in disaster preparedness seminars has influenced our confidence to respond during floods.	3.79	Agree
Average	3.89	Agree

Legend: *Strongly Disagree: 1.00 – 1.80, Disagree: 1.81 – 2.60, Neutral: 2.61 – 3.40, Agree: 3.41 – 4.20, Strongly Agree: 4.21 – 5.00*

Table 2.1 shows the preparations of the respondents to flood in terms of the Attending Disaster Preparedness Seminar. Based on the responses to the questionnaire, the respondents “Agreed” on the statements with a weighted mean of 3.89.

Table 2.2 Emergency Plans

Questions	Weighted Mean Value	Verbal Interpretation
1. The community provide information about emergency plans and evacuation routes for disaster preparedness.	3.69	Agree
2. I am confident that my family's emergency plan will be effective during a disaster.	3.91	Agree
3. Every adult member of my family knows what to do during a disaster.	3.94	Agree
4. Another family member can carry out an emergency plan in the absence of the head of the family.	3.90	Agree
5. I have talked to my family about flood preparedness and every family member knows their role and responsibilities in case of a flood emergency.	3.91	Agree
Average	3.87	Agree

Legend: *Strongly Disagree: 1.00 – 1.80, Disagree: 1.81 – 2.60, Neutral: 2.61 – 3.40, Agree: 3.41 – 4.20, Strongly Agree: 4.21 – 5.00*

Table 2.2 shows the preparations of the respondents to flood in terms of the Emergency Plans. Based on the responses to the questionnaire, the respondents “Agreed” on the statements with a weighted mean of 3.87.

Table 2.3 Emergency Floods Disaster Kit

Questions	Weighted Mean Value	Verbal Interpretation
1. The community provide information on what to include in an emergency flood disaster kit and its importance.	3.58	Agree
2. My family has a prepared emergency flood disaster kit in case of evacuation	3.70	Agree
3. Our emergency kit includes all essential supplies such as food supply, water supply, medicine, hygiene products that will last for at least 72 hours, as well as other emergency kit needed for sudden evacuation.	3.72	Agree
4. I and/or a family member have training on first aid or basic life support.	3.63	Agree
5. We regularly check and update our emergency disaster kit to ensure that all items are sufficient, not expired, and placed in an accessible and easy-to-carry container in case of sudden evacuation.	3.78	Agree
Average	3.68	Agree

Legend: *Strongly Disagree: 1.00 – 1.80, Disagree: 1.81 – 2.60, Neutral: 2.61 – 3.40, Agree: 3.41 – 4.20, Strongly Agree: 4.21 – 5.00*

Table 2.3 shows the preparations of the respondents to flood in terms of the Emergency Floods Disaster Kit. Based on the responses to the questionnaire, the respondents “Agreed” on the statements with a weighted mean of 3.68.

Description	Percentage
Not prepared at all	0
Somewhat Unprepared	.5%
Moderately prepared	26.3%
Quite prepared	52.3%
Very prepared	20.9%

The data shows a generally positive picture when it comes to how prepared people feel for floods. More than half of the respondents — 52.3% — said they feel quite prepared, and another 20.9% feel very prepared, suggesting that most people have taken meaningful steps to get ready for potential flooding. About 26.3% feel moderately prepared, which may mean they've started preparing but still have some gaps, like missing emergency supplies or unclear plans. Only a very small number — just 0.5% — said they feel somewhat unprepared, and no one reported being completely unprepared.

Flood Awareness

Respondent's Awareness to flood (Table 3)

Table 3. The extent of flood level of awareness of the residence.

Questions	Weighted Mean Value	Verbal Interpretation
1. I am concerned about my disaster preparedness knowledge for any disaster	4.09	Agree
2. I am well-planned for any potential flooding.	3.97	Agree
3. I am aware that our barangay is a flood-prone area in Barangay 343 A.H. Lacson Street, Sta. Cruz, Manila Barangay 343 A.H. Lacson Street, Sta. Cruz Manila	3.95	Agree
4. I am aware that Climate Change also affects the impact of a disaster/ flooding in our barangay.	4.25	Strongly Agree
5. I will recommend a friend or colleague study more about disaster management based on my knowledge of disasters and their consequences.	4.11	Agree
6. I believe my family is adequately prepared in the event of flooding.	3.94	Agree
7. I have talked to my family about flood preparedness.	4.08	Agree
8. My family had experienced a natural disaster.	3.99	Agree
9. I have disaster supplies that will last at least 72 hours. (i.e., Water supply, Food supply, Two-way radio, flashlights, or light sources, Vehicles for evacuation, First-aid kits, hygiene and sanitation products, Hand tools, Cell phones with long-lasting batteries, and power banks, medicines)	3.97	Agree
10. I reside in a densely populated area.	4.04	Agree
11. There is a disaster or emergency plan, laws, and policies in place for the community.	4.17	Agree

