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Research Article

Disaster Preparedness and Resiliency as Predictors among Residents Situated in Landslide-Prone Areas in Brgy. Matina Crossing

Roel Nickelson M. Solano, Elaiza Faith N. Catayas, Kinah S. Laurnal, Marc Joshua A. Saranillo

College of Health Sciences Education, University of Mindanao, 8000, Philippines

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**Corresponding author:*
E-mail:
roel_solano@umindanao.edu.ph

ABSTRACT

This research aims to determine the inter-relationship among the profile, disaster preparedness, and resiliency of the residents in Barangay 74-A Matina Crossing and what demographic profile significantly predicts resiliency as well as the disaster preparedness of the residents. It explores whether resiliency significantly predicts disaster preparedness among the identified residents. A survey was conducted on a convenience sample of 400 residents situated in a landslide-prone area in Barangay 74-A Matina Crossing using a 3-part structured questionnaire; the Demographic Profile of the residents, the Disaster Preparedness Index, and the Resiliency Scale. When grouped according to sex, it shows that 200 (50.0%) were males and 200 (50.0%) were females. The age groups have a total of 247 respondents (61.8%) with ages between 18-25 years old; 90 respondents (2.5%) with ages between 36-39 years old; and 63 respondents (15.8%) with ages between 50-60 years old. The overall mean of the level of disaster preparedness is 2.66 with a standard deviation of 0.30, indicating that the disaster preparedness of respondents is well-prepared. The respondents obtained the descriptive interpretation of true nearly all the time mean ratings on meaningfulness/Purpose, and the other six variables: Self-Efficacy, Hardiness, Adaptability/Flexibility, Regulation of Emotion and Cognition, and Coping, had often true mean ratings. Findings highlight the significant associations of demographic profiles, disaster preparedness, and resiliency, while regression results show that the demographic profile did not significantly predict the resiliency of the residents. However, only adaptability/flexibility significantly predicts the disaster preparedness of the identified residents.

Keywords: *Disaster preparedness, Resiliency, Landslide, Predictors, Matina Crossing, Philippines*

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Introduction

The world ceaselessly experiences dramatic suffering, destruction of properties, and loss of life due to natural disasters. Over 20 years, there have been about 3 million deaths worldwide, as well as 800 million lives affected by natural disasters (UIA, 2020). The International Disaster Database (EM-DAT) shows that 17% of deaths worldwide are incorporated with natural disasters annually (Aristizabal & Sanchez, 2020). A landslide is one of the most catastrophic aftereffects of extreme typhoons, earthquakes, or volcanic eruptions. Cutter et al, (2014) asserted that there are more than 4000 casualties from landslides annually, and last June 17, 2020, a massive landslide happened in China as a result of heavy rain that claimed 14 lives, and more than 20,000 people were affected and evacuated (Kwok, 2020). Landslides can be devastating, and this is notable, especially in rural areas where information dissemination is limited, transportation is complex, and a few or no available alternate routes (Sim et al, 2020).

Due to its geographical location and natural attributes, the Philippines has a high exposure to natural disasters. Situated along the Pacific Ring of Fire and the typhoon belt, it can be expected to have a significant occurrence of storms, floods, earthquakes, volcanic eruptions, landslides, and even tsunamis (Wingard & Brandlin, 2013). The data from the Philippine Government's Mines and Geosciences Bureau shows that 80% of the total land area in the Philippines is prone to landslides, making it the number 4 country with a high landslide risk after Indonesia, India, and China (BRIA, 2021).

The recent news from The Inquirer Staff featured Leyte where it was hit by typhoon Agaton last April 2020, and the government has declared the worst village hit by the landslide, Brgy. Kantagnos. It mainly relies on farming and has over 600 residents situated in the area; due to the heavy volume of rainfall, a water-induced landslide washed out an entire village damaging vast hectares of crops and houses. CDRRMO announced the highest number of fatalities recorded in the city claiming over 59 lives, and at least 63 remain missing. Moreover, there were 110 deaths, and 33 people are still missing from extreme flooding and multiple landslides over southern provinces brought about by Tropical Storm Nalgae (Reuters, 2022).

GDFRR (2022) examined that Mindanao is one of the notable regions in the Philippines, with multiple mountainous areas; this means that its geography has a high potential risk for landslides based on its terrain slope, rainfall patterns, soil, and land cover. One particular incident of a landslide in Mindanao was in Makilala, Cotabato, in 2019, where it destroyed a significant area and claimed 22 lives (Petley, 2019). In Maguindanao, a water-induced landslide hit the Capital towns of Maguindanao, particularly the towns of Datu Blah Sinsuat, Upi, and Datu Odin Sinsuat due to a heavy rainfall claiming over 40 lives; at least 15 were missing, and 31 individuals suffered injuries (Cabrera, 2022).

The City Risk Reduction and Management Office in Mindanao (2022) listed the area in Matina Crossing 74-A that are at high risk of landslide, namely; Quiñones Compound, Purok Guadalupe, Broadcast Avenue, Pluto St. GSIS, Shrine Hills (Diversion Rd.), Purok Tinago, and Virgo St.[13]. In our chosen research locale, there was a recent incident in Purok Tinago, Barangay Matina Crossing, where it destroyed two houses, and over 600 residents were evacuated; however, there were no casualties in that landslide (Filipino News, 2021).

