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Community Residents' Awareness and Preparedness on Disaster Management

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Abstract*— Natural and human-induced disasters in the Philippines have devastated the country, affecting its social and economic development. Particularly, people and the economy are highly vulnerable to the effects of disasters due to their reliance on climate-dependent industries. In response, collaborative groups, such as community-based disaster risk reduction and management (CDRRM), encourage community engagement and foster cooperation and active participation among vulnerable groups. Despite extensive research, information on household preparedness and resilience at the local level remains limited. The study examined the level of awareness and extent of preparedness for disaster management among community residents. The study utilized a descriptive-correlational design, proportional stratified random sampling used, and data collection was done through a questionnaire checklist. A total of 382 respondents aged 18-59, residing in Batac City, Pagudpud, and Pinili, the most affected towns of Ilocos Norte in the past five years, participated in the study. They demonstrated a high level of awareness and extent of preparedness. Additionally, only three variables - age, educational attainment, and family monthly income - showed a significant relationship with the respondents' level of awareness. Similarly, age and family monthly income exhibited a significant relationship with the extent of preparedness. Lastly, a significant relationship was found between the level of awareness and the extent of preparedness among the respondents' management. Through this study, the development of community-centered programs and disaster management education will improve communities' disaster management, and understanding of appropriate actions, and make the findings available for future academic use.

***Index Terms*— awareness, community residents, disaster management, preparedness.**

I. INTRODUCTION

In various parts of the world, disasters happen on varying scales throughout the year. When it comes to natural catastrophes like typhoons and tropical storms, flooding, landslides, earthquakes, tsunamis, and volcanic eruptions, the Philippines is one of the most vulnerable countries. According to the World Risk Index [1], the Philippines ranked 9th as the most affected country by extreme weather events due to high exposure, vulnerability, and susceptibility to hazards while lacking coping and adaptive capacities. Likewise, human-induced disasters, depending on the type and severity, also affect human lives, habitats, and ecosystems in various ways. Their effects could be immediate, long-lasting, or of undetermined length (Framework for the Development of Environment Statistics) [2].

By its very nature, these disasters are frequently unanticipated, giving us little, if any, time to plan. That is why it is crucial to spend time planning and becoming ready well in advance of a calamity (Ferry) [3].

In the Philippines, various natural and human-induced disasters have recently afflicted the country. Over the years, according to Low [4], the country has experienced natural disasters such as earthquakes, drought, tropical cyclones, floods, landslides, volcanic eruptions, and tornadoes. Additionally, man-made disasters such as various diseases, fire incidents, armed conflict, shooting incidents, vehicular accidents, and oil spills also occurred. In Ilocos Norte, disasters such as earthquakes, drought, typhoons, landslides, floods, tornadoes, fires, and vehicular accidents have recently afflicted the province. These disasters have brought devastation to humans and society and affected the nation's social and economic development, especially because people and the economy are vulnerable to the effects of disaster since they are reliant on climate-dependent industries like agriculture and coastal and marine resources.

In response to these disasters, Shield – the Strengthening Institutions and Empowering Localities Against Disasters and Climate Change Program, was developed by the United Nations Development Programme in the Philippines and the Australian government in order to create easier collaboration with local governments on building resilience against natural hazards and climate change (United Nations Office for Disaster Risk Reduction) [5]. One of the programs Shield supports is GeoRiskPH, a multi-agency government program run by the Department of Science and Technology that acts as a consolidated database to assist the government and the general public in anticipating and preparing for natural catastrophes (United Nations Office for Disaster Risk Reduction) [5]. Moreover, the Center for Disaster Preparedness (CDP) is a group that collaborates with communities and vulnerable groups to develop plans, programs, and policies with the intention of enabling service providers and duty-bearers to participate in and promote inclusive community-based disaster risk reduction and

management (CBDRRM) and fostering synergy between the engagement of various sectors.

According to the National Research Council [6], widespread public education and awareness are essential to lowering the number of fatalities, injuries, and property damage caused by catastrophes. People need to be made aware of the potential natural hazards in their own neighborhoods. They must be informed on the precise precautions that need to be taken before an event, what to do in case of a hurricane, earthquake, flood, fire, or other potential event, and what to do after it.

Although there has been extensive research conducted on disasters in the Philippines, the available information regarding household preparedness for such events remains limited and there is no sufficient data regarding resilience and preparedness levels at the local level when it comes to disaster (Bollettino et al.) [7]. Also, nursing practice does not only focus on clinical-based care, but the community as a whole is within their scope of care. Therefore, this study would be essential to address the knowledge gap in understanding how residents of Ilocos Norte are aware of and prepared in terms of disaster management. Since lack of awareness and preparedness for disaster management would affect the impact of a disaster, the result of this study would serve as a tool in the creation of community-focused programs and the provision of disaster management education that will effectively strengthen the communities' ability to mitigate the effects of disasters, enhance respondent's knowledge of the proper responses, and enable future academics to use it as a reference.

Objectives of the Study: This study aimed to determine the awareness and preparedness on disaster management of community residents in Ilocos Norte. Specifically, it sought to: (1) Describe the socio-demographic profile of the respondent, in terms of age, sex, place of residence (coastal and non-coastal), educational attainment, and family monthly income. (2) Identify the level of awareness of the respondents in terms of: types and nature of disaster, exposure and vulnerability, disaster hazards, and emergency support system. (3) Identify the extent of preparedness of the respondents in terms of: mitigation, response, and recovery. (4) Determine the significant relationship between the socio-demographic profile and awareness on disaster management of the respondents? (5) Determine the significant relationship between the socio-demographic profile and preparedness on disaster management of the respondents? (6) Determine the significant relationship between respondents' awareness and their preparedness on disaster management?

Significance of the Study: In this study, it would greatly help in raising awareness regarding the impacts of being prepared to respond in a disaster occurrence as well as determine lack of resources needed to support immediate response capability of community members.

The findings of the study would be beneficial to the following:

Respondents. They are the main group who would benefit from the study. The result of the study would be a basis for respondents to improve their knowledge and preparedness in responding to disasters. Moreover, information can be utilized by the respondents to lessen the impact of disasters in their life.

Government Agencies (LGU, MDRRMC Personnel). The result of the study would serve as a guide to focus on the community's capacity to mitigate the impact of a disaster event and give information on the lack of resources required to support the community members' ability to respond immediately. Also, it would serve as a tool in the creation of community-focused programs and the provision of disaster management education to the community.

Healthcare Providers. The findings of the study would provide them the information that could help in implementing training in disaster response for disaster management, including training on how to provide basic first aid and rescue carries with collaboration with community organizations. Also, they can establish programs that can provide basic emergency kits to the community residents.

Nurse educators. The result of the study would serve as a basis for disaster management education that will effectively strengthen the communities' ability to mitigate the effects of disasters and enhance respondent's knowledge of the proper responses.

Future Researchers. The study would serve as a tool to direct and navigate the researchers to find substantial, credible, and important variables that are known as vital data for further understanding of the topic. Also, it would serve as the main source of knowledge that students can utilize in their future studies.

Scope and Limitations of the Study: This study has focused on determining the awareness and preparedness on disaster management of community residents in Ilocos Norte. It also examined the significant relationships between the socio demographic profile of the respondents and their level of awareness on disaster management; the respondent's socio demographic profile and their extent of preparedness on disaster management; and, the level of awareness of the respondents and their extent of preparedness on disaster management.

The study has used a quantitative, non-experimental, descriptive-correlational design. The instrument for data collection was in the form of questionnaires that have close-ended questions to be answered by the respondents. The respondents of the study were the community residents from Brgy. Nagbacalan, Bgry. Payao, and Brgy. Tabug of Batac City, Brgy. Balaoi, Brgy. Caunayan, and Brgy. Saud of Pagudpud, and Brgy. Badio, Brgy. Tartarabang, and Brgy. Valbuena of Pinili. Batac City, Pagudpud, and Pinili were the municipalities of Ilocos Norte that were most affected by both natural and human-induced disasters for the past 5 years

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according to the data from the Provincial Disaster Risk Reduction and Management Office (PDRRMO) of Ilocos Norte. The selected barangays are the most affected areas by both natural and human-induced disasters for the past 5 years according to the data provided by the City Disaster Risk Reduction and Management Office (CDRRMO) of Batac City and Municipal Disaster Risk Reduction and Management Office (MDRRMO) of Pagudpud and Pinili.

The selected respondents were a representative from each household whose age ranges from 18–59 years old and were willing to participate in the study regardless of sex, place of residence, educational attainment, occupation, and family monthly income. Meanwhile, those who are 18-59 years old who have disabilities and who are illiterate were excluded from the study. Individuals who are 60 and above and pregnant women are excluded in the study as they are considered as vulnerable, and those below 17 are dependent on their parents and do not have their work yet. Also, those individuals who are not willing to participate were excluded.

Moreover, the study utilized the descriptive-correlational design, and data collection was made through questionnaire surveys. Probability proportional stratified random sampling was used in determining the total number of respondents from each barangay, with a total of 382 respondents. This method has allowed the researchers to draw more precise conclusions by ensuring that every subgroup is properly represented in the sample. Furthermore, the study was conducted during the second semester of the Academic Year 2022-2023.

Operational Definition of Terms:

Community Residents. This refers to the respondents aged 18-59 years old residing in Barangays Nagbacalan, Payao, Tabug in the City of Batac, Barangays Badio, Tartarabang, Valbuena of Pinili, and Barangays Balaoi, Caunayan, Saud of Pagudpud.

Disaster Management. It pertains to the approaches utilized by the community residents in preparing, managing, recovering, and preventing harm caused by disaster.

Extent of preparedness. This pertains to the state where the respondents have actions to take to mitigate, response, and to recover from a disaster.

Mitigation. It refers to the measures taken in advance by the respondents to avoid hazards and reduce potential impacts of disasters.

Response. It pertains to the ability of the respondents to provide help and meet the basic subsistence needs of affected residents during a disaster.

Recovery. It refers to the ways and needs of the respondents to restore and improve housing and livelihood after a disaster.

Level of awareness. It pertains to the existing knowledge of the respondents on disaster management.

Disasters. These are serious disruptions to a community that could either be man-made or natural.

Man-made. This type of disaster is caused by human beings such as gas leaks, oil spills, nuclear meltdowns, and industrial fires.

Natural. A type of disaster caused by natural elements such as atmospheric, geological, and hydrological origins.

Exposure. It refers to the awareness of the respondents that their location is in a disaster-prone area.

Vulnerability. This is the respondents' awareness that their location, the children and the elderly, their socio-economic status, and their level of education can increase their susceptibility to the impacts of disaster.

Hazards. It refers to the respondents' awareness of a situation that is either due to human activity or natural origin that causes harm to the respondents.

Emergency support system. This pertains to the awareness of the respondents to the available organizations, facilities, activities, supplies, and plans that can cater their needs in times of disasters.

Socio-demographic Profile. It refers to the combination of social and demographic characteristics of the respondents.

Age. It refers to the respondent's number of years of existence ranging from 18-59.

Educational attainment. This pertains to the highest level of education achieved by the respondent.

Family Monthly Income. These are the combined earnings of the respondent's household members every month, which are based on the income bracket guide by the Philippine Institute for Development Studies 2020.

Place of residence. This is where the respondent lives whether coastal or non-coastal.

Sex. It is the respondents' belonging to either of the two sexes, whether female or male.

