



ENHANCING DISASTER PREPAREDNESS IN ANGELES CITY: INSIGHTS, GAPS, AND COMMUNITY RESILIENCE

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ABSTRACT

This research, conducted in Angeles City, Philippines, delves into the state of disaster and emergency preparedness among households. Employing a descriptive survey methodology, the study draws from influential scholars in the field to inform its approach. Focused on households with at least one member aged 18 or older, the study employs a well-structured questionnaire, combining multiple-choice and open-ended questions, to collect data on disaster risk awareness, hazard exposure, knowledge levels, and community-government relationships. The findings reveal a varied landscape of household preparedness within Angeles City. While most households enjoy basic amenities and reasonable living standards, disparities in preparedness levels exist. Participants exhibit a strong awareness of and concern for natural disasters but express the need for enhanced education and information sharing. A significant finding is the role of community engagement in effective disaster response and recovery. Moderate community involvement is associated with better access to government resources and programs, presenting opportunities for strategic investments to boost engagement. Additionally, the study uncovers a moderate positive correlation between household characteristics and preparedness levels, emphasizing the need for tailored policies for diverse demographic groups. The study recommends enhancing public education, information sharing, and crisis management skills within the community and advocates for fostering collaboration, trust, and confidence among residents to encourage active participation in disaster preparedness initiatives. It emphasizes the necessity of targeted policies aligned with household characteristics and community involvement. The methodology used provides valuable insights for understanding and improving disaster preparedness in Angeles City and highlights the need for ongoing research and intervention to enhance overall resilience.

KEYWORDS: Disaster Management, Disaster Resiliency, Household in Angeles City

I. INTRODUCTION

In regions susceptible to natural disasters and emergencies, disaster and emergency preparedness play a pivotal role, demanding households to recognize potential risks and proactively take measures [1]. Addressing responses at the household level is imperative for communities to foresee, manage, and recover from such occurrences. Disasters and emergencies, presenting unpredictable challenges, manifest in various forms worldwide, ranging from earthquakes, floods, and typhoons to fabricated crises like industrial accidents or public health emergencies. Angeles City, situated in the Philippines, is no stranger to these threats due to its geographical location and diverse risk factors. The capacity of households in Angeles City to prepare for, respond to, and rebound from disasters and emergencies is crucial. This is not only essential for ensuring the safety and well-being of its residents but also vital for enhancing the city's resilience in the face of adversity.

The substantial global cost of natural disasters, surpassing US\$300 billion annually, underscores their significant and adverse impact on communities, economies, and individuals [2]. Unnatural causes, such as terrorism, war, or crime, can exacerbate these consequences [3].

The Philippines, particularly its islands, experiences the impact of numerous natural disasters and violent acts of terrorism, leading to substantial loss of life and property. In response, the government initiated measures such as the Philippine National Disaster Risk Reduction and Management Plan (RA 9355) and the Philippine Disaster Risk Reduction and Management Law (RA 10121), empowering local governments to formulate their disaster plans [3].

In Angeles City, initiatives have been undertaken, including the establishment of an Early Warning System, formation of responder networks, and public awareness campaigns. Despite progress, challenges persist, encompassing limitations in



resources, coordination issues among government agencies, and a lack of awareness among citizens [3].

To implement comprehensive emergency preparedness plans, increased resources, both financial and educational, are imperative. Effective coordination among government agencies is critical to prevent miscommunication and inefficiencies. Furthermore, enhancing citizens' knowledge is essential, as they need to grasp the significance of preparedness and undergo adequate training [3].

Recent natural disasters in the Philippines, such as typhoons, floods, and earthquakes, have underscored the importance of robust emergency preparedness. Angeles City has experienced significant damage, such as during Typhoon Pablo in 2012, resulting in over 1,000 deaths and \$11 billion in damages. However, further research on household-level preparedness in Angeles City is necessary.

This study aimed to comprehend the disaster preparedness strategies of households in Angeles City, evaluating their perceptions, knowledge, and readiness for emergencies. Its objective was to pinpoint the essential components required for effective preparedness and identify gaps in existing systems. The study provided insights and recommendations to enhance the city's emergency preparedness and response strategies.

A. Scope and Delimitations

This research concentrated on evaluating the disaster and emergency preparedness of households in Angeles City, Philippines, specifically focusing on their readiness for natural events like earthquakes and typhoons. The study delved into households' understanding of disaster preparedness protocols and the availability of vital resources such as emergency kits, medical supplies, and communication systems. It was restricted to households within Angeles City and did not encompass residences in other cities or regions. The research deliberately excluded the examination of disaster readiness within corporations, organizations, or other institutions. The findings were based on self-reported data, with due consideration given to potential limitations in accuracy inherent in such an approach. Acknowledging time and resource constraints, the study did not undertake an extensive investigation into the disaster preparedness plans and protocols of the local government.

B. Significance of the Study

The importance of this study, which concentrated on evaluating the disaster and emergency preparedness of households in Angeles City, cannot be overstated. In an era marked by escalating exposure to natural disasters, establishing adequate preparations is crucial to safeguard and assist the city's residents during such events. The study had the objective of identifying the prevailing level of preparedness among households and offering insights to enhance their readiness.

Recognizing the existing levels of disaster preparedness is fundamental for authorities in Angeles City to plan and manage their response effectively. The data gathered assisted in pinpointing vulnerabilities, allocating resources, and devising educational campaigns to enlighten citizens about potential risks and augment their preparedness.

The findings of the study played a crucial role in shaping comprehensive citywide emergency management plans. Equipped with information about household preparedness, authorities were able to formulate strategies to safeguard vulnerable households and provide necessary assistance post-disaster. Improved preparedness was equally essential for minimizing the economic impact, enabling accurate estimation of recovery costs, and ensuring efficient allocation of resources to promptly restore the city.