12. I have a phone number for disasters outside our province.	3.86	Agree
13. I would like to receive disaster management information or emergency through effective channels.	4.40	Strongly Agree
14. Has someone from the list below assisted you or your community develop a disaster plan?	4.07	Agree
Average	4.06	Agree

Legend: *Strongly Disagree: 1.00 – 1.80, Disagree: 1.81 – 2.60, Neutral: 2.61 – 3.40, Agree: 3.41 – 4.20, Strongly Agree: 4.21 – 5.00*

Table 3 shows the extent of the flood awareness of the residence. Based on the responses to the questionnaire, the respondents “Agreed” on the statements with a weighted mean of 4.06.

Description	Percentage
Not aware at all	0
Somewhat Unaware	0.5%
Moderately aware	7.5%
Quite aware	53.6%
Very aware	38.4%

The data indicates that most respondents have a strong level of flood awareness. Specifically, 53.6% reported being quite aware, and 38.4% described themselves as very aware of flood-related risks, preparedness measures, or impacts. This means that over 90% of the respondents demonstrate a solid understanding of flood issues in their area. A smaller segment, 7.5%, identified as moderately aware, suggesting they have some knowledge but may lack depth or confidence in their understanding. Only 0.5% were somewhat unaware, and none of the respondents stated they were not aware at all. Overall, the findings suggest that flood awareness is high among the samples, which is a strong foundation for encouraging preparedness and community resilience.

Table 4. The significant relationship between awareness and family’s preparedness to flood

Types of Preparedness	Correlation Coefficient	p-value	Interpretation
Attending Disaster Preparedness Seminar	0.426	0.000	Not significant

Emergency Plans	0.548	0.000	Not significant
Emergency Flood Disaster Kit	0.527	0.000	Not significant

Legend: (Coefficient Interpretation): $r = -1$: Perfect Negative; $-1 < r < -0.5$: Strong Negative; $r = -0.5$: Some Negative; $-0.5 < r < 0$: Weak Negative; $r = 0$: No Correlation; $0 < r < 0.5$: Weak Positive; $r = 0.5$: Some Positive; $0.5 < r < 1$: Strong Positive; $r = 1$: Perfect Positive.

Table 4.1 shows the significant relationship between the flood awareness and family's preparedness for floods. The Spearman Rho Correlation shows that the p-value for Attending Disaster Preparedness Seminar is 0.000, Emergency Plans is 0.000, and Emergency Flood Disaster Kit is 0.000. Since, the p-value is less than 0.05, then we reject the null hypothesis. Therefore, there is a significant relationship between the flood awareness and family's preparedness for floods. Furthermore, based on the coefficient, there is a weak positive relationship between flood awareness and preparedness when it comes to Attending Disaster Preparedness Seminar. On the other hand, there are some positive relationships when it comes to Emergency Plans and Emergency Flood Disaster Kit.

DISCUSSION

The results of the study indicate that there is a significant relationship between the demographic profile of residents and their flood awareness and preparedness. In regards to the age of the respondents, most of the respondents are middle-aged adults. Based on Erikson's stages of psychosocial development, typically in the stage of Generativity vs. Stagnation. These individuals primarily focus on parenthood which typically head of the family and the target population of this study. Additionally, Which suggests that individuals in this life stage are more likely to engage in their communities out of a sense of responsibility and moral obligation rather than the other ages (McLeod, 2025). These suggest that age significantly influences the awareness and preparedness to flood since the other age group might have other priorities and conflicts in their psychosocial development.

In relation to gender, the majority of heads of the family based on the findings are female. This highlights that the majority of family structures in the barangay are matriarchal. This woman manages finance, and the decision maker of the households Scroope (2020). This suggests that gender influences awareness and preparedness since women primarily manage the household, and finance which might enable them to plan ahead of time when it comes to preparing emergency kits, storing food, and securing important documents in their households. In addition, men typically leave at home to work, and women left at home to manage the household which enables them to participate in community disaster programs in the barangay.