II. RELATED LITERATURE AND STUDIES

Sociodemographic Factors Affecting the Awareness and Preparedness on Disaster Management

Age. Age has been deemed a significant factor in studies of disaster. Individuals within the age group of 18-59 are often part of the active workforce. They may have higher levels of engagement and responsibilities, which can influence their preparedness efforts. These individuals may be more proactive in acquiring knowledge, attending training, and participating in workplace emergency preparedness programs. In terms of physical capabilities, individuals in this age group generally have the advantage of being physically fit and active. They may be better equipped to respond to immediate threats and actively participate in preparedness activities that require physical exertion, such as evacuation or post-disaster clean-up efforts (Cvetković et al.) [8]. In addition, this age group tends to be more familiar with and adept at using technology so they can mostly access information, warnings, and alerts through digital platforms, which can enhance their awareness of potential risks and preparedness measures (Bronfman et al.) [9].

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Middle-aged individuals are faced with an increase in the number of duties and responsibilities they must simultaneously juggle while also caring for both the younger and older members of the family (Infurna et al.,) [10]. Moreover, Harnett et al., [11] discovered that those who are 25 or older are more likely to contribute monetarily to the family or complete chores and other household obligations. Furthermore, derived from Unicef Data [12], there are a total of 41, 929, 312 million who are children under 18 years of age, 117, 337, 368 million are above 18 years old, while 58-62 years old has a population of 12, 081, 669 million.

Sex. Risk perceptions and attitudes toward safety might be influenced by gender. Several studies showed that gender has a role in predicting preparedness with women being less likely than males to be prepared for specific hazards. Men tend to exhibit more confidence in their ability to handle disasters, whereas women often view dangers as being more serious and risky. Furthermore, because of the responsibilities that society has assigned to women, they are more susceptible to calamities. Women have less access to the tools necessary for disaster planning, mitigation, and recovery, including transportation, information, literacy, control over land and other economic resources, personal mobility, safe housing, and employment, freedom from violence, and power over decision-making (Cuesta et al.) [13].

On the other hand, it has been noted that social networks for women are typically stronger. Despite having better self-efficacy, men tend to have lower risk perception and are less inclined to plan ahead for emergencies (Nikkalen et al.) [14]. In a study "The Role of Gender in Preparedness and Response Behaviors towards Floor Risk in Serbia" by Cvetković et al. [8], it was concluded that men appeared to be more confident in managing an emergency situation, including the perception that they were better prepared to take action, including physical preparedness and response. Additionally, women had fewer opportunities to maintain a high level of social networking in the community, which may lead to them being less informed. This might then underpin women expressing TV as the main channel of flood hazard information and education.

Furthermore, according to the Philippine Statistics Authority [15], males have a higher number than females in the Philippines in the year 2023. This is shown in a sex ratio of 103 males per 100 females. The results imply that there are more female residents of Ilocos Norte that stay in their homes than males. This is due to the fact that the traditional social role of women is that of the lady of the house, taking care of the family, and being focused on children while the traditional man is the head of the family, who is focused on work and family maintenance (Sekscinska et al.) [16]

Educational Attainment. Muttarak & Pothisiri [17] stated that education in particular, is a crucial tool for promoting disaster awareness and preparedness because highly educated people have better financial resources to take preparedness measures and because education may have an impact on cognitive elements and affect how individuals perceive and assess risks as well as how they process information about minimizing risks. People who are educated may be more aware of dangers because they are likely to have greater access to information sources and be better equipped to evaluate the risk information. This is because preparedness action is strongly tied to how people perceive and act on risk information where highly educated people are most likely to stay updated on best practices guidelines, and recommendations for disaster preparedness from reputable sources. In their study, it was found that living in a community with a high proportion of highly educated women increases personal disaster preparedness because education can increase access to disaster-related information and socio-economic resources.

Meanwhile, according to Torani et al. [18], individuals with low educational attainment may have limited exposure to formal education and lack basic knowledge about hazards, disaster risks, and appropriate response strategies. They may be unaware of the potential impacts of different types of disasters or how to effectively prepare for and respond to them. This lack of knowledge can hinder their ability to make informed decisions and take appropriate actions during emergencies. In addition, lower levels of education is often linked to lower socio-economic status, which can result in limited access to resources for disaster preparedness. Individuals with lower education levels may face financial constraints that prevent them from acquiring emergency supplies, investing in insurance coverage, or accessing alternative housing options. This lack of resources can compromise their preparedness and ability to effectively respond to disasters Torani et al. [18].

Moreover, according to statistics, more than 40 percent of students finish high school. The vast majority of the Philippines population is very poor. Because of this, it is nearly impossible for them to earn a college degree, because higher education is majorly privatized (Nes) [19].

Furthermore, availability of the public sector may also be a factor. The public sector becomes smaller as students' progress on the educational ladder in the Philippines. As Filipino students' progress through their studies, fewer and fewer state-funded public institutes are available to them. In elementary education, 95.2 percent of institutes are public. In secondary education, this number goes down to 60.8 percent. And finally, in tertiary education, it is only 25.3 percent. With the current state of education, it is also hard for them to simply reach college in the first place. (Nes) [19]. In addition, according to Stryzhak [20], in the regular economic conditions, the workers with low education level are usually suited to jobs with low task complexity or manual labor, whereas highly educated workers can handle specialized jobs with high task complexity. Thus, higher education means more opportunities for higher wages.

Place of Residence. According to Nikkalen et al. [14], the capacity and necessity to adapt are also based on an

individual's place and type of residence. Living in coastal areas in the Philippines exposes individuals and communities to various natural hazards, including typhoons, storm surges, tsunamis, and sea-level rise. The proximity to the sea heightens the risk of these disasters, requiring specific measures for awareness and preparedness. People in coastal areas are generally more aware of the potential risks they face due to their direct exposure to coastal hazards. They are more likely to have experienced previous disasters and have witnessed their devastating effects. As a result, coastal communities tend to have a higher level of awareness regarding the need for disaster preparedness and response. Coastal communities often have specialized disaster management plans in place due to the recurrent nature of coastal hazards. They may have early warning systems, evacuation routes, and designated shelters to cope with potential disasters.

Non-coastal areas in the Philippines also face various types of natural disasters, such as typhoons, earthquakes, landslides, and volcanic eruptions. While these areas may not be directly exposed to coastal hazards, they still require awareness and preparedness for different types of disasters. In these areas, the awareness of specific coastal hazards might be relatively lower, as people in these regions are less exposed to such risks. However, they may still have a good understanding of other types of disasters prevalent in their region, such as typhoons or earthquakes. As for disaster preparedness, efforts in non-coastal areas primarily focus on the specific risks present in those regions (Nikkalen et al.) [14].

Furthermore, according to Almutairi et al., [21], non-coastal areas may have different resource availability compared to coastal areas. While coastal areas may have access to marine rescue or maritime-focused resources, non-coastal areas may allocate resources to address hazards specific to their region. The availability and allocation of resources can influence preparedness levels.

Furthermore, according to the data of Philippines Statistics Authority [5], the result of their 2020 Census, Batac City has a total population of 55,484 which is 50% higher than the other selected municipalities, Pagudpud has, 25, 098 while Pinili has 17, 626. In terms of lowest percentage, Ilocos Norte has lower coastal areas. Out of 23 towns of Ilocos Norte, there are a total of 14 non-coastal areas while there are only 9 coastal areas (Phil Atlast) [22].

Family Monthly Income. Based on the literature published by Teo et al. [23], socioeconomic position of a person can affect how vulnerable they are to disasters as well as how well-equipped they are to cope with them and recover thereafter. Higher family monthly income may provide individuals and families with better access to resources, including information channels such as the internet, television, or newspapers. This improved access to information can contribute to higher awareness levels regarding disaster management. In addition, families with higher incomes often have better access to education and may be more likely to engage in awareness programs and workshops related to disaster management. Furthermore, family income levels can affect the ability to allocate financial resources for disaster preparedness measures. High-income families may have more disposable income to invest in emergency supplies, first aid kits, evacuation plans, and insurance coverage. This financial capability allows them to take proactive measures to enhance the preparedness levels, leading to greater awareness and understanding of disaster management.

On the other hand, Hallegatte et al. [24] stated that individuals with low socio-economic status often have limited access to information sources such as the internet, televisions, or newspapers. This can result in a lack of awareness regarding potential risks, preventive measures, and disaster management strategies. Limited access to reliable information channels can hinder their ability to stay informed about disaster preparedness, reducing their overall awareness. More so, low socio-economic status is often associated with lower levels of education and literacy. Individuals with limited education may have difficulty understanding complex disaster management concepts or accessing relevant information. Low socio-economic status can present financial constraints, making it challenging for individuals and families to allocate resources for disaster preparedness. They may have limited financial means to invest in emergency supplies, first aid kits, or insurance coverage. This lack of resources can hinder their preparedness efforts and reduce their ability to effectively respond to disasters.

Legal Basis on Disaster Risk Reduction and Management. The study is based on the government's movement towards better disaster management through shifting the policy environment and the nation's approach to dealing with disasters from mere response to preparedness. The government, through the enactment of the Senate and House of Representatives of the Philippines in Congress, assembled the act to strengthen the country's disaster risk reduction and management system.

Republic Act No. 10121 - The Philippines Disaster Risk Reduction and Management Act of 2010. According to the This offers a thorough, all-hazard, multi-sectoral, interagency, and community-based approach to disaster risk management. The law also encourages the growth of human, organizational, and institutional capacities for disaster management. One of the fundamental provisions of this law is the need for disaster risk reduction to be taken into account in all areas, including budget, infrastructure, education, health, and housing. It also acknowledges local risk patterns and trends as well as the decentralization of resources and responsibilities, which promotes the involvement of the private sector, non-government officials (NGOs), community-based organizations, and local residents in disaster management. The Act also requires the creation of a Barangay Disaster Risk Reduction and Management Committee (BDRRMC) in

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every barangay and a Disaster Risk Reduction and Management Office (DRRMO) in every province, city, and municipality. The calamity fund may also be utilized to support disaster risk reduction or mitigation, preventive, and preparedness initiatives for possible disasters, in addition to response, relief, and rehabilitation efforts (Disaster Risk Reduction Network Philippines) [26]. Through this law, it transforms and reforms ways to deal with disasters. Understanding that disaster effects can be decreased by addressing the primary cause of disaster risks is made possible by the shift in emphasis from response to preparedness.

Disaster Management. The International Federation of Red Cross & Red Crescent Societies [27], defined disaster management as the organization and management of resources and responsibilities for dealing with all the humanitarian aspects of emergencies, in particular, preparedness, response, and recovery in order to lessen the impact of disasters.

A systematic method for preventing, preparing for, responding to, and supporting emergency recovery activities is disaster management. Professionals in the sector play crucial roles in saving lives and alleviating suffering, whether they are leading emergency management for man-made or natural catastrophes. Planning for and responding to emergencies and disasters, including both pre-and post-event operations, are all together referred to as disaster management. It speaks of controlling both the risk and the effects of an incident. Disaster management is, in essence, more than just response and relief; it is a methodical procedure intended to lessen the bad effects and/or repercussions of disastrous events (Tulane University) [28].

According to Bolletino et al. [7], perceptions of personal preparedness, planning, coping, and adaptability to disasters showed that, on average, Filipinos were divided, with 31% indicating they are either not at all or only marginally ready to respond to a disaster in the near future. However, 83% of Filipinos reported having talked to their families about emergency plans. Only 27% of the population, however, felt confident in their ability to adapt to disaster-related changes, and 41% of Filipinos indicated they would find it difficult to deal with changes in weather patterns if they led to more frequent disasters. When the many broad indicators of resilience—preparedness, adaptation, coping, and recovery—were combined, they showed considerable regional disparities.