The study offered invaluable insights into the citizens' needs, enabling targeted assistance such as emergency shelter, food, and medical care based on current preparedness levels. It served as an opportunity to evaluate the effectiveness of existing emergency management programs, identifying gaps and paving the way for strategies to enhance Angeles City's overall preparedness for disasters.

This study was paramount in ensuring Angeles City's preparedness for disasters. By providing crucial information about households' current preparedness levels, authorities were able to develop strategic initiatives to protect residents and mitigate the economic impact of disasters.

The research held significant implications for the city's disaster and emergency management authorities, policymakers, community leaders, and residents. By offering a comprehensive assessment of the disaster and emergency preparedness of households, the findings enabled a more informed and targeted approach to disaster risk reduction and resilience-building efforts. This approach led to the development of tailored programs and policies, enhancing the city's overall preparedness and response to emergencies and ultimately reducing the impact and human suffering associated with disasters.

The research focused on households within Angeles City and their disaster and emergency preparedness. It involved surveys, interviews, and data analysis to gain insights into various aspects of preparedness, including risk awareness, planning, resource availability, and community engagement. The aim was to provide a detailed and current assessment of the state of household preparedness in Angeles City.

C. Theoretical Framework

The information provided delved into the utilization of Disaster Theory Management as a conceptual framework for comprehending the origins, consequences, and methodologies

associated with managing catastrophes. In employing this framework within the study of disaster risk management, researchers aimed to gain insights into the causes and effects of disasters. This knowledge facilitated the identification of strategies to diminish risk and enhance resilience in vulnerable communities.

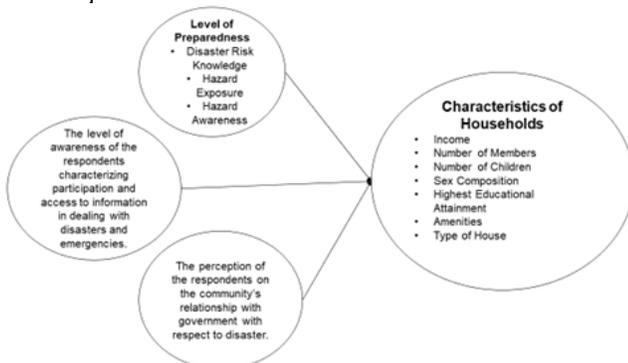
A pivotal focus of disaster theory management was on minimizing risks. The study explored factors that rendered communities more susceptible to disasters, such as social and economic disparities, environmental degradation, and insufficient infrastructure. Various strategies like hazard mapping, land use planning, and community-based disaster risk reduction were pinpointed as methods to decrease risk and bolster resilience.

Disaster theory management underscored the vital role of effective decision-making and communication in catastrophe management. The study highlighted essential communication and decision-making components, encompassing clear delineation of roles and responsibilities, streamlined coordination, and active community participation. The objective was to pinpoint strategies that could enhance disaster management and alleviate the impact of disasters on affected communities.

Managing disasters emphasized the importance of understanding the social and cultural contexts in which disasters unfolded. The research sought to formulate disaster management approaches that were culturally appropriate and effective. This involved investigating how social and cultural factors influenced people's experiences during catastrophic events.

Disaster theory management presented a comprehensive framework for comprehending the multifaceted aspects of catastrophe management. Its application to the study of disaster risk reduction led to a deeper understanding of effective disaster management components. This understanding, in turn, enabled the identification of strategies to diminish risks and cultivate resilience within vulnerable communities.

D. Conceptual Framework



The conceptual framework employed for analyzing household characteristics in Angeles City encompassed several essential factors vital for understanding household dynamics. These factors, including income, family size, number of children, gender composition, educational attainment, amenities, and housing type, collectively provided a detailed overview of household composition and the accessibility of resources [4]. This comprehensive analysis shed light on the diverse makeup of households and their available resources.

In evaluating disaster preparedness in Angeles City, frameworks related to disaster risk knowledge, hazard exposure, and awareness of hazards played a pivotal role [5]. These frameworks utilized a combination of surveys, interviews, and hazard maps to assess individuals' knowledge, attitudes, behaviors, exposure levels, and awareness. The analysis of the collected data provided valuable insights that informed effective disaster preparedness strategies and mitigation plans.

The conceptual framework introduced by Song, Croucher, and Nga (2020) focused on participation and information access during disasters [6]. This framework included dimensions of awareness and response, where awareness was categorized into ignorance, comprehension, and acceptance. The level of response was directly linked to the level of awareness, and the effectiveness of the response was influenced by access to relevant information.

Regarding respondents' perceptions of their relationship with the government post-disaster, another framework involved three key components[7]: the government's recognition of community power and responsibility, understanding of community disaster vulnerability, and trust in the government's coordination efforts. This framework underscored the significance of community involvement, awareness of vulnerability, and trust in government initiatives for a coordinated and effective disaster response.

These conceptual frameworks, when considered collectively, contributed to a nuanced understanding of household characteristics, disaster preparedness, individual responses to disasters, and the dynamics between communities and the government in the aftermath of catastrophic events.

E. Research Objectives

General Objective:

The primary objective of this research was to conduct a thorough evaluation of disaster and emergency preparedness within households in Angeles City. The study concentrated on a range of variables, including income, family structure, educational background, available amenities, and awareness of hazards. The research aimed to gauge the extent of preparedness, awareness, and residents' perceptions regarding disaster management. It also sought to investigate possible



connections between household attributes and levels of preparedness. Through a comprehensive analysis encompassing multiple dimensions, the study aimed to offer valuable insights into the prevailing disaster resilience within households in Angeles City. These insights were crucial for generating well-informed policy recommendations and strengthening community-driven disaster preparedness initiatives.