Landslides occur around the world and, eventually, have destructive aftermath on people and the whole environment (Rañeses et al, 2018). Disaster strikes almost often a year, making it harder for people to combat, especially for those who stay or live in areas where the disasters would likely occur. Several studies have explored disaster preparedness and resiliency (Kohler et al, 2020); however, they have regularly explored disaster preparedness and resiliency based on the level of awareness, perception of the respondents, coping mechanism, and risk assessment (Najafi et al, 2015). There was one significant study conducted by Cayamanda & Mitchiko (2022) in Barangay Matina, Davao City; however, it was only focused on community resilience in flash floods but was not able to include Disaster Preparedness and Resiliency in landslide-prone areas[21]. Moreover, what is not addressed is how the

demographic profile of the residents affects the relationship between disaster preparedness and resiliency of the residents. In addition, conducting a quantitative study of landslides is altered by insufficient landslide databases; hence it is being underestimated, bringing about lower mitigation and awareness of landslide risk among the citizens, authorities, and regulators (Winter et al, 2018). There is still limited assessment of resilience among households belonging to the landslide-prone area despite an outgrowing study on resilience (Bera et al, 2020).

We have observed, and it is a fact, that the effects of landslides have harmed several aspects of humanity and the natural environment, and many difficulties still exist for precise evaluations and assessments. Thus, the researcher considered how people or individuals respond to this problem today. It prompted the researchers to study on disaster preparedness and resiliency and what demographic profile would significantly predict disaster preparedness and resiliency among the identified residents. In this study, we investigated the relationship between two variables. We seek to determine if there is a significant inter-relationship among residents' profiles, disaster preparedness, and resiliency quality.

Materials and Methods

Conceptual Framework

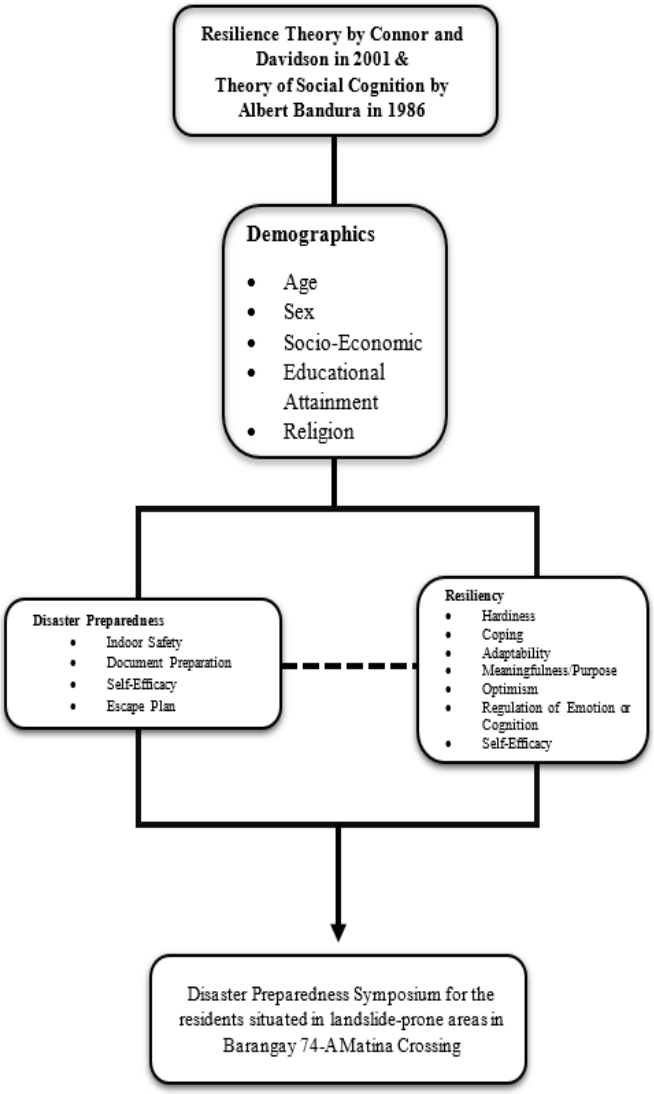

Figure 1. Research Paradigm

Figure 1. Depicts the conceptual framework of the study showcasing the key concepts and relationships between variables. The model emphasized multiple variables having Disaster Preparedness as an Independent variable, and Resiliency as a Dependent Variable, with a Moderator variable of Demographic Profile. Factors of Disaster Preparedness include Indoor Safety Measures, Document Preparation, Collective Efficacy, and Escape plan. Resiliency level is measured with different indicators such as Hardiness, Coping, Adaptability, Meaningfulness, Optimism, Regulation of Emotions, and Self-efficacy. Age, sex, religion, and socio-economic status are the demographics used for the study. The model explores the inter-relationship among the profile, disaster preparedness, and resiliency of the residents in Barangay 74-A Matina Crossing. Disaster Preparedness plays a vital role in determining whether it predicts resiliency among the residents and whether the demographic profile of the residents has a significant relationship with their disaster preparedness and resiliency. The result will dictate what enhancement plan or action can be developed for the residents.