Awareness on Disaster Management

Types and Nature of Disaster. According to the University of Missouri System [29], a disaster is defined as a 'sudden or great misfortune' or simply 'any unfortunate event'. More precisely, a disaster is 'an event whose timing is unexpected and whose consequences are seriously destructive'. These definitions identify an event that includes three elements: suddenness, unexpectedness, and significant destruction and/or adverse consequences. An event, whether natural or man-made, becomes a disaster if the event becomes uncontrollable in a relatively short time. It is deemed a disaster once a serious disruption is noted. Moreover, minor to significant losses, which can either be life or economic in nature, become evident once an event becomes a disaster. A natural event only becomes a disaster when it impacts human life, property, or livelihood. The greater the number of vulnerable populations living in an at-risk area, the more likely an event will be categorized as a disaster.

Natural Disaster. The United Nations Office for Disaster Risk Reduction [5] defined natural disasters as large-scale geological or climatic phenomena that have the potential to cause loss of life or property. Tornadoes and severe storms, hurricanes, floods, wildfires, earthquakes, and drought are some examples of these catastrophes. Natural disasters are described in terms of their size or intensity, quick start, length, and area of impact (e.g. earthquakes are of short duration and usually affect a relatively small region whereas droughts are slow to develop and fade away and often affect large regions). In addition, Bhandari [30] stated that natural disasters are unpredictable and unavoidable but their effects could be minimized by preparedness related knowledge and practice. So, knowledge has an important role in reducing disaster risk.

According to the World Health Organization [31], floods are the most common sort of natural disaster and it happens when an excess of water submerges normally dry ground. A typhoon develops when winds enter ocean regions with warm water. Wind speeds must be at least 74 miles per hour for a storm to qualify as a typhoon (Cena) [32]. In addition, landslides are one of nature's most powerful and destructive forces as they strike wherever the rock and soil are loosened by rain or by gravity. As stated by National Geographic Staff [33], tornadoes form when warm, humid air collides with cold, dry air.

Furthermore, in the study "Preparedness for Natural Disasters Among Older US Adults: A Nationwide Survey" of Ryan, et al., [34], found out that only a modest percentage (23.6%) of respondents reported having any specific plan, written or otherwise, on what to do in case of an emergency or disaster.

In addition, according to the study of SAMHSA [35], deadly floods that have swamped nearly all of the Philippine capital are less a natural disaster and more the result of poor planning, lax enforcement and political self-interest, experts say. Twenty people have died and two million others have been affected, according to the government. Another study "An Integrated approach to Natural Disasters" of Lin Moe and Pathranarakul [36], states that the investigations reveal that the country lacked a master plan for natural disaster management including prediction, warning, mitigation and preparedness, unspecified responsible governmental authority, unclear line of authority, ineffective collaboration among institutions indifferent levels, lack of encouragement for participation of local and international non-government officials (NGOs),

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lack of education and knowledge for tsunami in potential disaster affected communities, and lack of information management or database system.

Man-made Disaster. According to Central Washington University [37], this kind of catastrophe is caused by human intention, negligence, or a failure of a man-made system that results in human misery and environmental harm. Examples of human dangers include fires, transportation accidents, workplace accidents, oil spills, and nuclear explosions and radiation. Moreover, Kasireddy [38] states that manmade disasters are risks brought on by human action or inaction. Humans, other living things, and ecosystems may all be negatively impacted by man-made disasters. Some risk analysis approaches focus on the frequency and seriousness of threats.

As stated by Elide Fire [39], fires are caused by fuel material that can be ignited, the element of heat that reaches high temperature causing to ignite the fuel and oxygen in the atmosphere that also helps to ignite fuel. For vehicular accidents, it is due to distracted, drowsy, and intoxicated driving, speeding, inclement weather such as fog, ice, and snow, and ignoring traffic signals (Berkowitz) [40]. Disease outbreaks, on the other hand, originate in animals but spread to people by practices that disrupt the balance of nature and raise the risk for disease transmission (WCMC) [41].

Although the world has seen many natural disasters over time, man-made disasters continue to grow, with equally tragic results: 1) Gas leaks tend to be some of the most dangerous disasters, because they seem innocuous until it's too late. Gas can directly and indirectly poison people and the environment — spreading rapidly, being unobserved, potentially igniting, causing death. Unfortunately, gas leaks are preventable man-made disasters that stem from the world's expanding reliance on gas. These disasters have resulted in an egregious amount of deaths. 2) Oil spills are some of the most familiar man-made disasters, devastating to people, the environment, animals and global socioeconomics.

In addition, as stated by the Statista Research Department [42], the Philippines is prone to different natural disasters. Flooding due to heavy rains brought by the southwest monsoon and low-pressure area also affects the region, resulting in damage to many livelihoods. In 2021, damage amounting to a total of 60 billion pesos was caused by natural disasters, with storms having the most impact (Statista Research Department) [42]. Furthermore, according to the European Fire Safety Alliance [43], most fire incidents are caused by human actions. They added, awareness on fire and responsibilities regarding fire safety is therefore of the utmost importance because it can significantly reduce the risk of a fire breaking out.

Exposure and Vulnerability. According to the United Nations Office for Disaster Risk Reduction [5], exposure is a key concept in disaster risk and refers to the position of people, infrastructure, housing, production capacity, and other tangible human assets located in hazard-prone places. While vulnerability is a characteristic of disaster risk that is determined by physical, social, economic, and environmental elements or processes that increase a person, a community, assets, or systems' sensitivity to the effects of hazards.

According to American Red Cross [44], elders compared to those in their younger years, are more vulnerable to disaster due to having more medical conditions, having assistive devices, and being more isolated. In connection, Niazi et al., [45], children can be most affected by disasters because of their vulnerability physically, psychologically, and socially. Hence, children and elders can be protected during disasters because of the respondents' awareness in terms of the vulnerability of these groups.

More so, according to Relief Web [46], certain areas in a locality are more vulnerable to certain disasters compared to others. With this, knowing these areas can help people in proactively preparing for potential hazards before evolving into a disaster, thus safeguarding lives and properties. Moreover, according to the National Disaster Risk Reduction and Management Council (2022), those of poor households are more vulnerable and have fewer resources in reducing risks, coping, and adapting to impacts of disaster causing them to be often affected.

Disaster Hazards. According to the United Nations International Strategy for Disaster Reduction by Shi [47], hazard is a natural process or phenomenon that may pose negative impacts on the economy, society, and ecology, including both natural factors and human factors that are associated with the natural ones. Hazards are the origins of disasters.

In addition, natural (or physical) events are only termed hazards when they have the potential to harm people or cause property damage, social and economic disruption. The location of natural hazards primarily depends on natural processes, including the movement of tectonic plates, the influence of weather systems, and the existence of waterways and slopes (e.g. that might generate landslides). But processes such as urbanization, environmental degradation and climate change can also influence the location, occurrence (frequency) and intensity of natural hazards. These processes are known as risk drivers.

The classification schemes for hazards vary across different research institutions and governments, but these can be divided into biological, environmental, geophysical, hydrometeorological, and technological hazards as stated by the United Nations Office for Disaster Risk Reduction [5].

Biological hazards. According to the UNDRR [48], these are of organic origin or conveyed by biological vectors, including pathogenic microorganisms, toxins and bioactive substances. Biological health hazards include bacteria, viruses, parasites and molds or fungi. They can pose a threat to human health when they are inhaled, eaten or come in contact with skin. They can cause illness such as food poisoning, tetanus, respiratory infections or parasite infection (Public Health Ontario) [49].

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Environmental Hazards. These may include chemical, natural, and biological hazards. These can be created by environmental degradation or physical or chemical pollution in the air, water, and soil. However, many of the processes and phenomena that fall into this category may be terms drivers of hazard and risk rather than hazards in themselves, such as soil degradation, deforestation, loss of biodiversity, salinization and sea-level rise (United Nations Office for Disaster Risk Reduction) [5]. Environmental hazards—like water and air pollution, extreme weather, or chemical exposures—can affect human health in a number of ways, from contributing to chronic diseases like cancer or to acute illnesses like heat exhaustion (Centers for Disease Control) [50].

Geological or geophysical hazards. According to the United Nations Office for Disaster Risk Reduction [5], these hazards originate from internal earth processes. Geological hazards—including volcanoes, earthquakes, and landslides—threaten millions of people worldwide and can devastate communities in a matter of seconds by destroying homes, causing water and food shortages, adversely affecting health, and disrupting livelihoods.

Hydro-meteorological hazards. These hazards involve atmospheric, hydrological or oceanographic origin (United Nations Office for Disaster Risk Reduction) [5]. According to the UK Research and Innovation [51], hydro-meteorological hazards, including floods, droughts, landslides and storm surges, can pose a direct threat to lives and impact livelihoods by damaging and destroying transport links, power supplies, businesses and agricultural land. Climate change, population growth, land-use change and urbanization are increasing the number of people in Southeast Asia at risk from these hazards.

Technological hazards. According to the United Nations Office for Disaster Risk Reduction [5], these hazards come from industrial or technological settings, risky practices, faulty infrastructure, or certain human actions. This includes chemical spills, dam collapses, industry explosions, radioactive waste, toxic waste, industrial pollution, nuclear radiation, and transport catastrophes. The effects of a natural hazard occurrence may potentially immediately result in technological dangers. These risks could result in human or animal death or injury, property damage, social or economic upheaval, or environmental degradation (UNDRR) [48].

Moreover, hazards manifest across time periods with various intensities (or magnitudes) (sometimes known as temporal scales). In the context of uncertainty, scientists discuss the probability or return periods (also known as recurrence intervals) associated with the occurrence of dangers of various intensities. Generally speaking, the return period is longer the more intense the hazard is (the less frequent the hazard). Some communities might have missed the prospect of a high intensity threat due to the lengthy return periods. This was the case during Mt Pinatubo's eruption in 1991 (the second largest volcanic eruption of the twentieth century), which displaced 20,000 indigenous peoples living in its foothills and caused large mudslides (known as 'lahars') that affected people for several days (United Nations Office for Disaster Risk Reduction) [5].

In the study of Rogayan and Dollete [52], perceptions of respondents about the hazard levels of the given disasters are also measured in determining the levels of disaster awareness and disaster practices amongst members from barrio communities in Zambales. The people from Zambales barrio's perceived typhoons as 'very destructive' and volcanic eruption, flood, earthquake, landslide, and fire as 'destructive'; whereas they perceived tsunamis and storm surge as 'strong'. The perceptions of the respondents are based on their lived experiences and also from their understanding gained from information they obtained from the media including television, radio, and newspapers. In conclusion, in terms of disaster awareness, Zambaleños are very aware about the repercussions of 'strong' typhoons and are moderately aware about floods, volcanic eruptions, earthquakes, landslides, fire, storm surges and tsunamis. Making the barrio communities more aware about the different disasters will not only save lives but will also save the economy.