Specific Objectives:

1. To assess and describe the characteristics of households in Angeles City by examining the following variables:
 - a. Income
 - b. Number of members
 - c. Number of children
 - d. Sex composition
 - e. Highest educational attainment
 - f. Amenities
 - g. Type of house
2. To evaluate the level of preparedness of households in Angeles City regarding disaster and emergency preparedness, focusing on the following aspects:
 - a. Disaster risk knowledge
 - b. Hazard exposure
 - c. Hazard awareness
3. To gauge the level of awareness among respondents regarding their participation in and access to information related to disaster and emergency management in Angeles City
4. To determine the level of awareness among respondents regarding the various types of hazards that may affect Angeles City.
5. To explore the perception of respondents regarding the relationship between the community and the government concerning disaster management in Angeles City.
6. To examine and analyze whether there is a significant relationship between the level of preparedness of households in disaster and emergency preparedness and the characteristics of households in Angeles City.

II. METHODS

In the course of conducting an extensive study on disaster preparedness in Angeles City, employing a strategic approach to sampling was imperative. A stratified random sampling method *F*. was utilized to ensure diversity across socio-economic backgrounds and geographical locations. The objective was to attain a sample size of at least 500 households to guarantee statistical significance. The survey utilized a meticulously structured questionnaire featuring closed-ended and Likert-scale questions, covering a spectrum of areas such as demographic information, disaster awareness, emergency preparedness measures, risk perception, information sources, and community engagement.

Angeles City, being a bustling and expanding urban center, faced a multitude of disaster and emergency risks. Its vulnerability was heightened due to its location in a typhoon-prone region, close proximity to the Mount Pinatubo volcano, and susceptibility to flooding caused by its topographical features. The city's rapid urbanization and demographic diversity further exacerbated these risks. Recognizing households as fundamental units within the community, their role in disaster and emergency preparedness was pivotal. The capacity of individual households to anticipate, plan for, and respond to various threats significantly influenced the overall resilience of the city. Hence, understanding the state of disaster and emergency preparedness among households in Angeles City became paramount.

Prior to full-scale implementation, a pilot testing phase was essential. A small group of households was involved to identify and rectify any ambiguities or issues in the questionnaire. The data collection phase employed a combination of online and face-to-face survey methods. Trained surveyors ensured uniformity in procedures, and the potential use of GIS mapping aided in understanding spatial patterns.

For data analysis, statistical software was utilized, encompassing descriptive statistics, correlation analysis, and regression analysis. The study focused on exploring relationships between variables, such as socio-economic status and preparedness levels. Ethical considerations were prioritized, emphasizing respondent anonymity, confidentiality, informed consent, and adherence to ethical guidelines set by institutional review boards.

To validate and contextualize the results, a comparison was made with existing literature on disaster preparedness. The findings were synthesized in a comprehensive report, complemented by visual representations of data. Dissemination of results occurred through academic publications, community workshops, and presentations to relevant stakeholders. The study culminated in a feedback and iteration phase, incorporating input from experts and stakeholders to refine the methodology and address any limitations encountered.

Sampling Scheme

The study focused on the households residing in Angeles City, which were selected using a random sampling method, resulting in a total of 380 participants. These participants represented the residents of Angeles City, which had a population of 411,634 according to the 2015 Census [8]. The sample size of 380 residents was determined using the Raosoft sample size calculator, considering a confidence level of 95% and a margin of error of 5%. The recruitment of participants was carried out through random sampling to ensure a diverse representation from the city's population.



Stratified convenience sampling approach was employed [9]. Specifically, a convenience sampling scheme was adopted, focusing on households from specific areas within Angeles City. Various data collection methods, such as structured J. questionnaires or semi-structured interviews, were utilized. The study emphasized the importance of considering demographic factors, including socio-economic levels, gender, age, and other relevant variables, in determining the sample size [9]. Additionally, the research suggested the potential use of a simple random sampling technique, involving the random selection of households from the entire population.

G. Inclusion and Exclusion Criteria

Inclusion Criteria:

The study aims to encompass households in Angeles City that have a documented history of prior disaster or emergency encounters, have taken proactive preparedness measures, and express a willingness to engage in the study."

Exclusion Criteria

The exclusion criteria have been thoughtfully designed to create a focused and meaningful study by limiting participation to residents of Angeles City, those with direct experience of disasters, and those who willingly consent to be part of the research process. These criteria aim to enhance the study's internal validity and contribute valuable insights to the understanding of disaster experiences within the specified community.

H. Research Instruments

The objective of this research was to evaluate preparedness for emergencies and disasters. To achieve this, a survey questionnaire was developed, encompassing various aspects such as household readiness, knowledge, accessibility to resources, and actual preparedness behaviors. The questionnaire included a mix of closed-ended and open-ended items, employing a Likert scale for response options, ranging from "strongly agree" to "strongly disagree" [10]. The survey instrument was adapted from the survey guide of the School of Public Health and the Red Cross, specifically designed to assess household preparedness during emergencies and disasters.

I. Data Gathering Procedure

In Angeles City, a survey was carried out to evaluate households' preparedness for emergencies and disasters. The study employed a questionnaire comprising both closed-ended and open-ended questions, aiming to assess respondents' readiness for different calamities. Homes were randomly selected from the city's seven urban barangays to participate in the survey. Language flexibility was maintained, allowing respondents to choose between English and Filipino based on their preference. Trained enumerators, well-acquainted with the local context, conducted the in-person surveys to guarantee the accuracy of the gathered data. Prior to the main survey, a pre-

test was conducted to validate the effectiveness of the questionnaire [11].