Theoretical Framework

Resilience Theory

Connor, a researcher, and psychiatrist at Duke University Medical Center in Durham, North Carolina, and Davidson, a Duke University Professor Emeritus of Psychiatry and Behavioural Science, introduced resilience theory. According to them, resilience enables us to thrive in the face of adversity. Those that are resilient are better able to cope with life's adversities. Resiliency pertains to an individual's capacity to cope and bounce back from setbacks combined with an effective answer of hard demand and difficult circumstances, and moreover, growing stronger in the process. It is an important paradigm in regard to understanding an individual's capacity to sustain psychological well-being under conditions of adversity. Thus, there are seven elements of resilience and these are hardiness, coping, adaptability, meaningfulness or purpose, optimism, regulation of emotion or cognition, and self-efficacy. By addressing these seven elements, individuals' resilience levels improve and individuals grow stronger.

Hardiness is defined as the ability to persevere when faced with a difficulty, as well as the ability to learn from mistakes and be willing to attempt again. Hardiness is a powerful combination of resolve, persistence, and grit. Hardy individuals recover from setbacks and challenges by drawing on a strong physical, mental, and emotional spirit that allows them to persevere in the face of adversity and constraints. They cultivate and display discipline, determination, tenacity, and perseverance, pushing them beyond their imagined limits

Coping refers to cognitive and behavioral strategies to handle and manage stressful and unwanted events. Coping incorporates tolerating and adopting to negative events and situations while an individual tries to keep an outstanding self-image as well as emotional equilibrium.

Adaptability means understanding your failures, reflecting on them, being open to new ideas and situations, and finding ways to complete difficult tasks, rather than giving up. Learning to become adaptable means trying to identify and deal with any self-sabotaging personality traits, such as a fear of uncertainty or change. Adaptive people are able to ask themselves whether something is working, take corrective action, and learn from their mistakes and failures.

The ability to give definitions, ways and means to live refers to the fourth subscale of the resilience theory – *meaningfulness* or *purpose*. Having a wide variety of meanings to life creates resilience to stressors. An individual who has different meanings to whatever situation he/she will face, the sense of purpose in living life is at its peak.

Optimistic people display a higher level of resilience when faced with a different challenge in life. Optimism is a significant adult cognitive factor diminishing the effects of unwanted stressors. Furthermore, optimism encompasses individuals personality trait exerted when foreseeing something good that might occur in the future.

Cognitive emotion regulation refers to the ability to manage one's emotions even faced with difficult challenges in life. This is when an

individual regulates and shifts emotions to be sad or happy in every hard situation, a clean mindset helps regulate definitive emotions in an individual. Being in a positive mindset focuses and emotions to strive, work hard, and do well in every given situation

Self-efficacy is doing the "right thing" despite opposition, being willing to take risks, admitting your mistakes and learning from them, and accepting praise gracefully. It's an essential part of resilience, and it's related to positivity, self-confidence, and optimism. Building self-efficacy isn't easy, but it is achievable. Resilient people are confident that they will succeed, despite any setbacks that they experience.

The current study is anchored in this theory as this will explore the resilience among residents of Barangay 74-A Matina Crossing along hardiness, coping, adaptability, meaningfulness, optimism, regulation of emotions, and self-efficacy which are the subscales of this resilience theory. The researcher believed that this present study as anchored on this framework will be able to measure resilience outcomes among identified respondents along identified subscales.

Social Cognitive Theory

Albert Bandura, a Canadian American psychologist, introduced social cognitive theory. This theory emphasizes that individual and environmental factors can understand a person's behaviour instead of being influenced solely by external stimuli or internal forces[24]. In the context of disaster preparedness, Social Cognitive Theory highlighted that people's motivation to prepare for disasters is an attribute of their cognitive and affective responses to a natural hazard. Once individuals feel motivated, they are willing to prepare depending on their outcome expectations and self-efficacy. This theory is essential for recognizing an individual's initiative toward disaster preparedness because it outlines personal and environmental factors that anticipate actual disaster preparedness behaviours and are critical in disaster risk reduction and management efforts.

Individual factors

Severity of disaster experience. Individuals who have been through a disaster are more likely to be prepared and take measures to prevent something unpleasant or dangerous from happening again. Previous disaster exposure is likely to be associated with disaster preparedness. The frequency of damage it causes from an individual's previous experiences determines the level of disaster preparedness. Thus, their previous experience and how severely it impacted them determine their preparedness, as this serves as a way to remind them of not being prepared for disasters.

Risk Perception is the belief about potential harm or loss. The extent of an individual's insight towards a disaster as a threat determines risk perception. People with lower risk perceptions are often more susceptible to react poorly to natural disaster threats. On the other hand, those with high-risk perceptions predict the impact of disasters and begin planning more for them. Those who perceive more significant risks from disasters are much more willing to engage in anticipatory behaviour. In other words, individuals who perceive a risk to their lives and property due to living in disaster-prone areas facilitate disaster preparedness.

Environmental factors

Community preparedness refers to a community's ability to prepare for, handle, and recover from public health occurrences. Community preparedness is an environmental factor that indicates how an individual might respond to a disaster. In a disaster, everyone contributes significantly to the community's disaster preparedness efforts to save one's own and secure the safety of everybody.