In a study of Ashinie [53], the results stated that one reason for road related accidents is due to drivers' lack of awareness on road safety rules with 35%. Moreover, the study of Pinera (2020) [54], assessed the drivers' level of knowledge and their extent of compliance with traffic rules. Findings indicate that respondent drivers have a "very high" level of knowledge on rules on overtaking; parking; drunk and distracted driving; use of seatbelt and helmet and interpretation of danger warning and informative signs but have "low" level of knowledge on right of way rules. It was also concluded that traffic safety education is very indispensable to effectively address traffic accident problems and improve road safety within the province.

Emergency Support System. According to the European Commission [55], the Emergency Support System (ESS) is a collection of real-time, data-driven technologies that can offer crisis managers useful information during unusual situations. As a result of better control and management made possible by this information, forces on the ground (police, rescue workers, and firefighters), as well as command and control centers located outside of theaters, are synchronized in real time.

Maminta [56] investigated the Level of Awareness on Disaster Preparedness of the residents of Mimbalot, Buru-un, Iligan City where stakeholders, community, and the school focal people were involved in this project. The results revealed that respondents are vulnerable to the presence of trees and more than half of them do not have emergency exits, kits, and hotlines. More than half of the respondents did not have emergency exits or fire escapes, emergency kits, and a list of emergency hotlines. On the other hand, they regularly teach their children what to do before, during, and after a

disaster; they have prepared an evacuation plan for their family; they know the nearest evacuation center; and they participate in community activities that aim to save the environment and reduce disaster risks.

Furthermore, according to Life Secure [57], in the event of an emergency, it is important to have the right supplies on hand. Emergency prepared kits or disaster kits can help people survive after a disaster occurs. Having the right survival gear helps people treat wounds, find help and more. This ensures that people can prepare themselves at work, school or on the go. The items included in the kits help people respond to basic first aid needs and prevent illness.

However, according to Perry [58], people can be apathetic because they do not like to think about their vulnerability to disasters. Alternatively, people resist disaster planning because it consumes resources that could be allocated to more immediate community needs - police patrols, road repairs, and the like. They would rather have emergency kits, or just rely on the food available in their house.

Preparedness on Disaster Management

Mitigation. Disaster mitigation, according to the Republic Act No. 10121 of 2010, is a sustained action that reduces or eliminates adverse impacts of hazards and related disasters to people and property. It is the ongoing efforts made at the federal, state, local, and individual levels to lessen the effects of disasters on our families, homes, communities, and economy that encompasses engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness. It is considered the core of emergency response as the effects of disasters on people and property are being lessened by continuing efforts. As stated by Pancasilawan [59], the role of the government in protecting its citizens includes disaster management. The job of the government in managing natural disasters is one that must be done completely. The comprehensive nature of disaster management necessitates the active participation of all stakeholders. Moreover, Pangandaran Regency is struggling to recover from the recent tsunami calamity. A variety of stakeholders in the Pangandaran Regency have taken part in mitigation efforts as well. Risk from disasters can be decreased by mitigation.

As a result, the government should work to reduce disaster risk through the Regional Disaster Management Agency's Mitigation Program (BPBD/Badan Penanggulangan Bencana Daerah). In Pangandaran Regency, there are two types of disaster mitigation: mitigation with a structural approach and mitigation without a structural approach. With a structural approach, physical development is prioritized, such as the creation of early warning systems or temporary evacuation sites (EWS). The implementation of non-structural mitigation takes the shape of non-physical development, such as disaster education for students and for the community through initiatives run by mothers. Private parties are provided with disaster training so they will know what to do in the event of a disaster.

According to Bolletino et al. [7], the Philippines is one of the world's most disaster-prone countries and ranks among the top three countries in the world for population exposure and vulnerability to hazards. People watch television for a variety of reasons, including entertainment, news, education, culture, sports, and even music. Additionally, the media can disseminate information prior to, during, and after disasters to help people and organizations be properly prepared for and respond to them, protecting lives and livelihoods (Dave) [60]. Hence, they will keep on doing it for their own sake.

Structural mitigation refers to the physical modifications or actions taken to protect against dangers or disasters. A family might strengthen their home to make it more wind- or earthquake-resistant as an example of structural mitigation. Other forms of structural mitigation include constructing a sandbag barrier around the house in the event of a flood. In general, structural mitigation refers to the direct steps that individuals take, such as building or moving, to better save their life or property. Non-structural mitigation in emergency management refers to actions that individuals can take that are not physically or structurally obvious as a defensive defense, such as a surge wall or a storm shelter. In emergency management, non-structural mitigation refers to actions that individuals can take that are not physically or structurally obvious as a defensive defense, such as a surge wall or a storm shelter. Having flood insurance is an example of a non-structural mitigation measure. A family developing a family emergency plan is yet another example. Any type of mental readiness, education, protection, conversation, and planning would be regarded as non-structural mitigation (Reed) [61].

According to the study of Pramono et al. [62], the participation of the community is an active component of the community protection unit. The findings demonstrate that the community can actively take part in disaster mitigation both before and after the crisis happens as members of a community protection unit. The role of the community participating in community protection needs support from the government, which has the primary task of carrying out the disaster mitigation function, due to the limited human resources and infrastructure facilities for members of community protection and in accordance with the duties of members of community protection only as assistants carrying out the disaster mitigation function. It is necessary to increase both the amount and quality of the capacity building activities carried out by community protection members. Training exercises on disaster mitigation are being conducted as part of the efforts to strengthen the capacity of community protection members, especially those that frequently occur in the area. It is imperative to do flood, earthquake, and tsunami safety training due to the frequent natural disasters in Indonesia. The training sessions must be modified to meet the requirements of probable disasters in the area. It is necessary to strengthen the support for facility and infrastructure availability so that disaster mitigation initiatives can function

at their best. It is necessary to maximize the assistance provided by facilities and infrastructure in efforts to prevent disasters, rescue those trapped inside them, and restore infrastructure.

Response. According to the National Disaster Risk Reduction Management Council [63], Disaster response prioritizes activities that occur during the actual operations of responding to a disaster. These activities encompass everything from conducting needs assessments and carrying out search and rescue missions to implementing relief operations and facilitating early recovery efforts. The effectiveness and achievement of this priority area are greatly dependent on successfully executing the activities associated with prevention and mitigation. This includes the establishment of coordination and communication mechanisms, among other essential components. In addition to preventative measures and proper preparation, according to Khorram and Burkle [64], disaster response and public health emergency management require both structural and non-structural resources. Local and regional surge capacity should be increased in a flexible way. The primary healthcare facilities, veterinary and dental clinics, schools, sports facilities, and hotels were found to be interested in and capable of participating in such a system, either by receiving resources or by taking part in drills and exercises. They also found that alternative care facilities were used within a community. The absence of devices, healthcare materials, competencies, a clear organizational structure, legal backing, medical responsibility, and adequate funding were just a few of the many barriers to potential participation in this response system.

As to the study of Karunarathne and Lee [65], in terms of disaster management, social networks and public support have grown in importance. The case study of the 2017 mass flooding incident in rural Sri Lanka provides empirical and reliable evidence of social network support and their spatial and temporal dynamics in flood disaster preparedness and recovery. In light of the findings, it is clear that social support networks are essential for disaster preparedness, response, and recovery in relation to flooding occurrences before, during, and after they occur. Additionally, social networks are important in supplying information, food, water, and other necessities like sheltering people, relocating their things out of harm's way, and cleaning up contaminated homes and public spaces in exchange for helping to secure and revive flood-affected livelihoods. More significantly, during crisis periods, network properties have evolved over time.

Furthermore, Ragini et al., [66] noted that social networks are increasingly being used for messages about emergencies and calls for assistance. To provide prompt assistance in times of calamity, such emergency requests must be mined from the large data reservoir. The reaction of the affected people during and after the crisis influences the success of the disaster response and recovery process, even while government agencies and emergency responders collaborate through their respective national disaster response frameworks. The study suggested a big data-driven strategy for disaster response using sentiment analysis. The suggested model gathers information about disasters from social networks and organizes it into categories based on the requirements of those who are affected. Using a machine learning algorithm to analyze people's sentiment, the disaster data is categorized. To determine the optimum categorization approach for disaster data, a number of variables, including lexicon and components of speech, are examined. The findings demonstrate the suitability of a lexicon-based method for examining disaster-related human needs. The real-time categorization and classification of large social media datasets for disaster response and recovery is the practical application of the proposed methodology. In a crisis scenario that is rapidly changing, this research helps emergency responders and rescue professionals create better information management methods.

In addition, Almario et al., [67] stated that the most prominent characteristics of Filipinos are empathy and compassion. Even though the Philippines is one of the nation most vulnerable to natural disasters as a result of climate change, Filipinos always find a way to show kindness and humanity to our neighbors who are in need. Filipinos do not waste time in getting to people who need help the most when public health and life-saving necessities are not being satisfied.

According to Sparovec [68], many people lack formal knowledge or training in first aid procedures. Basic first aid skills are not typically part of the standard school curriculum. Additionally, some people may simply underestimate the importance of learning first aid and may not realize that having basic first aid knowledge and skills can make a significant difference in saving lives or minimizing injuries during emergencies.

Furthermore, some people may feel anxious or uncomfortable when faced with medical emergencies. This fear can hinder their willingness to learn and apply first aid techniques, as they may worry about making a mistake or causing harm. More so, time constraints are a common factor that contributes to people lacking skills in basic first aid. In today’s fast-paced world, many individuals lead busy lives, which can make it challenging to prioritize learning first aid skills and believe emergency services will always be readily available.

Recovery. According to the Office for the Coordination of Humanitarian Affairsb [69], the recovery priority area focuses on various aspects such as livelihoods, infrastructure and lifeline facilities, housing, and resettlement, among others. These efforts are carried out once individuals have been relocated from evacuation centers. The objective is to restore and enhance these key areas to help affected communities regain stability and rebuild their lives. Miles et al., [70] states that in order to create a community of practice

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for disaster recovery modeling, it needs a common repertoire of ideas and approaches to embrace, investigate, and develop. To make advancements that are driven by objectives that are important to both community members and others, members of the community must self-identify and establish relationships with other members. Naturally, recovery is important. It matters to other types of researchers, recovery practitioners, and the expanding number of researchers who engage in the enterprise of recovery modeling. Unfortunately, although a number of academics are now looking at recovery modeling strategies, modelers as a group do not yet have a collective identity or regular venue through which they may set a more expansive research agenda and exchange ideas. To advance knowledge among the community, disaster recovery modelers should create shared resources such as data sets, programming libraries, documentation, and terminology. In other words, it involves practice, which refers to patterns of doing and thinking that group members generally share. This literature synthesis is intended to spark a community of practice for disaster recovery modelers. Not simply the expanding number of academics with modeling and catastrophe experience, but also hazards and disaster researchers without modeling experience, should be a part of this community. The need for more and better longitudinal recovery data and visual analytics tools for understanding the hyper-dimensionality of many disaster recovery models are two examples of research needs that will be addressed with greater inclusion but are not necessarily directly related to modeling.

According to Tablan [71], Filipinos generally believe in collective responsibility, meaning that the welfare of one family member is intertwined with the well-being of the entire family. In times of adversity, the spirit of unity extends to the family, with individuals taking an active role in safeguarding their loved ones. Since the Philippines is located in a geographically vulnerable area prone to various disasters, the frequency of these calamities has shaped the Filipino mindset to be prepared and prioritized the safety of family members and the past disasters serves as a constant reminder of the need to protect our loved ones.