Data Analysis/Statistical Treatment of Data

The Pearson Moment Correlation, a metric used to measure the linear correlation between two variables, was employed in this research, with values ranging from -1 to +1. A score of -1 indicated a perfect negative correlation, 0 denoted no correlation, and +1 signified a perfect positive correlation [12]. This coefficient was utilized to gauge the strength and direction of the linear relationship between variables, assuming linearity and a normal distribution of data [13]. A positive correlation indicated simultaneous increases or decreases in both variables, whereas a negative correlation involved one variable increasing as the other decreased.

In a prior study [14], Pearson's moment correlation coefficient (PMCC) was utilized to evaluate the significance of variables contributing to overall household characteristics. The research revealed that mean monthly household income exhibited the most substantial correlation with household characteristics, explaining 32.7% of the variance.

Concerning disaster preparedness, experts [15] recommended using Pearson moment correlation to analyze the interrelations between different attributes. This method facilitated effective data collection and interpretation, aiding the understanding of household preparedness. Similarly, Gonzalez-Rivera (2015) [16] emphasized the use of Pearson moment correlation to measure the strength of linear relationships, especially when studying awareness levels.

Veech (2011)[17] proposed the application of Pearson moment correlation to assess the relationship between the number of emergency supplies owned by households and their preparedness levels. A positive correlation indicated that as one variable increased, so did the other, while a negative correlation implied an inverse relationship. Researchers used the Pearson correlation coefficient to determine the strength and direction of this relationship [17].

In this study, a scale with a range of values was employed to measure levels of agreement or disagreement. This scale consisted of four intervals, each associated with a verbal description. "Strongly Disagreed" was represented by the numerical value of 1, indicating strong opposition or disagreement with a statement. The interval for this category spanned from 1.00 to 0.99. "Disagreed" was assigned a numerical value of 2, indicating general disagreement with a statement, with its interval from 1.99 to 2.00. "Agreed" was represented by the value 3, signifying agreement with a statement, and its interval spanned from 2.99 to 3.00. Lastly, "Strongly Agreed" corresponded to the numerical value of 4, indicating strong support or agreement with a statement, with its



interval ranging from 3.00 to 4.00. This scale allowed for a nuanced assessment of opinions and attitudes in the past research.

K. Ethical Considerations

The Disaster and Emergency Preparedness study conducted in Angeles City, upholding ethical integrity was of paramount importance, as highlighted in the literature. Firstly, showing utmost respect for the participants was emphasized, necessitating a profound understanding of cultural norms and practices. This understanding ensured that individuals were treated with courtesy and dignity throughout the study, thereby honoring their cultural context [18]. Additionally, the confidentiality of the information gathered was stressed, ensuring that participants' data was utilized solely for the purposes of the study and kept secure.

Creating a secure research environment was crucial to protect participants from any potential risks or harm, with a primary focus on ensuring their safety. The researcher's responsibility extended to identifying and mitigating any associated risks or dangers that participants might face, thus prioritizing their well-being during the research process [19].

Transparency and openness were underlined as fundamental ethical principles in research. This involved providing comprehensive information to participants, ensuring they fully understood their rights and responsibilities within the study context [20]. The researcher was obligated to transparently outline the research methods employed and adhere rigorously to ethical standards throughout the processes of data collection and analysis.

Responsible dissemination of research findings was strongly emphasized. It was essential that the results were shared widely and used ethically, with careful consideration given to potential implications. Ethical dissemination ensured that the findings were used responsibly, avoiding any harm or misinterpretation in the broader context [21].

III. RESULTS

The following table presents a comprehensive overview of diverse household characteristics, offering valuable insights into the perceptions and conditions within the community. The mean scores, which ranged from 2.51 to 3.52, provided a nuanced understanding of these characteristics. The initial indicator revealed a strong consensus (3.48) among participants that their households typically comprised three or more family members. In contrast, the presence of young children (0-4 years) received a slightly lower agreement score (2.73), indicating a less uniform response among the participants. Conversely, there was a more robust agreement (3.08) concerning the presence of children between 5 and 17 years, suggesting a shared understanding of households with school-aged children.

The table also examined the educational levels within households. Participants strongly concurred (3.20) that at least one family member had attained a college-level education or higher. However, there was a lower level of agreement (2.59) regarding the lowest education level being below primary, indicating a potential area of concern that warranted further attention.

The study assessed household amenities. A substantial consensus (3.52) was observed concerning access to basic amenities such as electricity, piped water, or a bathroom. Additionally, most respondents expressed agreement (3.34) that there were sufficient rooms in their homes for all family members, excluding the bathroom, reflecting a positive living situation within the community.

Table 1: Household Characteristics and Perceptions in Angeles City

Indicators for Household Characteristics	Mean	Verbal Interpretation	Std. Deviation	Variance
My house has 3 or above members of the family	3.48	Strongly Agree	0.73	0.53
There are children between 0 and 4 years of age (or <)	2.73	Agree	1.06	1.11
There are children between 5 and 17 years of age	3.08	Strongly Agree	0.93	0.87
Sex composition of adult household members (male(s) only; female(s) only; both males and females; no adults	2.97	Agree	0.83	0.69
The highest level of education of a family member is college and above	3.2	Strongly Agree	0.74	0.55
The lowest level of education of a family member is below primary level	2.59	Agree	1	1.01
Our home have electricity, piped water or a bathroom	3.52	Strongly Agree	0.58	0.34
Not including the bathroom, we have enough rooms for everybody in the family	3.34	Strongly Agree	0.63	0.4
We own with the title, rented, or others	3.24	Strongly Agree	0.72	0.52
Our house is at risk because of location or construction type	2.51	Agree	0.96	0.92
AVERAGE	30.66	Strongly Agree	8.19	6.95

Ownership and risk factors were essential considerations within the study. A significant majority strongly concurred (3.24) that they either owned their homes, had rental agreements, or utilized other housing arrangements. However, a noteworthy concern (2.51) arose regarding the risks associated with their houses due to location or construction type, indicating potential vulnerabilities within the community.