This theory will serve as a foundation for this study as it outlines individuals' initiative towards disaster preparedness; their cognitive and affective attributes influence individuals' willingness towards disaster preparedness. Moreover, this theory highlights how individuals respond and develop strategies for disaster preparedness, recovery, and mitigation based on these factors. The researchers believed that this theory provides a framework for the current study in supporting the outcome of disaster preparedness among identified respondents.

Design and Procedure

This study will make use of a descriptive-correlational predictive design and will utilize questionnaires as the major tool for gathering data. Descriptive quantitative research aims to correctly and systematically describe the population and phenomenon. Moreover, this focuses on answering the question "what, where, when, and how" rather than "why", furthermore, this design will aid in identifying patterns, traits, and behaviours among the residents (Mendes, 2017). A correlational research design measures a relationship between two variables, and it will be analyzed. It aims to find out whether there is a positive or negative correlation among variables.

In this study, a descriptive method will be used to establish and describe the selected profile of the respondents, their level of disaster resiliency as well as their level of disaster preparedness. By this, the study will be able to measure and determine the level of disaster resiliency and disaster preparedness of the Residents in Barangay 74-A Matina Crossing. Further, the correlation method will be used to find out whether a significant relationship exists between residents' profile and their level of disaster preparedness; as well as respondents' profile and their disaster preparedness. There are substantial links between the profile of residents in Barangay 74-A Matina Crossing and their level of disaster resilience and disaster preparedness. More so, the said selected residents' profiles will be tested for the predictive ability of their level of disaster preparedness. Also, residents' level of disaster preparedness will be tested for the predictive ability of their resilience level.

Research Locale

Figure 2. Barangay 74-A Matina Crossing, Talomo, Davao City, Davao del Sur
Retrieved November 3, 2022
https://earth.google.com/web/search/Matina+Crossing/

The researchers conducted the study in Barangay 74-A Matina Crossing, Davao City. The researchers chose this place because this location is usual for having recurrent landslide14, CDRRMO is keeping a close watch on many landslide-prone areas in Davao City, and Matina Crossing was included (Sunstar, 2019). Thus, this place will likely provide the information that the researchers need. The barangay has sixty-three (63) purok. The researchers identified three puroks that are prone to landslides: Purok Tinago Drive, Shrine Hills 1, and Shrine Hills 2

Data Gathering and Procedure

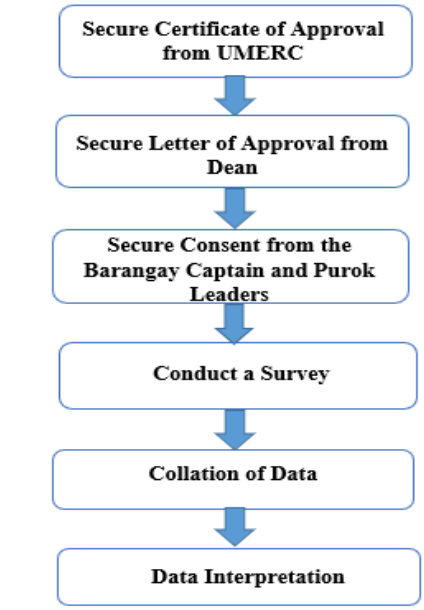

Figure 3. Data Gathering Procedure

The researcher conducted a survey methodologically, and the data-gathering procedure is as follows: Process for UMERC (University of Mindanao Ethical Review Committee), Writing a letter for approval to the Dean of CHSE College, and Consent to be passed to the Barangay Captain and Purok Leaders of Matina Crossing. The researchers do not need to modify the questionnaire and conduct pilot testing since the questionnaire is already published by the authors of the Disaster Preparedness Index and CD-RISC namely: Sreevalsa Kolathayar, Kedarisette Priyatham, Karan Jumar, Rohith V.R. and Nikil S.and Jonathan R.T. Davidson, Kathryn M. Connor, respectively. The researchers went to the area to survey the residents who lived in the landslide area at Matina Crossing, Davao City. After conducting the survey, the data will be sorted and organized according to purok, age, and gender and will be presented to the statistician for Data Analysis to draw accurate results and conclusions. Once the researchers obtained the results from the statistician, they will be interpreted and presented in the Results and Discussion chapter.

Statistical Tools

This study utilizes Multiple Regression Analysis (MRA). This statistical tool evaluates the strength of the relationship between the dependent variable and multiple predictor variables and the importance of those predictors. MRA analyzes the values of independent variables that predict the dependent variables' values, where each predictor's contribution is weighed relative to the overall prediction; thus, the estimates generated by MRA and termed coefficients. The size of regression coefficients depicts how each predictor contributes to the value of the dependent variable (Petchko, 2018).

Materials and Instruments

The study will make use of a three-part questionnaire. The first part is for the Demographic profile of the residents in terms of Age, Sex, Socio-Economic Status, Educational Attainment, Religion, and Monthly Income. The second part is the Disaster Preparedness Index, which contains fourteen (14) item scales that evaluate the disaster preparedness of the residents of Brgy. 74-A Matina Crossing situated in a landslide-prone area. The third part is the Connor-Davidson Resilience Scale (CD-RISC-25) which contains twenty (25) statements pertaining to resilience among residents of Brgy. 74-A Matina Crossing situated in landslide-prone areas

Furthermore, for Disaster Preparedness Index has an internal consistency reliabilities score of 0.91, which is greater than 0.7, produced from the alpha coefficient (Cronbach's alpha). This entails a strong acceptable correlation between the items of the questionnaire.