Asian Development Bank [72] stated that Filipinos, like people in any other country, may need assistance for repairs in their houses. Many Filipinos face financial constraints and may not have the necessary funds to cover the costs of home repairs. This is especially true for low-income individuals and families who struggle to make ends meet. Moreover, not everyone possesses the necessary skills or tools to carry out house repairs on their own and rural or remote areas have limited access to repair services. In such cases, Filipinos may seek assistance from NGOs, government programs, or community-based initiatives.

In addition, the study of Kamal and Hassan [73] explored how social capital affected disaster preparedness and recovery in Bangladesh's southwest coastal villages. According to the findings, social capital was critical to the recovery procedures following the cyclone for individuals, households, and entire communities. While only a few people benefited from the connection of social capital, the villages were greatly helped by the bonding and bridging of social capital from the emergency phase to long-term recovery. It also shows how aspects of the existing social structure, such as patronage networks and class hierarchy, made it possible for local elites to divert a significant amount of funds intended for disaster relief and restoration to benefit less severely impacted households. This resulted in the strengthening of misleading social networks and the degradation of communities' social capital for bridging. These results help create sustainable policies and strategies for potential calamities, as does the literature on social capital.

Theoretical Framework

This study is anchored by the Knowledge, Attitude, and Practice (KAP) Model proposed by Schwartz in 1976. A health behavior change theory, as the theoretical framework for examining the relationships between knowledge, attitude, and practice in disaster management. The KAP model suggests that knowledge acquisition positively influences attitude development, which, in turn, influences individuals' practices or behaviors.

In this study, knowledge refers to the awareness and understanding of community residents regarding disaster management. Attitude, although not the main focus, is considered as a supporting variable that reflects participants' views on the topic. Practice, on the other hand, relates to the level of preparedness exhibited by participants based on their knowledge.

By employing the KAP Theory, the researchers were able to assess the general knowledge of community residents and establish connections between knowledge, attitude, and behavior in disaster management. This theoretical framework helped identify any discrepancies and inconsistencies, allowing for a deeper understanding of how knowledge impacts attitudes and practices related to disaster management. By addressing these issues, effective interventions can be developed to improve preparedness and response strategies.

Overall, the KAP Theory provided a valuable framework for examining the relationships between knowledge, attitude, and practice in the context of disaster management. It guided the researchers in assessing community residents' knowledge, understanding the links between each factor, and identifying areas for effective intervention to enhance disaster management practices.

Conceptual Framework

This study utilized the Criterion-Predictor Model as a paradigm to show the relationship between the socio-demographic profile of the respondents, their awareness and preparedness on disaster management, and relationship between their awareness and preparedness on

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disaster management. Figure 1 shows the socio-demographic profile, awareness, and preparedness on disaster management of community residents in Ilocos Norte. The box in the left side represents the independent variable which is the sociodemographic profile as to age, sex, educational attainment, place of residence, and family monthly income. On the other hand, the boxes on the right side represent the dependent variables which are the awareness and preparedness on disaster management of community residents in Ilocos Norte. Thus, the awareness and preparedness on disaster management and their relationship with the sociodemographic profile among community residents of Ilocos Norte are being described in this study.

In addition, the arrow on the right shows the relationship between the respondents' awareness and preparedness on disaster management.

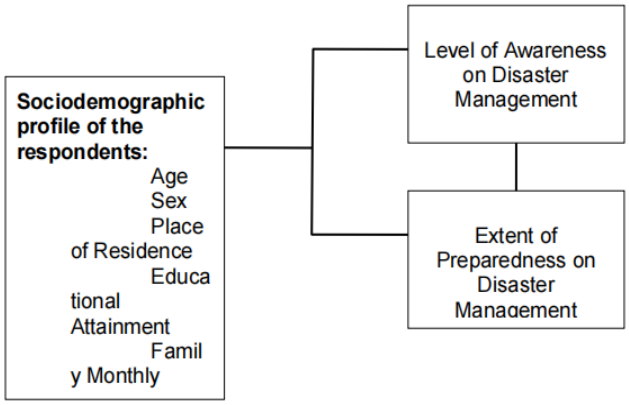

Figure 1. The Research Paradigm

RESEARCH HYPOTHESES

The following hypotheses are drawn and formulated on the concept of the established problems: (1) There is no significant relationship between the respondents' sociodemographic profile and their awareness on disaster management. (2) There is no significant relationship between the respondents' socio-demographic profile and their preparedness on disaster management. (3) There is no significant relationship between the respondents' awareness and preparedness on disaster management.

III. METHODOLOGY

Research Design: The study utilized a descriptive-correlational research design. According to Voxco Organization[74], descriptive research aims to systematically obtain information to describe a phenomenon, situation, or population. The study was descriptive because it was used to describe the characteristics of the variables under study in terms of awareness and preparedness for disaster management for both natural and man-made disasters.

In addition, according to Bhandari [30], a correlational research design investigates relationships between variables. The study was correlational research because it sought to determine the relationship between the sociodemographic profile, such as age, sex, place of residence, educational attainment, and family monthly income and awareness on disaster management, and to determine the relationship between the sociodemographic profile and preparedness on disaster management. It sought the correlational relationship between awareness and preparedness on disaster management.

Study Locale: Among the twenty-three (23) towns and cities in the Province of Ilocos Norte, the study was conducted in the municipalities of Pagudpud, Pinili, and the city of Batac because these are the places that were mostly affected of disaster during the past 5 years according to the statistics by the Provincial Government of Ilocos Norte.

In determining the portion of the population, the researchers obtained the total number of households of each of the three Barangays from each town as they were the most affected areas of disaster for the past 5 years. Barangay Nagbacalan, Barangay Payao, and Barangay Tabug of Batac City have 1 228, 1 386, and 3 334, respectively. For the municipality of Pagudpud, Barangay Balaoi, Barangay Caunayan, and Barangay Saud were the most affected areas, having 524, 407, and 356 households, respectively. Moreover, in Pinili, Barangay Badio, Barangay Tartarabang, and Barangay Valbuena were the most affected areas with 309, 246, and 263 households, respectively.

Sampling Design: In the study, probability proportional stratified random sampling was used to determine the total number of respondents from each barangay. This method allowed the researchers to draw more precise conclusions by ensuring that every subgroup is properly represented in the sample.

In establishing the proportion of the population who served as respondents in the study, the researchers selected three most affected barangays in Batac City, Pinili, and Pagudpud. The researchers requested the total number of households in each barangay with members aged 18-59.

The researchers utilized Slovin's Formula (n=N/ (1+Ne2)) with a 5% margin of error, which revealed a sample size of 382 out of 8053 total number of households. Then, the 382 sample size was distributed to the 9 selected barangays using ratio and proportion. Hence, 58 respondents were obtained from Barangay Nagbacalan, 66 from Barangay Payao, and 158 from Barangay Tabug of Batac City. Meanwhile, 15 were obtained from Barangay Badio, and 12 each from Barangays Tartarabang and Valbuena of Pinili. On the other hand, 25 was obtained from Barangay Balaoi, 19 for Barangay Caunayan, and 17 respondents of Barangay Saud in Pagudpud.

The inclusion criteria include that the respondents of the study must be a member of a household in the Brgy. Nagbacalan, Brgy. Payao, and Brgy. Tabing of Batac City, Brgy. Balaoi, Brgy. Caunayan, and Brgy. Saud of Pagudpud, and Brgy. Badio, Brgy. Tartarabang, and Brgy. Valbuena of Pinili, which are the most affected municipalities by disasters for the last 5 years based on the data given by the PDRRMO,

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must be between the ages of eighteen (18) and fifty-nine (59) years old, and willing to participate in the study without pressure and coercion regardless of their sex, educational attainment, occupation, or family monthly income.

Those who are not a member of a household in the Brgy. Nagbacalan, Brgy. Payao, and Brgy. Tabing of Batac City, Brgy. Balaoi, Brgy. Caunayan, and Brgy. Saud of Pagudpud, and Brgy. Badio, Brgy. Tartarabang, and Brgy. Valbuena of Pinili, which are the most affected municipalities by disasters for the last 5 years based on the data given by the PDRRMO, those who are 18-59 years old who have disabilities and who are illiterate, Individuals who are 60 and above and pregnant women are excluded in the study as they are considered as vulnerable, and those below 17 are dependent on their parents and do not have their work yet, and individuals who are not willing to participate were excluded.

Data Gathering Procedures: The researchers used a structured checklist questionnaire in conducting this study consisting of statements and questions to elicit information relevant to the study. The questionnaire was developed by the researchers and was validated by 4 experts coming from the PDRRMO, Bureau of Fire Department of Laoag City, and Philippine Red Cross Laoag Chapter. The questionnaire was constructed based on the facts presented in the Review of Literature, and it was developed in English, then translated in Ilokano dialect by an Iloko expert. The research instrument that was used was paper and pen based.

To ensure the validity and reliability of the questionnaire, the Cronbach's Alpha is 0.9046 or 90%, which means excellent internal consistency. More so, the researchers conducted a pilot testing through paper and pen based questionnaires with twenty (20) residents aged 18 to 59 years old, who reside at Baay, Batac City as this is the fourth most affected barangay in Batac City, and they were excluded in the study. Further, there was no revision in the questionnaire after the conduct of the pilot testing.

The questionnaire that was utilized in gathering information was divided in three parts. The first part contained the socio-demographic profile of the respondents such as age, sex, educational attainment, place of residence, and family monthly income. The second part covered questions regarding the level of awareness of disaster management in terms of; types and nature of disasters, exposure and vulnerability, disaster hazards in the Philippines, and emergency support system. And finally, the last part included queries concerning the level of preparedness of the respondents on disaster management in terms of mitigation, response, and recovery. Each question was scored by incorporation of the Likert Scale of 1 to 4 which allowed the participants to express their insights on the statements included in the questionnaire.

The researchers conducted the study in Barangays Nagbacalan, Payao, and Tabug in Batac; Barangays Balaoi, Caunayan, and Saud in Pagudpud; and Barangays Badio, Tartarabang and Valbuena in Pinili, Ilocos Norte. The researchers first secured their ethical clearance from the University Research Review Board (URERB). Then, they sought approval from the Dean of the College of Health Sciences for the conduct of the study. Following approval, permission to conduct the study among the residents of the aforementioned towns has been obtained from the mayors through the barangay captains of the selected barangays.

After the researchers had been granted permission from the appropriate authorities, they began data collection. With the assistance of barangay officials, the researchers handed out informed consent to the respondents, the purpose of the study, along with an attached questionnaire. After the respondents indicated that they were willing to take part in the study, the randomized participants proceeded in answering the questionnaires. The researchers informed the respondents that they had a day or 2 to fill out the given questionnaires, although it only takes ten (10) to fifteen (15) minutes for it to be completed.

The researchers advised the respondents to contact the principal investigator if they had any queries or needed more information about the questionnaire.

After data collection, with the guidance of the statistician and research adviser, the researchers collated, tallied, tabulated, and interpreted the gathered data. The researchers also thoroughly examined and reviewed the data to make sure the results were reliable.

Data Analysis: Results of the data gathered were classified and interpreted according to the objectives of the study. Frequency and percentage were used to describe the socio -demographic profile of the respondents with regards to their age, sex, place of residence, educational attainment, and family monthly income.

Weighted mean, on the other hand, was used to analyze and interpret the data gathered regarding the level of awareness of the respondents on disaster management. The researchers used the following to interpret the data:

Range of Mean	Descriptive Interpretation	Definition
3.51 - 4.00	Fully Aware	It indicates that the respondent shows existing knowledge with the indicator.
2.51 - 3.50	Moderately Aware	It indicates that the respondent has limited existing knowledge with the indicator.
1.51 - 2.50	Slightly Aware	It indicates that the respondent has slight existing knowledge with the indicator.