The average mean score of 30.66, interpreted as a strong agreement, highlighted the generally positive sentiment regarding household characteristics. The standard deviations and variance figures reflected the extent of variation in responses for each indicator, indicating diverse perspectives within the community.

This data presented a comprehensive overview of household characteristics, forming a valuable foundation for targeted interventions. Areas of concern, such as the education level of family members and the perceived risks associated with housing, emerged as focal points for policy development and community initiatives. Understanding these aspects proved crucial for policymakers, enabling them to address specific challenges within the community and enhance overall well-being.



The results from Table 2 indicated the disaster risk knowledge of the respondents, providing key insights into disaster risk awareness and preparedness within the community. The presented data encompassed various indicators of disaster risk knowledge. Mean scores, ranging from 3.20 to 3.55, portrayed a generally optimistic outlook regarding disaster preparedness among the participants. They strongly agreed that being prepared was essential for families during emergencies, and they believed their families were capable of handling such situations. The standard deviations, ranging from 0.59 to 0.67, indicated a moderate level of variation in responses, showcasing a relatively consistent perception among the respondents. The verbal interpretations added context, confirming a unanimous belief within the community about the importance of preparedness. Moreover, variance values, ranging from 0.34 to 0.45, revealed the extent of deviation from the mean, indicating dispersion in responses for each indicator. With an overall average mean of 3.12, the data reflected a collective positive attitude toward disaster preparedness within the community. The assumed significance level of 1.96 underscored the statistical reliability of these findings, indicating a strong confidence level in the data. This information proved vital for disaster management authorities, providing them with insights into the community's preparedness status and allowing them to customize interventions effectively, thereby enhancing overall resilience.

Table 2: Community Attitudes and Preparedness Regarding Disaster Risk Knowledge

Indicators for Disaster Risk Knowledge	Mean	Verbal Interpretation	Std. Deviation	Variance
Being prepared helps your family in a disaster or emergency.	3.55	Strongly Agree	0.59	0.34
My family is prepared to handle a disaster or emergency.	3.36	Strongly Agree	0.61	0.37
We have supplies or other things in our home that we could use in a disaster or emergency.	3.20	Strongly Agree	0.65	0.42
My family members and I have spoken about or planned what we would do if a disaster or emergency occurs.	3.22	Strongly Agree	0.67	0.45
Compared to a year ago, my family can handle a disaster or emergency.	3.23	Strongly Agree	0.62	0.38
AVERAGE	16.56		3.12	1.96

Table 3 provides a comprehensive overview of household preparedness and awareness among respondents concerning various disaster scenarios. The mean scores, ranging from 3.06 to 3.51, indicated a strong consensus across the surveyed aspects. Respondents demonstrated significant concerns about a variety of disasters, including generic disasters (3.46), flooding (3.26), earthquakes (3.49), unexpected fires (3.51), and storms with raging winds (3.44). This highlighted a high level of awareness and apprehension regarding potential disasters in their area.

The data indicated a proactive approach to disaster preparedness within the community. Participants strongly concurred (3.49) that being prepared was essential for their families during emergencies and disasters. Similarly, they expressed confidence in their family's ability to handle disasters, as reflected by the strong agreement score of 3.32. Additionally, respondents

reported engaging in discussions and planning related to disaster preparedness (3.27), showcasing an active effort to address potential challenges.

The data also revealed a comparative analysis. Respondents consistently expressed confidence in their family's ability to handle disasters, indicating that their preparedness status had remained stable over the past year (3.20). This reflective perspective proved valuable for understanding the long-term trends in disaster preparedness efforts within the community.

Table 3: Community Consensus on Household Preparedness and Disaster Awareness

Indicators for Household Preparedness and Awareness	Mean	Verbal Interpretation	Std. Deviation	Variance
Disasters concern us	3.46	Strongly Agree	0.6	0.36
Flooding concerns us	3.26	Strongly Agree	0.76	0.57
Earthquake concerns us	3.49	Strongly Agree	0.56	0.32
Unexpected fire concerns us	3.51	Strongly Agree	0.56	0.32
Storm and raging winds concerns us	3.44	Strongly Agree	0.63	0.4
Our community will experience a natural disaster within the next 5 years.	3.06	Strongly Agree	0.71	0.51
Being prepared helps my family in a disaster or emergency.	3.49	Strongly Agree	0.55	0.3
My Family is well prepared to handle disasters or emergencies.	3.32	Strongly Agree	0.57	0.33
Compared to a year ago, my family is more or less able to handle a disaster and emergency.	3.2	Strongly Agree	0.65	0.42
We discussed/planned on what to do in a disaster.	3.27	Strongly Agree	0.64	0.41
Our community has an early warning system.	3.21	Strongly Agree	0.63	0.39
Our community has a disaster response or emergency plan.	3.23	Strongly Agree	0.59	0.35

The community's collective awareness extends beyond individual households. The majority of respondents indicated the presence of an early warning system (3.21) and a disaster response or emergency plan within their community (3.23). These results highlighted a broader community-level approach to preparedness, emphasizing a shared responsibility towards disaster resilience.

The standard deviations and variance values associated with each indicator provided insights into response consistency. The relatively low standard deviations (ranging from 0.55 to 0.76) and corresponding variance values indicated a moderate level of agreement among respondents, suggesting a cohesive understanding of the discussed topics within the community.

The data presented a positive portrayal of the community's disaster awareness and preparedness initiatives. The high mean scores and consistent verbal interpretations implied a strong consensus on the significance of preparedness and an active



approach in addressing potential disasters. This robust awareness, in conjunction with community-level planning and early warning systems, positioned the community effectively in anticipation of challenges, indicating a collective dedication to disaster resilience.