Reliability measures CD-RISC 25 have been psychometrically evaluated in various settings, with Cronbach's alpha levels of 0.87 and 0.89 (Mahmoudi et al, 2019). Another study reported Cronbach's alpha level of 0.89 (Mohammadi et al, 2020). The internal consistency of CD-RISC was evaluated and confirmed with Cronbach's alpha of 0.85 (Janatolmakan, 2021).

Table 1: Disaster Preparedness Index

Scale	Range	Descriptive Rating	Interpretation
3	2.60-3.00	*Well Prepared*	Respondents are **very prepared** towards natural disasters.
2	1.60-2.59	*Moderately Prepared*	Respondents are **occasionally prepared** towards natural disasters.
1	1.00-1.59	*Poorly Prepared*	Respondents are **not prepared** towards natural disasters.

Table 2: Connor-Davidson Resiliency Scale

Scale	Rating	Descriptive Rating	Interpretation
4	3.60-4.00	True Nearly all of the Time	Respondents **are highly able** to bounce back and adapt in response to setbacks.
3	2.60-3.59	Often True	Respondents **are usually able** to bounce back and adapt in response to setbacks
2	1.60-2.59	Sometimes True	Respondents **are able to** bounce back and adapt in response to setbacks
1	0.60-1.59	Rarely True	Respondents **are hardly able** to bounce back and adapt in response to setbacks
0	0.00-0.59	Not True at all	Respondents **are not able** to bounce back and adapt in response to setbacks.

Inclusion and Exclusion Criteria

The respondents of this study are the residents of identified puroks in Barangay 74-A Matina Crossing, aged 18 years and above, and lived for about six years or longer. The researchers excluded individuals not residing in Barangay Matina Crossing 74-A from the data gathering and did not include ages below 18 years old in the employed survey questionnaire. Furthermore, respondents are allowed to refuse to answer the survey questionnaire; however, researchers will find other respondents to answer the prepared survey questionnaire.

Result and Discussion

The Results and Discussion may be combined into a single section or presented separately. They may also be broken into subsections with short, informative headings.

Table 3. Demographic profile of the respondents, n=400

Profile Variable		f	%
Sex			
	Male	200	50.0
	Female	200	50.0
Age			
	18-35(Young Adult)	247	61.8
	36-49 (Middle Adult)	90	22.5
	50-60 (Late Adult)	63	15.8

Profile Variable	f	%
Socio-Economic Status		
Employed	82	20.5
Self-employed	171	42.8
Unemployed	147	36.8
Educational Attainment		
College Graduate	68	17.0
Undergraduate	332	83.8
Religion		
Christian	370	92.5
Muslim	30	7.5
Monthly Income		
21,000-35,000	33	8.3
10,000-20,000	54	13.5
5,000-10,000	85	21.3
1,000-5,000	100	25.0
Below 1,000	128	32.0

In summary, there were 400 respondents. When grouped according to sex, it shows that 200 (50.0%) were males and 200 (50.0%) were females. The age groups have a total of 247 respondents (61.8%) with ages between 18-35 years old, 90 respondents (22.5%) with ages between 36-49 years old, and 63 respondents (15.8%) with ages between 50-60 years old. The Socio-Economic Status has been classified into three groups, 82 (20.5%) of the respondents are employed, 171 (42.8%) are self-employed, and 147 (36.8%) are unemployed. Moreover, on the Educational Attainment, 68 (17.0%) of the respondents are college graduates, and 332 (83%) are undergraduates. Most respondents are Christians, with 370 (92.5%) and 30 (7.5%) remaining Muslim respondents. Lastly, in terms of Monthly Income, 33 (8.3%) of the respondents have a monthly income between 21,000-35,000; 54 (13.5%) respondents have a monthly between 10,000-20,000; 85 (21.3%) of the respondents have a monthly income between 5,000-10,000; 100 (25.0%) have a monthly income between 1,000-5,000; and 128 (32.0%) of the respondents have monthly income below 1,000. The composition of populations in terms of demographic data during disaster events plays a significant role in determining the scope of impacts on individuals and communities.

Table 4. Qualitative Description on the Level of Disaster Preparedness

Range of Means	Verbal Description	Interpretation
2.60-3.00	*Well Prepared*	Respondents are **very prepared** towards natural disaster
1.60-2.59	*Moderately Prepared*	Respondents are **occasionally prepared** towards natural disaster
1.00-1.59	*Poorly Prepared*	Respondents are **not prepared** towards natural disaster

Table 5. Level of disaster preparedness, n=400

Variable	Mean	Standard Deviation	Descriptive Interpretation
Indoor Safety	2.65	0.35	*Well Prepared*
Document Preparation	2.60	0.49	*Well Prepared*
Collective Efficacy	2.68	0.41	*Well Prepared*
Escape Plan	2.70	0.38	*Well Prepared*
Overall	**2.66**	**0.30**	***Well Prepared***

As shown in Table 5, the overall mean of the level of disaster preparedness is 2.66 with a standard deviation of 0.30, which indicates that the disaster preparedness of respondents is well-prepared. The respondents gained the descriptive interpretation of well-prepared ratings on all four indicators: Indoor safety, Document Preparation, Collective Efficacy, and Escape Plan.