Somehow, in educational attainment the majority of the respondents have attained secondary education. According to Ventura and Madrigal (2020), individuals with secondary education mostly of the respondents are able to read, write, and comprehend. Which is essential to understand and carry out flood awareness and preparedness. This indicates that the level of



education influences the awareness and preparedness to flood since certain capacity reading, writing, and comprehension can be essential advantages to attaining adequate awareness and preparedness.

On the other hand, this research strengthens the conceptual framework by supporting that the flood awareness of the residents' awareness and preparedness are primarily affected by the physical settings. According to the study of Lanclos, 2020, Communities that are aware about the risk of disaster such as floods in their area, specifically areas along the road with insufficient drainage system, have a higher survival rate. Since they expected a possible impact of it on their community, which enables them to be more prepared when the disaster occurs. This concludes accepting the alternative hypothesis that there is a positive relationship between the Flood Awareness and Preparedness of the residents based on the Physical Settings.

Based on the findings, attending disaster preparedness seminars, emergency plans, and emergency flood disaster kits influenced the families in the barangay to be prepared for the occurrence of flood. This indicates that flood preparedness programs that are implemented by the Barangays are effectively useful to the residents for them to enhance their readiness and effectively improve their safety response in flood. According to Bali (2022). He stated that communities that are aware and participate in DRR (Disaster Risk Reduction) have a low rate of losses. This indicates that awareness and preparedness in community activities regarding disaster prevention influence their survival ability in the occurrence of the disaster.

On the other hand, the majority of respondents have adequate awareness in response to floods. According to Penelope et al., (2024), the community's awareness is the starting point to strengthen the community's preparedness to minimize the impact of the calamity. Moreover, the awareness obtained by the respondents influences their family to be prepared. This implies that awareness of floods influences them to be prepared before, during and after the disaster occurs. According to the study of He et al., (2022), Peers' households with adequate awareness and preparedness possibly influence their family members to be aware and prepare for disaster. Somehow, The result of the study based on the Spearman Rho Correlation shows that there is a weak positive relationship between flood awareness and preparedness when it comes to attending disaster seminars, possibly some residents attended, but somehow failed to perform or take actions when flood occurs. On the other hand, there are some positive correlations in preparing emergency kits, emergency plans, and disaster kits. This is possible unlike attending disaster seminars in which actions are not yet needed, whereas the following requires taking real actions. Furthermore, there are still "some positive" due to various factors such as incomplete plans or kit, or not updated.

This indicates that flood awareness affects a minimal influence on family's preparedness. This signifies that various factors may also play a crucial role in the community's awareness and preparedness. Overall the study came up with the conclusion that the majority of the residents in Barangay 343 A.H Lacson St. Sta Cruz Manila are aware and prepared. This suggests accepting the alternative hypothesis that there is a significant relationship between Flood Awareness and Flood Preparedness.



CONCLUSION

The findings of the study revealed that the Flood Awareness and Preparedness of Residents in Barangay 343 A.H Lacson Street, Sta. Cruz Manila influenced demographic profile and geographical location, the preparation of the respondents, aligned with the System Model by Betty Neuman established by Gonzalo (2024) together with Adaptation Theory of Sister Calista Roy anchored by Alligood (2021). The demographic Profile reflected particularly the age which shows a resilience of responsibility. Gender, and educational attainment reflected good and support to this level. This suggests that awareness and preparedness enhanced adulthood and educational attainment. These results consist with the findings of (Scroope, et al. 2020) and (Ventura & Madrigal, 2020) stated a good influence that the community can become more aware of flood emergencies and are able to respond quickly and effectively. This increased awareness and preparedness of the respondents makes a better decision on how they implement emergency plans to protect the family more effectively during the disaster. Geographic location, the second domain of the model that includes along the road, near the estuary, in a village, and informal settlers. The majority of the respondents reside along the road suggesting that the respondents are prone to flooding in the area due to ineffective drainage systems (Lancos, 2020).