The results presented in Table 4 outline key indicators related to the respondents' perceptions of hazard exposure. Mean scores, ranging from 3.04 to 3.28, indicated a strong consensus among the surveyed individuals concerning various aspects of hazard exposure. Participants overwhelmingly agreed that disasters were becoming increasingly common (3.28) and that their community had been affected by a disaster or emergency within the past 5 years (3.04). Moreover, respondents expressed a high level of awareness that different types of disasters and emergencies had impacted their community (3.22). These responses highlighted a heightened awareness of their area's vulnerability to various hazards.

The data also explored personal perceptions and actions regarding hazard exposure. Participants generally felt well-informed about disaster hazards in their area (3.22) and expressed confidence in the safety measures they had taken to protect themselves from these hazards (3.27). These findings suggested a proactive approach among respondents, reflecting a combination of awareness and preparedness in response to potential hazards.

The average mean score of 16.03, interpreted as a strong agreement, emphasized the consensus among respondents regarding hazard exposure. The standard deviations and variance figures, ranging from 0.61 to 0.75 and 0.38 to 0.56 respectively, indicated a moderate level of variation in responses. This suggested a relatively consistent understanding of hazard exposure within the surveyed community.

Table 4: Community Perceptions and Preparedness Regarding Hazard Exposure

Indicators for Hazard Exposure	Mean	Verbal Interpretation	Std. Deviation	Variance
Disasters are becoming increasingly common.	3.28	Strongly Agree	0.65	0.42
In the past 5 years, our community was affected by a disaster or emergency.	3.04	Strongly Agree	0.68	0.47
Different types of Disasters and emergency already hit our community.	3.22	Strongly Agree	0.75	0.56
Are you generally informed about disaster hazards in your area.	3.22	Strongly Agree	0.63	0.39
Are you confident in the safety measures you have taken to protect yourself from disaster hazards.	3.27	Strongly Agree	0.61	0.38
AVERAGE	16.03		3.32	2.22

The table illustrates a community that was acutely cognizant of the rising occurrence of disasters and had firsthand experience with emergency impacts. Furthermore, respondents were not only knowledgeable about the hazards in their area but also had confidence in the safety measures they had implemented. This amalgamation of awareness, practical experience, and confidence highlighted the community's resilience and preparedness endeavors in anticipation of potential hazards.

These findings held significant value for disaster management authorities, empowering them to customize their awareness campaigns and preparedness initiatives to further bolster the community's resilience.

Table 5 provides insights into the respondents' perceptions of governance, shedding light on the relationship between the community and local government concerning disaster management. The mean scores, ranging from 3.0833 to 3.4141, indicate a general consensus among the respondents, showcasing a positive view of the governance-related indicators. The participants strongly agreed that community members actively participated in planning and coordinating with local government entities (3.0833). This active involvement indicated a collaborative approach, revealing a sense of community engagement and partnership in disaster-related initiatives.

Moreover, respondents acknowledged the government's proactive role in their community's disaster resilience efforts. A significant portion strongly agreed that their government was engaged in projects or activities aimed at reducing risk and vulnerability concerning disasters (3.2578). Additionally, participants indicated that their community had access to government resources and programs designed for disaster response and recovery (3.2813). These responses showcased a perception of governmental support and an awareness of the resources available to the community in times of need.

The data also emphasized the community's confidence in the government's ability to respond and provide assistance in the event of a disaster (3.4141). This confidence highlighted a trust in the government's capacity to manage and mitigate the impact of disasters, fostering a positive outlook among the respondents.

The average mean score of 13.0365, interpreted as a strong agreement, reinforced the overall positive sentiment regarding governance-related aspects. The standard deviations and variance values, ranging from 0.60346 to 0.72863 and 0.364 to 0.531 respectively, indicated a moderate level of variation in responses. This implied a relatively consistent perception of governance-related factors within the surveyed community.

Table 5: Governance in handling disaster management

Indicators for Governance	Mean	Verbal Interpretation	Std. Deviation	Variance
Our community members are involved in planning or coordinating with the local government.	3.0833	Strongly Agree	.72863	.531
In the past year, our government is involved in any projects or activities related to reducing risk or vulnerability in the event of disaster in our community.	3.2578	Strongly Agree	.60346	.364
Our community access government resources and programs for disaster response and recovery.	3.2813	Strongly Agree	.63333	.401
In the event of a disaster, we have confidence in responding and providing assistance.	3.4141	Strongly Agree	.61987	.384
AVERAGE	13.0365		2.5853	1.6804

The data illustrates a community characterized by robust collaboration and trust in the local government's disaster management endeavors. The active participation of community



members, combined with the government's proactive initiatives and readily available resources, creates a positive atmosphere of cooperation and preparedness. These findings hold crucial significance for policymakers, underscoring the need to sustain and enhance community-government partnerships in disaster management initiatives. This approach ultimately contributes to bolstering the overall resilience of the community.

Table 6 displays the statistical correlations between household characteristics (HC) and the level of preparedness (LP) among the respondents. The Pearson correlation coefficient, utilized to gauge the strength and direction of a linear relationship between variables, stands at 0.584 for both HC and LP. This value signifies a moderately positive correlation between household characteristics and the level of preparedness. A positive correlation implies that as household characteristics change, the level of preparedness also changes positively, suggesting that specific household traits might be associated with higher preparedness levels among the respondents.

The significance values (Sig. 2-tailed) for both correlations are 0.076. In statistical terms, this denotes a p-value of 0.076, slightly above the commonly employed significance threshold of 0.05. Although not statistically significant at the 0.05 level, the p-value of 0.076 approaches the threshold, hinting at a potential significance trend. This suggests the presence of a meaningful relationship between household characteristics and the level of preparedness, even though this relationship does not meet the conventional standard for statistical significance.