Escape Plan resulted in the highest mean rating of 2.70 (DS=0.38), which implies the respondents' preparedness level is very well-prepared for natural disasters. Preparing to respond to a disaster will enhance their resilience and minimize susceptibility (Winderl, 2023). Affected individuals are encouraged to create a plan for themselves and their families that can be activated swiftly and effectively during a disaster (Patrisina et al, 2018). Collective Efficacy has a mean rating of 2.68 (SD=0.41), ranked second of all the indicators included in the level of disaster preparedness based on the result, which means that respondents are exceptionally well-prepared for disaster preparedness as they assist in understanding community readiness and households' decisions to take preparedness actions. Establishing family emergency plans that detail how to reach and locate other family members during a crisis is essential (Jung et al, 2018).

With a mean rating of 2.65 (SD=0.35), Indoor Safety ranked third of all the indicators included based on the result of the disaster preparedness level, indicating that respondents are exceptionally well-prepared for disaster preparedness. With a mean rating of 2.60 (SD=0.49), Document preparation ranked fourth and last of all the indicators included based on the result of the level of disaster preparedness. Respondents are well-prepared for disaster preparedness as they protect vital records and procure a life insurance policy. In addition, a crucial element of supply-chain disaster management planning involves the provision of storage facilities for emergency supplies, equipment, and essential documentation required during periods of emergency (Hale, 2005).

Table 6. Qualitative Description on the Level of Resilience Quality

Range of Means	Verbal Description	Interpretation
3.60-4.00	*True nearly all of the time*	Respondents are **highly able** to bounce back and adapt in response to setbacks
2.60-3.59	*Often True*	Respondents are **usually able** to bounce back and adapt in response to setbacks
1.60-2.59	*Sometimes True*	Respondents **are able** to bounce back and adapt in response to setbacks
0.60-1.50	*Rarely True*	Respondents are **hardly able** to bounce back and adapt in response to setbacks
0.00-0.59	*Not True at all*	Respondents **are not able** to bounce back and adapt in response to setbacks

Table 7. Level of resilience quality n=400

Variable	Mean	Standard Deviation	Descriptive Interpretation
Hardiness	3.47	0.52	Often True
Coping	3.27	0.55	Often True
Adaptability	3.40	0.60	Often True
Meaningfulness/Purpose	3.61	0.51	True Nearly of all time
Optimism	2.83	0.83	Often True
Regulation of Emotion and Cognition	3.34	0.75	Often True
Self-Efficacy	3.49	0.75	Often True
Overall	3.34	0.41	Often True

As indicated in Table 7, the respondents obtained the descriptive interpretation of true nearly all the time mean ratings on meaningfulness/Purpose and the other six variables: Self-Efficacy, Hardiness, Adaptability/Flexibility, Regulation of Emotion and Cognition, Coping, and, optimism had often true mean ratings.

The meaningfulness/purpose resulted in true nearly all of the time mean rating of 3.61 (SD=0.51), which signifies that the respondents are highly able to bounce back and adapt in response to setbacks after the landslide. Respondents believed that when there were no clear solutions to their problems, sometimes fate or God could help them, and they considered that good or bad that happened in their life had a purpose. High levels of meaning in life enable a person to endure hardship and increase their sense of accomplishment and self-worth (Thomas & Segal, 2006)

The other six variables, namely, Self-Efficacy, Hardiness, Adaptability/Flexibility, Regulation of Emotion and Cognition, Coping, and Optimism, have the same descriptive literature that is often true but has different mean results.

Self-efficacy ranked second based on the result, with a mean rating of 3.49 (SD=0.75); this means the respondents from Barangay Matina Crossing can bounce back and adapt to setbacks after the disaster. It was proved that people who have high levels of self-efficacy utilize more proactive and adaptive coping techniques, and they do not give in to catastrophizing or other dysfunctional thought patterns, which may be one reason why people with high levels of self-efficacy have an easier time recovering from the effects of stress (Maddi, 2018).

Hardiness ranked third with a mean rating of 3.47 (SD=0.52) based on the result, implying that they can usually bounce back and adapt to setbacks after the challenges. As a result, personality hardiness is evolving as a pattern of attitudes and actions that assists in transforming stressors from potential catastrophes into growth possibilities (Massazza et al, 2021).

With a mean rating of 3.40 (SD=0.60), adaptability ranked fourth based on the result; this denotes that they can adapt when changes occur and deal with whatever comes their way, even an illness, injury, or other hardship.

With a mean rating of 3.34 (SD=0.75), regulation of emotion and cognition ranked fifth based on the result; this means that respondents can work under pressure, stay focused, think clearly, and handle unpleasant or painful feelings like sadness, fear, and anger. Disaster Victims did not passively suffer distress, detachment, or helplessness; instead, they were able to respond to these reactions and attempt to manage them through various coping mechanisms (Maddi, 2020).

With a mean rating of 3.27 (SD=0.55), coping ranked sixth based on the result; indicating that respondents can cope with stress after the challenges they face, and they believe that stress can make them stronger and that they have someone to run to when their stress/crisis occurs.