The preparation of the respondents are affected by seminar, emergency plans, and Emergency Kit. Based on the findings, attending disaster preparedness seminars, emergency plans, and emergency flood disaster kits influenced the families in the barangay to be prepared for the occurrence of flood. This indicates that flood preparedness programs that are implemented by the Barangays are effectively useful to the residents as it enhances the community's readiness and effectively improves their safety response in flood. According to (Bali, 2022), states that communities that are aware and participate in DRR (Disaster Risk Reduction) have a low rate of losses. This indicates that awareness and preparedness in community activities regarding prevention influence their survival ability in the occurrence of the disaster.

Collectively these findings affirm the premise of the Adaptation Theory and System Model that demographic profile, geographical location, the preparation of the respondents forces constant reason to attain the awareness and preparedness of the respondents. The data indicates that most respondents of Brgy 343 A.H Lacson Street, are quite aware in terms of flood awareness preparedness resulting in 53.6 percent. This suggests that they have some knowledge but may lack depth or confidence in their understanding. Whereas, the data when it comes to preparedness of the residents in flood indicate 52.3 percent suggesting that the residents are quite prepared during flood. This explains that most people have taken meaningful steps to get ready for potential flooding but still have some gaps, such as missing emergency supplies or unclear plans. Therefore, if an individual doesn't take the initiative, awareness and preparedness will remain unchanged. It demands active participation, time and effort from the resident in a community to cultivate stability for disaster readiness.



RECOMMENDATIONS

The following recommendation in the study proposes specific actions based steps that will improve the awareness and preparedness to flood of the residents in Barangay 343, A.H. Lacson Street, Sta. Cruz, Manila. Thus, the following recommendations are presented not only for flood prone residents but also for non-flood prone residents. According to Pelone, B. C. et al. (2024), health professionals have provided health teaching to educate people through visual aids. However, they tend to forget this information. That is why researchers may expand this study by distributing brochures to the residents that contain topics about flood awareness and preparedness including what flood is, flood hazard level, flood warning signs, flood awareness and preparedness, emergency kits, emergency contacts, and allocating strengthen information distribution through user-friendly visual aids or visualization tools. Furthermore, Gonzalo (2024), effective flood preparedness in the community is crucial so that the residents of barangay may understand more about level warning signs in flood to be aware and prepared such as attending disaster preparedness seminars, barangay programs, and campaigns. Additionally, the head of the family should disseminate to other family members about the evaluation plan for the safety of everyone. Key to success is involving residents in flood awareness and preparedness programs. According to Snel (2021), the author of "Flood with Expectation", the barangay officials may view this study to be aware of their residents' thoughts, suggestions, and reactions in their flood awareness and preparedness programs. The barangay officials and residents may collaborate in segregation of waste production by strictly implementing the three "R" waste: reduce, reused, and recycle waste (Pandiyarajan et al., 2022) to prevent clogging of drainage, minimize risk during flood, and strengthen the relationship of people in the barangay.

REFERENCES

- Alligood, M. R. (2021). *Nursing theorists and their work* (10th ed.). Elsevier.
- Al-Saigul, A., Jahan, S., Alharbi, A., & Abdelgadir, M. (2014b). Suitability assessment of health education brochures in Qassim province, Kingdom of Saudi Arabia. *Journal of Family and Community Medicine*, 21(3), 186.
- Annette M. (Browning) Callis PhD, B. (2020). Application of the Roy adaptation theory to a care program for Nurses. *Applied Nursing Research*.
- Avelino, B. F., Lajos, C. J. C., Lumantas, A. P., & Gono, E. R., Jr. (2024). Disaster preparedness, awareness, and practices of the residents within riverine flooding-affected areas in Davao City, Philippines. *Avelino | European Journal of Education Studies*.
- Balita, C., (2023). Risk index of natural disasters in the Philippines as of December 2023, by type. Statista.
- Bali, R. (2022b). Importance of community awareness and preparedness in disaster risk reduction. *RESEARCH REVIEW International Journal of Multidisciplinary*, 7(10), 40–57.
- Cariaso, J. U. B. (2024) 20 flood, landslide-prone areas identified. *Philstar.com*.
- Calamba, R.R. (2024). High school students' level of awareness and preparedness of natural disasters. *International Journal of Studies in Education and Science (IJSES)*, 5(2), 150-167
- Cayamanda, K. J., Paunlagui, M., Baconguis, R., & Quimbo, M. A. (2021). Vulnerability Profile and Risk Perception towards an Inclusive Disaster Risk Reduction for the Flood Vulnerable Communities of Davao City. *International Review of Social Sciences Research*, 1(1), 25–53.
- De, E.,(Mar 01, 2023). What exactly does the MMDA do?.*Philippine Institute For Development Studies*.Dormino, M., (2019).