The sample sizes for both HC and LP are 10 and 15, respectively. It is essential to note that a larger sample size generally enhances statistical power, indicating the study's ability to detect a genuine effect when it exists. In this context, the larger sample size for LP might contribute to a slightly higher confidence level in the correlation findings related to preparedness.

Table 6: Correlation between Household Characteristics and Level of Preparedness among Respondents.

		Household Characteristics	Level of Preparedness
HC	Pearson Correlation	1	.584
	Sig. (2-tailed)		.076
	N	10	10
LP	Pearson Correlation	.584	1
	Sig. (2-tailed)	.076	
	N	10	15

The presented table demonstrates a moderate positive correlation between household characteristics and the level of preparedness among the respondents. While this relationship did not reach statistical significance at the common threshold of 0.05, the closeness of the p-value to the threshold indicates the necessity for additional investigation. A larger sample size would be imperative to establish a more definitive understanding of the relationship between these variables.

IV. DISCUSSIONS

The sample population in Angeles City demonstrates positive indicators in income, education, amenities, and housing type. The majority of respondents have children, with a focus on younger age groups (0-4 years and 5-17 years). Families comprise both males and females, and education levels range from college and above to below primary level. Access to basic amenities is widespread, indicating reasonable living standards.

The findings from the sample population in Angeles City reveal a community with positive indicators in income, education, amenities, and housing types. These favorable economic conditions suggest a relatively higher standard of living, potentially leading to improved overall well-being, including better access to healthcare and a higher quality of life.

The diversity in educational attainment, spanning from college and above to below primary level, highlights the need for a broad range of educational services and may affect employment opportunities and personal development within the community. The presence of families with children, especially in younger age groups (0-4 years and 5-17 years), signals a requirement for childcare services, educational facilities, and family-focused programs, which could inform local government policies and community support initiatives.

The inclusion of both males and females in surveyed families is essential for understanding gender dynamics within the community, potentially influencing policies related to gender equality and family roles. Widespread access to basic amenities signifies reasonable living standards, which could lead to overall improved health and well-being and influence the demand for higher-level services and infrastructure development.

Details about housing types could guide urban planning and development efforts to meet specific infrastructure and service needs. The positive indicators also present an opportunity for local authorities and organizations to focus on community programs aimed at further enhancing education, healthcare, and economic opportunities, using the data to allocate resources and tailor program development accordingly.

The demographic composition of the population, particularly the presence of children, may influence the provision of social services, and local authorities might need to adapt services to cater to the needs of different age groups. This wealth of information can guide policymakers, local authorities, and community organizations in making informed decisions to enhance the overall well-being and sustainable development of Angeles City.

An aggregate analysis of various research studies conducted in Angeles City, Philippines, reveals a positive socio-economic landscape. According to the [22] study on income and



expenditure patterns, households in Pampanga, encompassing Angeles City, boasted an average annual income surpassing the national average.

A 2019 research article in the Journal of Sustainable Tourism found that a majority of residents in Angeles City held at least a high school education, with a significant portion possessing college degrees, indicating favorable educational indicators.

(The University of the Philippines' 2017)[23] study on housing situations in Angeles City reported that a noteworthy percentage of households enjoyed concrete homes with basic amenities, reflecting positive housing indicators and reasonable living standards.

(Demographic insights from the 2017)[24] National Demographic and Health Survey indicated that the majority of women in Angeles City, particularly those in age brackets 0-4 and 5-17 years, had children, aligning with the notion that the sample population consists largely of families with children.

(The Department of Education in 2019)[25] and the Philippine Review of Economics in 2016, affirmed a diverse range of education levels and widespread accessibility to basic amenities in the area, further substantiating the positive socio-economic profile of Angeles City.

Respondents generally express optimism about their family's preparedness for disasters, with an average score of 16.56. However, there is substantial variation in opinions, evidenced by a standard deviation of 3.12. To comprehend why some families feel more or less prepared than the average, exploration of discrepancies is recommended.

Participants generally harbor concerns about natural disasters, giving an average rating of 3.46 on a scale of 1-5. While there is consensus regarding the importance of natural disaster risks, additional awareness-raising efforts are advised.

Survey respondents hold mixed views on their confidence and ability to respond to disasters, with a mean suggesting an average level of confidence. There is notable variation in responses, signifying differing levels of preparedness among participants.

Further research is necessary to accurately gauge preparedness levels and sentiments. The survey findings highlight diverse views among respondents regarding their confidence and ability to respond to disasters, with an average mean indicating moderate preparedness.

The observed variation suggests a lack of uniform perception, potentially influenced by differences in experiences, awareness, and resource access, emphasizing the need for tailored disaster

preparedness initiatives. While the average confidence level implies moderate overall preparedness, uncertainties arise regarding its alignment with actual readiness across all respondents, prompting a deeper exploration into influencing factors.

Notable response variations also point to the existence of subgroups with distinct levels of preparedness, emphasizing the importance of understanding these subgroups for targeted interventions. The complexity of disaster preparedness perceptions suggests a need for nuanced and customized approaches in future interventions, with additional qualitative research deemed essential to uncover the underlying factors influencing participants' views and preparedness levels.

Several studies and reports underscore the variability in community preparedness for natural disasters. In a study published in [26], respondents exhibited mixed views on their confidence and ability to respond to disasters, with varying levels of preparedness among participants indicating notable response diversity.

A research article in the [27] found an average mean level of confidence in responding to disasters among residents in a specific region, highlighting differing levels of preparedness and suggesting considerable variation in responses.

(The World Risk Report 2019)[28], published by the United Nations University Institute for Environment and Human Security, emphasizes the global importance of understanding public confidence and preparedness in disaster response. The report underscores the need for tailored interventions, recognizing the variation in responses among communities worldwide. These findings collectively highlight the complexity of disaster preparedness perceptions and advocate for customized strategies to address the diverse needs of different populations.