With a mean rating of 2.83 (0.51), optimism ranked last based on the result; implying that optimistic individuals have optimistic beliefs grounded in realism and the conviction that they can create paths to their objectives. Optimistic individuals view obstacles as challenges and can devise alternate strategies to reach their end objective.

Table 8. Regression Analysis for Inter-relationship of demographic profile, disaster preparedness, and resiliency

Variable	Chi-Square	p-value	Phi-value
Sex * H5	18.636	0.001	0.216
Sex * C13	9.940	0.041	0.158
Sex * C15	11.056	0.026	0.166
Socio-Economic Status * DP7	15.167	0.019	0.195
Socio-Economic Status * H10	27.035	0.008	0.260
Socio-Economic Status * H12	30.422	0.002	0.276
Socio-Economic Status * C2	26.199	0.010	0.256
Socio-Economic Status * A/F4	21.326	0.046	0.231

Variable	Chi-Square	p-value	Phi-value
Socio-Economic Status * A/F8	22.669	0.031	0.238
Socio-Economic Status * M/P9	22.440	0.033	0.237
Socio-Economic Status * O16	25.709	0.012	0.254
Socio-Economic Status * SE25	33.732	0.001	0.290
Educational Attainment * CE4	8.220	0.016	0.143
Educational Attainment * A/F8	13.445	0.009	0.183
Educational Attainment * M/P20	11.006	0.027	0.166
Educational Attainment * REC14	12.143	0.016	0.174
Religion * IS12	13.401	0.001	0.218
Religion * H24	22.211	0.035	0.236
Religion * M/P20	26.601	0.009	0.258
Religion * M/P21	38.277	0.000	0.309
Religion * O16	28.281	0.005	0.266
Religion * REC14	24.768	0.016	0.249
Religion * SE17	26.057	0.011	0.255
Monthly Income * CE4	17.424	0.026	0.209
Monthly Income * EP14	16.603	0.035	0.204
Monthly Income * M/P9	27.151	0.040	0.261
Age * IS9	10.536	0.032	0.193
Age * IS10	9.546	0.049	0.184
Age * IS13	18.342	0.001	0.255
Age * EP1	25/642	0.000	0.253
Age * EP2	11.014	0.026	0.166
Age * EP14	15.355	0.004	0.196
Age * H10	16.549	0.035	0.203
Age * H11	18.623	0.017	0.216
Age * H22	15.585	0.049	0.197
Age * C2	19.442	0.013	0.220
Age * C13	19.409	0.013	0.220
Age * C18	16.745	0.033	0.205
Age * A/F1	16.725	0.033	0.204
Age * M/P20	17.562	0.025	0.210
Age * O6	15.559	0.049	0.197
Age * O16	27.181	0.001	0.261
Age * REC14	20.896	0.007	0.229
Age * REC19	19.908	0.011	0.223
Age * SE25	20.724	0.008	0.228

*p<0.05 **p<0.01.

Table 8 exhibits the results of the Regression Analysis for the Inter-relationship of demographic profile, disaster preparedness, and resiliency. Forty-six indicators show that there is a significant inter-relationship of all the variables. All of the indicators have nearly the same values as they provide a higher CHI square value, a p-value of < 0.05, and a phi value of somewhat low and little association, if any. The higher the Chi-square value, the more it relates to the variables.

However, among the indicators, socio-economic and SE25 shows a high value of chi-square with 33.732 and a p-value of 0.001, indicating a significant association between SE25 and socio-economic status. This table presents the significance of the association of SE25 "I take pride in my achievements." as analyzed by socio-economic status. According to a study, people with low socio-economic status may opt to submit themselves to adversity due to limited control over their life opportunities. They

may adopt a positive stance by taking pride in their ability to endure difficult situations, questioning the potential benefits of realizing their ambitions or expressing relief (Larcom & Isaacowitz, 2019). Two variables depend on each other, and there is a statistical relationship between the agreement on item SE25 and socio-economic status. The Phi-value indicates little if any, association between SE25 and socio-economic status.

Table 9. Regression Analysis for Demographic Profile Predicting Resiliency (n=400)

Variable	B	*SE B*	*β*
Sex=Male	-0.031	0.043	-0.038
SocioEconomicStatus=Employed	-0.048	0.085	-0.047
SocioEconomicStatus=Self Employed	0.036	0.060	0.044
EducationalAttainment=College Graduate	0.006	0.073	0.005
Religion=Christian	0.332	0.181	0.236
Religion=Muslim	0.198	0.196	0.127
Religion=INC	0.384	0.347	0.066
MonthlyIncome=21,000-35,000	0.155	0.104	0.104
MonthlyIncome=10,000 - 20,000	0.141	0.083	0.117
MonthlyIncome=5,000 - 10,000	0.090	0.070	0.089
MonthlyIncome=1,000 - 5,000	0.080	0.062	0.084
Age=18-35 (Young Adult)	-0.135	0.059	-0.159
Age=36-49 (Middle Adult)	-0.123	0.069	-0.124
R^2		0.016	
F		1.509	

*p<0.05 **p<0.01.