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1.00 - 1.50	Unaware	It indicates that the respondent shows no existing knowledge with the indicator.

The researchers also used weighted mean for the response on the extent of preparedness on disaster management. The following was used:

Range Of Mean	Descriptive Interpretation	Definition
3.51 - 4.00	Always	It indicates that the respondent practices the indicator every time there is a disaster.
2.51 - 3.50	Often	It indicates that the respondent practices the indicator most of the time.
1.51 - 2.50	Rarely	It indicates that the respondent hardly practices the indicator given.
1.00 - 1.50	Never	It indicates that the respondent does not practice the indicator given.

Moreover, Pearson r was used to exhibit the correlation between the respondent's socio demographic profile, their level of awareness on disaster management as well as their socio demographic profile, and their preparedness on disaster management. It was also used to determine the significant relationship between respondent's awareness and their preparedness on disaster management.

Pearson R	Interpretation
.90 to 1.00	Very high positive (negative) correlation
.70 to .90	High positive (negative) correlation
.50 to .70	Moderate positive (negative) correlation
.30 to .50	Low positive (negative correlation)
.00 to .30	Negligible correlation

Further, found values were analyzed with 0.05 levels of significance. This helped the researchers in determining the acceptance of their hypotheses.

Ethical Considerations

The researchers had received ethical clearance from the University Research Ethics Review Board (URERB) of Mariano Marcos State University prior to carrying out the study. Wherein, the study was approved after adhering to the guidelines and requirements of the URERB.

Further, approval from the Dean of CHS and permission to conduct the study among the residents from the mayors through the barangay captains of the selected barangays were obtained.

The researchers started collecting data after they received permission from the relevant authorities. The researchers had first discussed the study's goals and nature with the chosen respondents before distributing the survey questionnaire, and they also provided them copies of the informed consent form.

The respondents signed the informed consent indicating that they were willing to be the respondents of the study. The researchers ensured confidentiality of information from the respondents and assured them that the gathered information would be used for academic purposes only.

The informed consent included a statement of the research objectives and the expected duration and nature of participation, along with the benefits of the study in the community. It was explained that this study will assist the community since it has raised the residents' awareness and preparedness on disaster management. Therefore, has also enhanced their practices for hazards and risks of disasters, resulting in lesser damages and casualties to the community and their environment. It also helped in the creation of community-focused programs and provision of disaster management education that has effectively strengthened the ability to mitigate the effects of disasters, enhanced knowledge of the proper responses, and enabled future academics to use it as a reference. Also, it was included in the informed consent a statement that writing their name in the questionnaire would be optional. In addition, the principal investigator's contact information was provided in case the respondents have concerns or clarifications related to the study.

In the study, it has been emphasized that there was no probable amount given to the participants as an incentive or compensation for the participation. Also, it has also been included that this study was not funded by any agency.

The researchers highlighted that the respondents were not coerced to participate. As this is purely voluntary and they can withdraw at any time, they instead had the decision of whether or not they would do so.

Moreover, the respondents were informed that participation in this study would require a bit of their time and effort. Also, the researchers assured that their anonymity would be maintained. This means that they can answer the questions honestly without being conscious in the data collection, analysis, and reporting of the study findings.

To ensure secure data storage, no one who was not a part of the study would have access to the data. Second, all documents would be placed in a well-sealed folder and would be kept in a secured cabinet for three years that can only be opened by the researchers. Three years after the study is

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defended, all of the questionnaires would be shredded.

Lastly, respondents were informed that there was a minimal risk as the conduct of the study will be face-to-face. Basic health measures such as maintaining social distance and wearing of face masks were followed to ensure the safety of both researchers and participants.

IV. PRESENTATION, ANALYSIS, AND INTERPRETATION

Sociodemographic Profile of Community Residents

Table 1. Socio-Demographic Profile of the Respondents

Profile	Frequency	Percentage (%)
Age		
18 – 22	34	8.90
23 – 27	59	15.45
28 – 32	65	17.02
33 – 37	51	13.35
38 – 42	35	9.16
43 – 47	58	15.18
48 – 52	29	7.59
53 – 57	41	10.73
58 – 62	10	2.62
Average: 37.12		
Sex		
Male	183	47.91
Female	199	52.09
Place of Residence		
Coastal	61	15.97
Non-Coastal	321	84.03
Educational Attainment		
Elementary Graduate	4	1.05
High School Undergraduate	50	13.09
High School Graduate	127	33.25
College Undergraduate	98	25.65
College Graduate	101	26.44
Post-Graduate	2	0.52
Family Monthly Income		
Less than PHP 10,957/month	129	33.77
PHP 10, 958- PHP 21,194	116	30.37
PHP 21,195- PHP 43,828	95	24.87
PHP 43,829- PHP 76,669	37	9.69
PHP 76,670- PHP 131,484	5	1.31

(n=382)

Table 1 shows the sociodemographic profile of the community residents of Batac City, Pagudpud, and Pinili, and is characterized according to age, sex, place of residence, educational attainment, and family monthly income.

Age. Table 1 shows that out of the total 382 respondents, 65 (17.02%) are aged 28-32 years, whereas 10 are aged 58-62 (2.62%).

Sex. It is presented in Table 1 that 199 (52.09%) are female whereas the remaining 183 (47.91%) are male. In contrast, according to the Philippine Statistics Authority [15], in Ilocos Norte, there are a total of 305,992 (50.3%) males while 302,516 (49.7%) are females.

Place of Residence. In Table 1, the most of the respondents, 321, (84.03%) are from non-coastal areas and 61 (15.97%) are from coastal areas.

Educational Attainment. As shown in Table 1, most of the respondents are High School graduates, 127 out of 382 total respondents (33.25% while the least of the respondents are Post-Graduates, 2 out of 382 total respondents (0.52%).

Family Monthly Income. Depicted in table 1, 129 out of 382 of the respondents have a family income of less than Php 10, 957/month (33.77%). On the other hand, 5 out of the respondents have a family income of Php 76, 670-Php 131, 484.

Level of Awareness on Disaster Management of Community Residents.

Table 2. Level of Awareness on Disaster Management

Indicators	Weighted Mean	Descriptive Interpretation
Types and Nature of Disaster		
1. I am aware that natural disasters are events that have the potential to cause loss of life or property.	3.73	FA
2. I am aware that man-made disasters occur intentionally, through negligence, or a failure of a machinery, which causes suffering for humans and harm to the environment.	3.60	FA
3. I am aware that earthquakes happen in a short duration and usually affect regions near fault lines.	3.63	FA
4. I am aware that drought develops slowly and affects large regions.	3.64	FA
5. I am aware that typhoons form when winds blow into the ocean	3.61	FA

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Indicators	Weighted Mean	Descriptive Interpretation
and are accompanied by strong winds and heavy rains.		
6. I am aware that landslides occur when soil and rocks are loosened by heavy rain and earthquakes.	3.71	FA
7. I am aware that floods are an overflow of water usually caused by heavy rainfall or tropical cyclones.	3.68	FA
8. I am aware that tornadoes develop from heavy thunderstorms, especially when warm air collides with cold air.	3.53	FA
9. I am aware that fires occur when fuel, heat, and oxygen combine.	3.49	MA
10. I am aware that vehicular accidents occur due over speeds, getting distracted, intoxicated and/or ignoring traffic signals.	3.70	FA
11. I am aware that disease outbreaks may develop because of disease transmission from animals to humans.	3.63	FA
Composite Mean	**3.63**	**FA**
Exposure and Vulnerability	3.36	MA
1. I am aware that my locality is prone to one or more natural or manmade hazards/disasters.	3.43	MA
2. I am aware that the area of my community may have an impact on our exposure to disasters.	3.70	FA
3. I am aware that children and elders are more vulnerable to disasters.	3.36	MA
4. I am aware that poverty increases vulnerability to disaster.	3.42	MA
5. I am aware that education can lessen the exposure and vulnerability to disaster.		MA
6. I am aware that my house is well designed and will withstand a disaster event (such as earthquake, tornado, etc.)	3.40	
Composite Mean	**3.45**	**MA**
Disaster Hazards		
1. I am aware that landslides, typhoons, tornadoes, and earthquakes could destroy homes and affect livelihoods.	3.62	FA
2. I am aware that floods, storm surges, and tornadoes may damage and destroy power supplies and agricultural lands.	3.66	FA
3. I am aware that factory explosions or chemical spills can cause loss of life and environmental damage.	3.72	FA
4. I am aware that smoking, overloaded electrical wire, overheated electrical appliances, unattended lighted candles and cooking, and sparks can create fire.	3.66	FA
5. I am aware that over speeding, distractions, intoxication and/or ignoring traffic signals can cause vehicular accidents.	3.74	FA
6. I am aware that bacteria, viruses, and unhealthy lifestyles can pose a threat to human health.	3.68	FA
Composite Mean	**3.68**	**FA**
Emergency Support System		
1. I am aware of my community's evacuation center.	3.65	FA
2. I am aware that emergency kits are important during	3.75	FA

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Indicators	Weighted Mean	Descriptive Interpretation
disasters.		
3. I am aware of which government office/officer needs to be contacted after the disaster.	3.71	FA
4. I am aware of the list of emergency hotlines to contact during a disaster.	3.64	FA
5. I am aware that there are rescue teams in our community.	3.56	FA
6. I am aware that preparing an evacuation plan with my family is important.	3.57	FA
7. I am aware that teaching family members what to do before, during, and after a disaster is important.	3.53	FA
8. I am aware that there are community activities like oplan – dalus, earthquake drills, fire drills, and seminars in my community.	3.61	FA
Composite Mean	**3.63**	**FA**
Overall Mean	**3.60**	**FA**

Legend:

Range of Means	Descriptive Interpretation
3.51 – 4.00	Fully Aware (FA)
2.51 – 3.50	Moderately Aware (MA)
1.51 – 2.50	Slightly Aware (SA)
1.00 – 1.50	Unaware (U)

Table 2 discusses the level of awareness on disaster management of community residents in Batac City, Pagudpud, and Pinili in terms of the types and nature of disaster, exposure and vulnerability, disaster hazards, and emergency support system.

Types and Nature of Disaster. Table 2 suggests that the respondents are "fully aware" in terms of the types and nature of disaster as evidenced by a composite mean of 3.63.

The highest mean score is 3.73, which attributes to natural disasters as events that have the potential to cause loss of life or property. As stated by the Statista Research Department [42], the Philippines is prone to different natural disasters. Flooding due to heavy rains brought by the southwest monsoon and low-pressure area also affects the region, resulting in damage to many livelihoods. In 2021, damage amounting to a total of 60 billion pesos was caused by natural disasters, with storms having the most impact (Statista Research Department) [42]. This implies that as various natural disasters have struck the province for the past few years, it was expected that respondents were aware that disasters have the potential to cause loss of life or property and have the ability to lessen the impact of disasters.

Meanwhile, 3.49 is the lowest mean score indicating that the respondents are "moderately aware" that fire occurs when fuel, heat, and oxygen are combined. According to the European Fire Safety Alliance [43], most fire incidents are caused by human actions. Awareness on fire and responsibilities regarding fire safety is therefore of the utmost importance because it can significantly reduce the risk of a fire breaking out (European Fire Safety Alliance) [43]. This implies that the respondents lack awareness in terms of how fire develops, indicating that they are more likely to create or start a fire.