- Dulawan, J. M. T., Imamura, Y., Amaguchi, H., & Ohara, M. (2024). Social drivers of flood vulnerability: understanding household perspectives and persistence of living in flood zones of Metro Manila, Philippines. *Water*, 16(6), 799.
- Edhel T. et.al., (2022). View of the level of disaster awareness and preparedness of families in the Flood-Prone barangays of San Leonardo, Nueva Ecija – a case study. (n.d.).
- Elemia, C., & Gutierrez, J. (2024, July 24). Rain, deadly floods force nearly 900,000 Filipinos from their homes. *BenarNews*.
- Estanislao, R. D., Salazar, M. A., Sigua, J. A., Chua, P. L., & Dorotan, M. M. (2022). Collaboration and capacity for climate change and health research: An analysis of stakeholders in the Philippines. *The Journal of Climate Change and Health*, 6, 100107.
- Flood with expectation. (2021). *Flood With Expectation*. Garcia, N., (2024), How high were the floods in your area during the monsoon, Typhoon Carina?.
- Gonzalo, A., (2024). Betty Neuman: Neuman Systems Model. *Nurseslabs*. Gonzalo, A., (2024). Betty Neuman: Neuman Systems Model. *Nurseslabs*.
- Gonzalo, A., (2024). Sister Callista Roy: Adaptation Model of Nursing. *Nurseslabs*.
- He, J., Zhuang, L., Deng, X., & Xu, D. (2022). Peer effects in disaster preparedness: whether opinion leaders make a difference. *Natural Hazards*, 115(1), 187–213.
- Kurata, Y. B., Ong, A. K. S., Ang, R. Y. B., Angeles, J. K. F., Bornilla, B. D. C., & Fabia, J. L. P. (2023). Factors affecting flood disaster preparedness and mitigation in Flood-Prone areas in the Philippines: An integration of protection motivation theory and theory of planned behavior. *Sustainability*, 15(8), 6657
- Lanclos (2024). Disaster awareness and preparedness of senior high school and college students: a comparative study. *Journal of Environment and Earth Science*.
- Maminta, L. G. (2019). Level of awareness on disaster preparedness. *Journal of Physics Conference Series*, 1254(1), 012015.
- McLeod, S. (2025, March 12). Erik Erikson's stages of psychosocial development. *Simply Psychology*.

- Nakasu, T., & Amrapala, C. (2023). Evidence-based disaster risk assessment in Southeast Asian countries. *Natural Hazards Research*, 3(2), 295–304.
- Nofal, O. M., Van De Lindt, J. W., Cutler, H., Shields, M., & Crofton, K. (2021). Modeling the impact of Building-Level flood mitigation measures made possible by early flood warnings on Community-Level flood loss reduction. *Buildings*, 11(10), 475.
- Pandiyarajan, V., Neelakantan, T., Sridharan, S. A., & Ramrao, N. (2022). Three “R” Concept in Waste Management for Sustainable Environment. *Journal of Sustainability Perspectives*, 2, 255-262.
- Pelone, B., & Arellano, A. J. (2024). Flood preparedness and utilization of early warning systems among households in selected flood-prone areas in Tagum City, Davao Del Norte. *Davao Research Journal*, 15(1).
- Rosales, C., (2021), What PAGASA’s yellow, orange, and red rainfall warnings mean.
- Santos, Rafael & Bakhshoodeh, Reza., (2021) Climate change/global warming/climate emergency versus general climate research: comparative bibliometric trends of publications
- Scroope, C. (2020). Filipino culture. *Cultural Atlas*.
- Udan, J.Q., (2020), *Textbook of Theoretical Foundation in Nursing 2nd Edition*, APD EDUCATIONAL PUBLISHING HOUSE
- Valenzuela, V. P. B., Esteban, M., & Onuki, M. (2023). Middle-class risk perception of disasters and land reclamation in Metro Manila, Philippines. *Anthropocene Coasts*, 6, Article 13.
- Ventura, G. L., & Madrigal, D. V. (2020). Awareness and practices on disaster preparedness of students of a public high school in Antique. *Philippine Social Science Journal*, 3(2, Special Issue), 45