As shown in Table 9 above, the average difference between the residence demographic profile and level of resiliency is very low. In contrast, their significance level is greater than the p-value of 0.05, indicating that their resiliency remains unchanged regardless of their demographic profile. All the other demographic profiles, such as socio-economic status, educational attainment, religion, monthly income, and age, also have similar results. Their average means vary marginally, and their p-value is greater than 0.05, although it influences their resiliency, there was no substantial evidence to prove its predictability since their significant difference is very low, which means demographic characteristics negatively predict the resiliency and well-being of an individual (Tetko et al, 2021).

Table 10. Regression Analysis for Variables of Resiliency Predicting Disaster Preparedness (n=400)

Variable	*B*	*SE B*	*β*	*Sig*
Hardiness	0.034	0.038	0.060	3.71
Coping	0.043	0.035	0.078	.226
Adaptability/Flexibility	0.0.93	0.028	0.187**	.001**
Meaningfulness/Purpose	-0.098	0.036	-0.167	.077
Optimism	0.037	0.018	0.104	0.82
Regulation of Emotion and Cognition	0.024	0.022	0.059	.287
Self-Efficacy	0.010	0.023	0.024	.674
R^2		0.072		
F		5.410**		

*p<0.05 **p<0.01.

The obtained beta coefficients in the regression model shown in Table 10 indicate that resiliency contributes positively to the disaster preparedness of Barangay 74-A Matina Crossing residents. The R2 obtained through multiple regression indicates that 7% of whatever makes their disaster preparedness vary is brought about by their resiliency. While the F-ratio equalled 5.410, indicating that the model has a statistically significant predictive capability. It was found that resiliency significantly impacts the disaster preparedness of a population, and it has a direct relationship meaning the higher the resiliency, the higher the disaster preparedness (Kimhi et al, 2020).

In terms of Adaptability/Flexibility, it has a beta coefficient of 0.09 and a significance level of 0.001 which indicates that it significantly influences the preparedness of the residents of Barangay 74-A Matina Crossing, meaning, for every increase in the level of resiliency of the residents in terms of adaptability/flexibility, their level of disaster preparedness increases 0.09 times or 9%, positively holding the other predictors constant. The rest of the predictors have a very low contribution, although they influence their preparedness; however, their significance level is greater than 0.05, resulting in a non-significant predictor.

Conclusion

The analysis highlights that residents are situated in Landslide-Prone areas in Brgy. Matina Crossing is well prepared, showcasing a high level of disaster preparedness in indoor safety, document preparation, collective efficacy, and escape plans. It denotes people in 74-A Brgy. Matina Crossing, situated in landslide-prone areas, takes preventative safety measures in preparation for a disaster; moreover, they take the initiative in securing vital documents and hotline numbers of emergency responders. Having such responsibility to take action in ensuring safety within their household is their key priority in preparing for a disaster. There has been a significant difference in the previous study of Sreevalsa Kolathayar et al. regarding disaster preparedness as they found out that it is an essential factor towards risk reduction where individuals have higher knowledge and practice with respect to their preparedness levels. The advancement of technology enables government and local authorities to detect sudden changes as well as provide safety measures in preparing for a disaster.

Furthermore, data shows that residents are situated in Landslide-Prone areas in Brgy. Matina Crossing exhibits a high level of resilience manifested by often true in terms of Self-Efficacy, Hardiness, Adaptability/Flexibility, Regulation of Emotion and Cognition, and Coping, while true nearly all the time regarding meaningfulness/purpose. This reveals that they

can bounce back and adapt in response to setbacks, have a strong sense of purpose and optimism in dealing with the aftermath of a disaster, and can regulate emotion to conceptualize and devise strategies to cope with and address the challenges they are facing. In addition, having a positive social relationship significantly improves individuals' coping ability to be more resilient in dealing with obstacles. Identified residents in Matina Crossing give their best efforts no matter the outcome, and they see opportunities from the challenges they face; despite the hardship, they remain resilient and determined to achieve their goals in life. Connor and Davidson's study asserted that individuals with higher socio-economic status tend to have higher resilience capacity as they can sustain their needs in the aftermath of a disaster and provide basic needs as well as access to various health insurance. The socio-economic factor has the greatest and most crucial impact on an individual's resiliency, especially in Government, as they are the primary authorities that aid victims' needs and address calamity issues.

On the other hand, findings suggest a significant interrelation among the profile, disaster preparedness, and resiliency of residents in Barangay 74-A Matina Crossing, and the extent of their relationship has a low association or little, if any, association. This means that the demographic profiles of the identified residents influence their resiliency, disaster preparedness, and vice versa, wherein the variables are dependent on each other, and there is a statistical relationship between them. Nonetheless, findings suggest that resiliency remains the same regardless of the demographic profile since it did not significantly predict the resiliency of

the residents situated in Landslide-Prone areas in 74-A Brgy. Matina Crossing. The average mean between the demographic profile and resiliency is very low; even though they vary slightly, the level of resiliency remains the same despite the difference in age, sex, or socio-economic status. On the contrary, resiliency significantly predicts the disaster preparedness of the residents situated in Landslide-Prone areas in 74-A Brgy. Matina Crossing, precisely adaptability/flexibility, means that if the adaptability/flexibility of the residents increases, the level of disaster preparedness also increases. Results highlight the significant association between the two variables, while the rest of the predictors have a very low contribution; however, they influence disaster preparedness, and the extent of their significance has no statistical basis resulting in a non-significant predictor.

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