Exposure and Vulnerability. As per table 2, the respondents are "moderately aware" with a composite mean of 3.45 for the exposure and vulnerability.

More so, the highest mean of 3.70 was attributed to the awareness of children and elders being more vulnerable to disaster. According to the American Red Cross [44], elders compared to those in their younger years, are more vulnerable to disaster due to having more medical conditions, having assistive devices, and being more isolated. In connection, Niazi et al.,[45], children can be most affected by disasters because of their vulnerability physically, psychologically, and socially. This implies that the respondents have a knowledge about how children and elders are most vulnerable to disasters. Hence, children and elders can be protected during disasters because of the respondents' awareness in terms of the vulnerability of these groups.

On the other hand, the awareness of their locality being prone to one or more natural or manmade hazards/disaster and awareness of poverty increasing vulnerability to disaster have the lowest mean of 3.36, indicating "moderately aware". In line with this, according to The Pennsylvania State University [76] , certain areas in a locality are more vulnerable to certain disasters compared to others. With this, knowing these areas can help people in proactively preparing for potential hazards before evolving into a disaster, thus safeguarding lives and properties. Moreover, according to the National Disaster Risk Reduction and Management Council [63], those of poor households are more vulnerable and have fewer resources in reducing risks, coping, and adapting to impacts of disaster causing them to be often affected. This implies that the respondents have limited existing knowledge on these, making them unprepared and can be more vulnerable to disasters.

Disaster Hazards. Derived from Table 2, the respondents are fully aware of disaster hazards as evidenced by a composite mean of 3.68.

Further, the highest mean of 3.74, indicating "fully aware", was attributed to the awareness that over speeding,

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distractions, intoxication, and/or ignoring traffic signals can cause vehicular accidents. In the study of Ashinie [53], one factor of road-related accidents is due to a lack of awareness of road safety rules. Thus, road traffic accidents can be reduced with knowledge and awareness of the regulations of the road or traffic rules. Proper knowledge and awareness of traffic rules help reduce traffic and road traffic accidents. Moreover, Pinera [54], concluded that in order to effectively manage traffic accident issues and enhance road safety within the province, knowledge in traffic safety is absolutely essential. This implies that respondents are least likely to be prone to vehicular accidents.

Conversely, the awareness that landslides, typhoons, tornadoes, and earthquakes could destroy homes and affect livelihoods have the lowest mean of 3.62, which indicates "fully aware". According to Bhandari et al.,[30], although natural disasters are unpredictable and inevitable, their impacts can be mitigated through knowledge and preparedness. Having knowledge and practicing preparedness measures play a significant role in minimizing the effects of disasters. By being equipped with the necessary information and taking proactive steps, individuals and communities can reduce the risks associated with disasters. This indicates that damages and effects brought about by disaster can be reduced because of the respondents' awareness of the impacts of disasters.

Emergency Support System. In Table 2, the residents are "fully aware" of the Emergency Support Systems with a composite mean of 3.63.

In addition, the highest mean accounts for 3.71, being "fully aware", and is about the importance of emergency kits during a disaster. According to Life Course [57], in the event of an emergency, it is important to have the right supplies on hand. Emergency prepared kits or disaster kits can help people survive after a disaster occurs. Having the right survival gear helps people treat wounds, find help and more. This ensures that people can prepare themselves at work, school or on the go. The items included in the kits help people respond to basic first aid needs and prevent illness. This implies that the respondents are more likely to survive during disasters.

Meanwhile, the lowest mean is 3.53 being "fully aware", which is about the importance of teaching family members what to do before, during, and after a disaster. According to Perry [58], the reason for this is that people are apathetic because they do not like to think about their vulnerability to disasters. Alternatively, people resist disaster planning because it consumes resources that could be allocated to more immediate community needs - police patrols, road repairs, and the like. They would rather have emergency kits, or just rely on the food available in their house. This may imply that the respondents have prioritized what they need materialistically, rather than internally with the family.

Extent of Preparedness on Disaster Management of Community Residents

Table 3. Extent of Preparedness on Disaster Management

Indicators	Weighted Mean	Descriptive Interpretation
Mitigation		
1. I make sandbag barriers around my home to reduce flood water damage.	3.00	O
2. I move the LPG (e.g gasul) away in an enclosed kitchen cabinet and from other sources of fire.	3.48	O
3. I practice segregating my garbage in their proper place.	3.55	A
4. I cut branches that might fall and damage our home and cause injury to people.	3.50	O
5. I move fragile things (e.g mirror, picture frames, glassware, and plates) to a box.	3.47	O
6. I prepare an emergency escape plan to the temporary evacuation sites in our barangay.	3.33	O
7. I keep myself updated by watching the news.	3.68	A
8. I join community activities regarding disaster management such as earthquake drills and fire drills.	3.50	O
9. I discuss the emergency escape plan to my family members.	3.36	O
10. I teach my family members who and how to contact them during a disaster.	3.40	O
Composite Mean	**3.43**	**O**
Response		
1. I am willing to accommodate displaced people or in need of shelter.	3.61	A
2. I can provide food and water to my neighbor during a disaster.	3.72	A
3. I can provide basic first	3.47	O

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Indicators	Weighted Mean	Descriptive Interpretation
aid.		
4. I can volunteer to help with the search and rescue team if they are in need.	3.60	A
5. I can contact an elected official in cases of emergency.	3.68	A
6. I can help with the evacuation of my neighbor.	3.69	A
Composite Mean	**3.63**	**A**
Recovery		
1. I make sure that all my family members are safe and present.	3.85	A
2. I have funds for temporary repair for the post-disaster phase.	3.44	O
3. I am in need of assistance for repairs in our house.	3.44	O
4. I listen to the radio or television after the disaster for emergency information.	3.67	A
5. I make sure to identify hazards after disasters.	3.59	A
Composite Mean	**3.60**	**A**
Overall Mean	**3.55**	**A**

Legend:

Range of Means	Descriptive Interpretation
3.51 – 4.00	Always (A)
2.51 – 3.50	Often (O)
1.51 – 2.50	Rarely (R)
1.00 – 1.50	Never (N)

Table 3 discusses the extent of preparedness on disaster management of community residents in Batac City, Pinili, and Pagudpud in terms of mitigation, response, and recovery.

Mitigation. In Table 3, the respondents are “often prepared” in terms of mitigation as evidenced by a composite mean of 3.43,”.

Furthermore, the highest mean is 3.68, which suggests that the residents “always” keep themselves updated about disasters by watching the news. According to Bolletino et al. [7], the Philippines is one of the world’s most disaster-prone countries and ranks among the top three countries in the world for population exposure and vulnerability to hazards. Perry [58] stated, television serves as the primary source of news and information for many Filipinos which keeps them updated on disasters that may impact their daily lives. Additionally, the media can disseminate information prior to, during, and after disasters to help people and organizations be properly prepared for and respond to them, protecting lives and livelihoods. This indicates that since the province has had numerous calamities in recent years, the respondents are able to utilize the information from the television, giving them an opportunity to lessen the impact of disasters.

On the other hand, the lowest mean is 3.00. This may likely be attributed to the fact that the respondents "often" make sandbag barriers around their homes to reduce flood damage. Ferry [3] claims that throughout the year, disasters occur on varying scales in all regions of the world and at all times of the year. Due to the nature of these occurrences, there is frequently little or no time for preparation. Additionally, the big majority of respondents live in non-coastal regions with limited access to sand that may be packed in sacks, creating a barrier against flooding. This implies that the respondents may have higher chances of getting flooded, especially if they are situated at lower areas.

Response. As per table 3, the respondents are “always prepared” in terms of response to disaster with a composite mean of 3.63.

More specifically, the highest mean of 3.69 was attributed to providing food and water to people during a calamity. Ramos [67] stated that the most prominent characteristics of Filipinos are empathy and compassion. Even though the Philippines is one of the nation’s most vulnerable to natural disasters as a result of climate change, Filipinos always find a way to show kindness and humanity to our neighbors who are in need. Filipinos do not waste time in getting to people who need help the most when public health and life-saving necessities are not being satisfied. This may imply that the respondents would always be willing to help their neighbors in need after a disaster, allowing the community to recover fast.

On the contrary, the lowest mean is 3.47. This indicates that the respondents "often" provide basic first aid. There may be a number of individual factors influencing this outcome. According to Sparovec [68], many people lack formal knowledge or training in first aid procedures. Basic first aid skills are not typically part of the standard school curriculum. Additionally, some people may simply underestimate the importance of learning first aid and may not realize that having basic first aid knowledge and skills can make a significant difference in saving lives or minimizing injuries during emergencies. Furthermore, some people may feel anxious or uncomfortable when faced with medical emergencies. This fear can hinder their willingness to learn and apply first aid techniques, as they may worry about making a mistake or causing harm. More so, time constraints are a common factor that contributes to people lacking skills in basic first aid. In today’s fast-paced world, many individuals lead busy lives, which can make it challenging to prioritize learning first aid skills and believe emergency services will always be readily available. This may suggest that the respondents are most likely to

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experience worsening of conditions when not given immediate intervention.

Recovery. The respondents are "always prepared" in terms of recovery as evidenced by a composite mean of 3.60. Moreover, the highest mean is 3.85. This indicates that the respondents "always" make sure that all of their family members are safe and present. According to Tablan [71], Filipinos generally believe in collective responsibility, meaning that the welfare of one family member is intertwined with the well-being of the entire family. In times of adversity, the spirit of unity extends to the family, with individuals taking an active role in safeguarding their loved ones. Since the Philippines is located in a geographically vulnerable area prone to various disasters, the frequency of these calamities has shaped the Filipino mindset to be prepared and prioritized the safety of family members and the past disasters serves as a constant reminder of the need to protect our loved ones. This implies that Filipinos place great importance on family and exhibit a strong sense of communal solidarity, increasing the likelihood of keeping family members safe.

On the other hand, the lowest mean was 3.44, which is attributed to the respondents "often" having funds for temporary repair for the post-disaster phase and are in need of assistance for repairs in their houses most of the time. Fund Life International (2020) stated that Filipinos, like people in any other country, may need assistance for repairs in their houses. Many Filipinos face financial constraints and may not have the necessary funds to cover the costs of home repairs. This is especially true for low-income individuals and families who struggle to make ends meet. Moreover, not everyone possesses the necessary skills or tools to carry out house repairs on their own and rural or remote areas have limited access to repair services. In such cases, Filipinos may seek assistance from NGOs, government programs, or community-based initiatives. This implies that not everyone has the means and skills to undergo repairs in their houses after a disaster, causing them to suffer more and experience more burden.

Relationship between the Community Residents' Socio-Demographic Profiles with the Awareness Level on Disaster Management

Table 4. Relationship between the Community Residents' Socio-Demographic Profiles with the Awareness on Disaster Management

Variables Socio-Demographic Profile	Awareness on Disaster Management	
	Correlation coefficient (r)	Relationship
Age	-0.1623*	Significant
Sex	-0.0254	Not significant
Place of Residence	0.0012	Not significant
Educational Attainment	0.1779*	Significant
Family Monthly Income	0.3271*	Significant

*Correlation is significant at α = 0.05 (two-tailed)

Table 4 presents the correlation analysis for the community residents' socio-demographic profiles (sex, age, place of residence, educational attainment, and family monthly income) to awareness level on Disaster Management.