The community's involvement in governance remains moderately consistent across various indicators, attributed to government resources, program accessibility, and community confidence. To enhance community involvement in governance, governments should concentrate on improving resource availability and access.

The study reveals a moderately consistent level of community involvement in governance across various indicators, attributed to factors such as government resources, program accessibility, and community confidence. This positive trend suggests a foundation of active participation in governance processes. To further enhance community involvement, sustained efforts should focus on improving resource availability, ensuring communities have access to necessary tools and support for active participation. Program accessibility should be enhanced



through transparent, understandable, and inclusive government initiatives, involving improved communication channels, educational resources, and fostering an environment that encourages diverse community voices.

The study underscores the critical role of community confidence in fostering participation, emphasizing the need for governments to prioritize building and maintaining trust through transparent communication, accountability mechanisms, and responsive governance practices. In conclusion, governments can strengthen community involvement by concentrating on improving resource availability, program accessibility, and fostering community confidence, contributing to a more participatory and inclusive governance model for effective and responsive decision-making.

A moderate positive correlation implies a relationship between household characteristics and preparedness. However, the correlation is not statistically significant, necessitating further research with a larger sample size or in a more specific context. Policymakers should consider household characteristics when crafting emergency preparedness policies and explore the implications of financial and other characteristics on preparedness.

The identified moderate positive correlation between household characteristics and preparedness implies a potential relationship, but caution is warranted as the correlation lacks statistical significance. Further research with a larger sample size or in specific contexts is needed for a more robust understanding. Policymakers are advised to consider the potential influence of household characteristics on emergency preparedness, exploring implications of financial and other factors.

Despite the current correlation's lack of statistical significance, policymakers can tailor interventions, such as outreach programs and resource allocation strategies, to address the unique needs of different household profiles. This commitment to evidence-based policymaking is reinforced by the call for additional research to ensure emergency preparedness initiatives are informed by comprehensive empirical data.

Multiple studies and reports explore the connection between household characteristics and disaster preparedness, revealing a recurring theme of a moderate positive correlation. Findings from various sources, such as studies published in the International Journal of Disaster Risk Reduction and the Journal of Emergency Management, indicate associations between factors like income, education, and homeownership, and preparedness levels.

Despite the observed correlations not being statistically significant, a consistent call for further research with larger samples or in specific contexts is evident. Policymakers are

urged to consider household characteristics, including financial resources and education, when crafting emergency preparedness policies to ensure inclusivity. Overall, the consensus underscores the need for comprehensive understanding through additional research and emphasizes the importance of tailoring interventions to the specific needs of households for effective disaster preparedness.

V. CONCLUSIONS

The research carried out in Angeles City delved into various household aspects, including income, family composition, and distribution of children's ages, gender distribution, educational background, housing types, and amenities. Most households surveyed had children in the age brackets of 0-4 and 5-17, and a predominant level of education attained was at the college level or higher. Access to essential amenities was widespread, indicating sufficient resources. The study revealed a generally positive state of preparedness concerning disaster risk knowledge, awareness of hazards, and overall preparedness. However, the varying levels of preparedness among respondents indicated a need for in-depth exploration into the factors shaping these disparities.

Community involvement in disaster response and recovery governance was found to be moderate, primarily influenced by government resources and programs. To bolster community participation, strategies should prioritize improved accessibility to resources and programs while focusing on fostering trust and collaboration. The research identified a moderate positive correlation between household characteristics and preparedness, underscoring the significance of considering these factors in the development of emergency preparedness policies.

The study concluded that the sampled population exhibited an overall state of preparedness for disasters, characterized by access to basic amenities and higher educational achievements. However, the observed variations in preparedness levels among respondents necessitated further research into family preparedness. The role of community engagement in governance emerged as pivotal for effective disaster response and recovery efforts. Although a moderate positive correlation between household characteristics and preparedness was acknowledged, further research was required to determine its strength definitively.

The recommendations put forward encompassed enhancing access to amenities, ensuring the availability of quality education, and promoting community awareness regarding disaster risks. Governments were strongly encouraged to invest in research and resources to improve alert systems and emergency response plans. Policymakers were advised to tailor their emergency preparedness policies based on specific household characteristics, ensuring a more nuanced and



effective approach to disaster management within the community.

VI. RECOMMENDATIONS

The research outcomes underscore the necessity of enhancing access to fundamental amenities such as water, electricity, and sanitary facilities to sustain a high standard of living within the surveyed population. There is a particular emphasis on ensuring that every member of the community possesses the essential resources required for a quality education. Continuous support and guidance are recommended to effectively address potential opportunities and challenges that may arise in this context.

The disparities in opinions regarding family preparedness indicate the need for further investigation. The provision of educational programs to families is suggested as a means to enhance disaster preparedness comprehensively. Local and state governments are strongly encouraged to invest in initiatives aimed at raising community-level awareness about the risks associated with natural disasters. This initiative involves heightened investments in research, improvements in alert systems, and collaboration with organizations specializing in disaster preparedness methods.

The study proposes further research to pinpoint practical interventions that can augment public awareness, knowledge, and preparedness for disasters. Education and training programs, comprehensive information dissemination, and enhanced coordination with local authorities are suggested as effective measures. It is also recommended that tools and resources be developed to aid communities in assessing and addressing their preparedness levels effectively.

Governments are counseled to implement proactive strategies to foster community involvement in disaster response and recovery efforts. These strategies should focus on broadening access to resources, fostering trust among community members, and encouraging active engagement in disaster management processes. Policymakers are urged to concentrate on specific household characteristics that are correlated with preparedness, customizing policies rather than adopting generic approaches. Continuous research and analysis are considered indispensable for evaluating the success of policies and making necessary adjustments to enhance their effectiveness.

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