The results suggest that the level of awareness on disaster management among community residents is linked to age, educational attainment, and family monthly income. Meanwhile, table 4 also demonstrates that awareness on disaster management has no significant link with sex and place of residence.

Age. It can be seen in table 4, there is a significant relationship based on the computed p-value which is lower than the α = 0.05 between the age and the level of awareness of respondents, and has a negligible negative correlation as indicated by a correlation coefficient of -0.1623 at 5% level.

This agrees with the study of Bronfman et al., [9], that age has been deemed a significant factor in studies of disaster. Individuals within the age group of 18-59 have a higher level of awareness on disaster management due to their capability to access information, warnings, alerts, through digital platforms, which can enhance their knowledge on potential risks. Thus, this implies that age greatly affects the respondents' awareness on disaster management.

Sex. Table 4 shows that with the correlation coefficient of -0.0254, there is no significant relationship between sex and awareness on disaster management.

The results oppose the study of Nikkalen et al., [14] and (Cvetković et al., [8] which stated that males tend to have lower risk perception and are less inclined to plan ahead for emergencies, whereas females have the highest percentage of disaster management awareness. Furthermore, it implies that the sex of the community residents in Ilocos Norte has no influence on their level of awareness on disaster management.

Place of Residence. It is shown in table 4 that there is no significant relationship between the place of residence and the level of awareness on disaster management of respondents, as manifested by a correlation coefficient of 0.0012.

Contrary to the research conducted by Nikkalen et al. [14], it suggests that individuals residing in coastal regions possess a heightened awareness of the potential risks associated with coastal hazards due to their direct exposure. Moreover, it is important to note that non-coastal regions in the Philippines also encounter diverse forms of natural calamities, although these areas may not be subject to direct coastal hazards, they nonetheless necessitate a similar level of awareness on these different types of disasters. As such, the result entails that the respondents' place of residence has no effect on their level of disaster management awareness.

Educational Attainment. As presented in table 4, there is a significant relationship based on the computed p-value which is lower than the α = 0.05 between the educational attainment and the level of awareness of respondents; and has

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a negligible positive correlation as indicated by a correlation coefficient of 0.1779 at 5% level.

This is supported by the study of Muttarak & Pothisiri [17], that education in particular, is a crucial tool for promoting disaster awareness and preparedness. Highly educated people are more aware of dangers because they are likely to have greater access to information sources and be better equipped to evaluate the risk information. More so, (Torani et al.,) [18] , stated that individuals with low educational attainment may be unaware of the potential impacts of different types of disasters or how to effectively prepare for and respond to them due to limited exposure to formal education and low literacy levels. This implies that the respondents' awareness is influenced by their educational attainment.

Family Monthly Income. Table 4 reveals that there is a significant relationship based on the computed p-value which is lower than the α = 0.05 between the respondents' family monthly income and awareness on disaster management; and has a low positive correlation with a correlation coefficient of 0.3271 at 5% level.

This agrees with the literature published by Teo et al., [23], that socioeconomic position of a person can affect how vulnerable they are to disasters as well as how well-equipped they are to cope with them and recover thereafter. Higher family monthly income may provide individuals with better access to resources, including information channels such as the internet, television, or newspapers which can contribute to higher awareness levels regarding disaster management. On the other hand, Hallegatte et al., [24] stated that individuals with low socio-economic status often have limited access to information sources, which results in a lack of awareness regarding potential risks, preventive measures, and disaster management strategies. Hence, this implies that the respondents' awareness is influenced by their family monthly income.

Relationship between the Community Residents' Socio-demographic Profiles with the Preparedness on Disaster Management of the Respondents

Table 5. Relationship between the Community Residents' Socio-Demographic Profiles with the Preparedness on Disaster Management

Variables Socio-Demographic Profile	Preparedness on Disaster Management	
	Correlation coefficient (r)	Relationship
Age	-0.1115*	Significant
Sex	-0.0104	Not significant
Place of Residence	0.0284	Not significant
Educational Attainment	-0.0559	Not significant
Family Monthly Income	0.1066*	Significant

*Correlation is significant at α = 0.05 (two-tailed)

Table 5 presents the correlation analysis for the community residents' socio-demographic profiles (sex, age, place of residence, educational attainment, and family monthly income) to preparedness on disaster management.

The results suggest that the preparedness on disaster management among community residents is linked to age, educational attainment, and family monthly income. Meanwhile, table 5 also demonstrates that preparedness on disaster management has no significant link with sex, place of residence, and educational attainment.

Age. From table 5, it shows that there is a significant relationship based on the computed p-value which is lower than the $\alpha = 0.05$ between the respondents' age and preparedness on disaster management; and has a negligible negative correlation with a correlation coefficient of -0.1115 at 5% level.

This agrees with the study of Cvetković et al.,[8] , that the age group of 18-59 may have higher levels of engagement and responsibilities, which can influence their preparedness efforts. They are more physically fit and active in attending training and participating in workplace emergency preparedness programs. This implies that the respondents' awareness is influenced by their age.

Sex. It can be seen in the table that there is no significant relationship between the sex and the extent of preparedness on disaster management of respondents, as manifested by a correlation coefficient of -0.0104.

This is in contrast with the study of Cuesta et al.,[13], that gender has a role in predicting preparedness with women being less likely than males to be prepared for specific hazards. Also, men tend to exhibit more confidence in their ability to handle disasters, whereas women often view dangers as being more serious and risky. Thus, this suggests that the respondents' sex has no effect on their extent of preparedness on disaster management.

Place of Residence. As seen in table 5, there is no significant relationship between the place of residence and the extent of preparedness on disaster management of the respondents, as manifested by a correlation coefficient of 0.0284.

The results opposed the study of Almutairi et al.,[21], that the availability and allocation of resources can influence preparedness levels where non-coastal areas may have different resource availability compared to coastal areas. While coastal areas may have access to marine rescue or maritime-focused resources, non-coastal areas may allocate resources to address hazards specific to their region. This indicates that the respondents' place of residence does not influence their extent of preparedness on disaster management.

Educational Attainment. The table 5 shows that there is no significant relationship between the educational attainment and the extent of preparedness on disaster management of the respondents, with a correlation coefficient of -0.0559.

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On the contrary, Muttarak & Pothisiri [17] stated that preparedness action is strongly tied to how people perceive and act on risk information where highly educated people are most likely to stay updated on best practices guidelines, and recommendations for disaster preparedness from reputable sources. While individuals with lower education levels may face financial constraints, this leads to lack of resources, which can compromise their preparedness and ability to effectively respond to disasters (Torani et al.,) [18]. Furthermore, this implies that the respondents' educational attainment has no effect on their extent of preparedness on disaster management.

Family Monthly Income. Based on the findings from table 5, there is a significant relationship based on the computed p-value which is lower than the $\alpha = 0.05$ between the respondents' family monthly income and preparedness on disaster management; and has a negligible positive correlation with a correlation coefficient of 0.1066 at 5% level.

This agrees with the study of Teo et al., [23], that the higher the income, the more disposable income to invest in emergency supplies, first aid kits, evacuation plans, and insurance coverage. This financial capability allows them to take proactive measures to enhance the preparedness levels. On the other hand, Hallegatte et al.,[24] low socio-economic status can present financial constraints, causing them to have a lack of resources that can hinder their preparedness efforts and reduce their ability to effectively respond to disasters. This shows that the respondents' preparedness is affected by their family monthly income.

Relationship between Community Respondents' Awareness and their Preparedness on disaster management

Table 6. Relationship between Community Respondents' Awareness and Their Preparedness on Disaster Management

Variables	Preparedness on Disaster Management	
	Correlation coefficient (r)	Relationship
Awareness on Disaster Management	0.3410*	Significant

*Correlation is significant at α = 0.05 (two-tailed)

Table 6 represents the correlation analysis for the awareness of community residents of Batac City, Pinili, and Pagudpud (in terms of type and nature of disaster, exposure and vulnerability, disaster hazards, and emergency support system) to the preparedness on disaster management (in terms of mitigation, response, and recovery).

Table 6 indicates that there is a significant relationship between the level of awareness and extent of preparedness in disaster management among community residents, with a low positive correlation based on the computed correlation coefficient of 0.3410. It implies that if the awareness level of the respondents' increases, the extent of preparedness also increases.

In the study of Suryaratei et al.,[77] , there is a positive and significant impact of disaster awareness towards household disaster preparedness among families in Sumur District. The results show that 50.5% of the household disaster preparedness was determined by disaster awareness. It means that the higher the awareness, the higher the preparedness of households in dealing with disasters in families of Sumur District. Based on this research, there are still respondents who have low scores on disaster preparedness, this is because there is no training or seminar on disaster mitigation equally, there are only a few respondents who have attended training or seminars. The findings of the study may also suggest that with the community residents' sparse awareness on exposure and vulnerability on disaster management, they are most likely affected and face the impacts of disaster. On the other hand, the factor that may contribute to the direction of the relationship is the community residents' age and the family monthly income, which is seen in this study at both level of awareness and extent of preparedness on disaster management. It is relevant to note that Hallegatte et al., [24] suggest that individuals with low income status often have lack of awareness and preparedness on disaster management. That said, their inadequacy may be due to limited access to information and financial constraints.

V. CONCLUSION AND RECOMMENDATIONS

Conclusion

Based on the findings of the study, the following conclusions were induced:

1. The higher representations of the respondents belong to 28-32 years old females living in the non-coastal areas who have graduated from high school with less than Php 10,957 family monthly income.
2. The respondents are fully aware about disaster management.
3. The respondents are always prepared in managing disasters.
4. The level of awareness of the respondents about disaster management has no significant relationship with their sex and place of residence However, their age, educational attainment, and family monthly income have a significant relationship. Thus, the first null hypothesis is rejected.
5. The extent of preparedness of the respondents on disaster management has no significant relationship with their sex, place of residence, and educational attainment. Nevertheless, it has an influence to the age and family monthly income. Thus, the second null hypothesis is rejected.
6. There is a significant relationship between the level of awareness and extent of preparedness of the respondents on disaster management. Thus, the third null hypothesis is rejected.

7. The Knowledge, Attitude, and Practices Model supported the findings of the study as it provided a valuable framework for examining the relationships between knowledge, attitude, and practice in the context of disaster management. It guided the researchers in assessing community residents' knowledge, understanding the links between each factor, and identifying areas for effective intervention to enhance disaster management practices.

Recommendations

Based on the conclusions of the study, the researchers hereby propose the following recommendations:

1. Community residents may enhance or develop emergency plans for their family, and attend training and seminars regarding disaster management to help them become more prepared and resilient in times of disasters.
2. Local government units may use the study to enhance the community's capacity to mitigate the impact of a disaster and focus on improving resources required to support the community members' ability to respond immediately by creating community-focused programs and the provision of disaster management education to the community.
3. Healthcare providers may collaborate with the community organizations and implement training in disaster response for disaster management, including training on how to provide basic first aid and rescue carries. Also, they can establish programs that can provide basic emergency kits to the community residents.
4. Nurse educators may use the study as a basis for disaster management education that will effectively strengthen the communities' ability to mitigate the effects of disasters and enhance respondent's knowledge of the proper responses.
5. Future researchers can build upon this study by specifically focusing on vulnerable groups, utilizing different research designs, larger sample sizes, and diverse contexts to gain a more comprehensive and nuanced understanding of disaster management. They can also use this study as a reference and foundation for conducting research in the same field, benefiting from the insights and findings already obtained.

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