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**COMMUNICATING RISK AND DISASTER PREPAREDNESS AMONG COASTAL
COMMUNITIES IN GITAGUM, MISAMIS ORIENTAL, PHILIPPINES**

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14 June 2024

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Acceptance Page

This paper prepared by **ROCHELLE D. DAGANG** with the title: “**COMMUNICATING RISK AND DISASTER PREPAREDNESS AMONG COASTAL COMMUNITIES IN GITAGUM, MISAMIS ORIENTAL, PHILIPPINES**” is hereby accepted by the Faculty of Information and Communication Studies, U.P. Open University, in partial fulfillment of the requirements for the degree Program.

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Biographical Sketch

The author, Rochelle D. Dagang, was born on December 3, 1977, in Cagayan de Oro City. She is the first daughter among the four children of Mr. Jimmy L. Dela Cruz and Mrs. Beverly GB. Dela Cruz.

She is a graduate of Bachelor of Science in Development Communication, Major in Journalism, in 1998. After graduation, she briefly joined the local team of CARE Philippines to assist in its social marketing. After which, she started working in the Department of the Interior and Local Government for almost 25 years now as a Local Government Operations Officer. In those years, she was also designated as Regional Information Officer for six (6) years. To be proficient in her job, she attended various trainings related to planning, disaster preparedness, and ease of doing business. In 2014, she participated in the Netherlands Fellowship Programme for Participatory Planning, Monitoring and Evaluation Managing for Impact course.

She is married to Dr. Anthony Ly B. Dagang with two children, Alessandro Lorenzo and Antonella Aria.

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Dedication Page

I dedicate this paper to my Mom in heaven, Beverly Go Beltran Dela Cruz, who inspires me to finish this MDC journey. Her support throughout my education and her own goal of wanting to earn her post graduate degree motivates me to pursue this dream for her.

TABLE OF CONTENTS

Title Page	i
University Permission Page	ii
Acceptance Page	iii
Biographical sketch	iv
Acknowledgement page	v
Dedication page	vi
Table of Contents	vii
List of Tables	ix
List of Figures	x
Abstract	xi
CHAPTER I: INTRODUCTION	0
Background of the Study	0
Statement of the Problem	4
Objectives of the Study	5
Significance of the Study	6
CHAPTER II: REVIEW OF RELATED LITERATURE	0
Risk Communication	8
Message Content and Framing	9
Channel of Communication	11
Timing and Frequency	13
Trust in Institutions	14
Significance of Communication Strategies	16

Theoretical Framework	19
Conceptual Framework	22
Operational Definition of Terms	25
CHAPTER III: METHODOLOGY	00
Research Design	29
Locale of the Study	29
Respondents	30
Research Instrument	30
Data Gathering Procedure	30
Data Analysis	31
Scoring Guidelines	32
Statistical Treatment and Procedures	33
Research Ethics and Data Management	34
CHAPTER IV: RESULTS AND DISCUSSION	00
CHAPTER V: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	00
Summary	52
Conclusion	53
Recommendation	54
REFERENCES	57
ANNEXES	00
Annex A	68
Annex B	70
Annex C	73
Annex D	78

List of Tables

Table A	Reliability Tests for all Variables	32
Table B	Scoring Guidelines and Indicators Risk Communication Strategies and Disaster Preparedness	32
Table C	Scoring Guidelines and Indicators for Statement of the Problem and Statistical Treatment	33
Table 1	Frequency, percentage and mean distribution of the respondents' perceived effectiveness of the risk communication strategies	40
Table 2	Frequency, percentage and mean distribution of the respondent's perceived level of preparedness in terms of knowledge, awareness and attitude	44
Table 3	Correlation Matrix Between Risk Communication Efforts and Quality of Communication to the Respondents' Level of Disaster Preparedness	48
Table 4	Multiple Linear Regression on the Influence of Message Content and Framing, Channel of Communication, Timing and Frequency, and Trust in Institutions to Level of Disaster Preparedness	51

List of Figures

Figure 1 Theory diagram on Risk Perception and Communication Model	22
Figure 2 Conceptual model with independent and dependent variable	23
Figure 3 Schematic Representation of the Concepts Used in this Study	24

ABSTRACT

Risk communication in disasters aims to prepare people to prevent and mitigate disaster impact. The present study explores the influence of risk communications strategies by the Local Disaster Risk Reduction and Management Office (LDRRMO) on the level of disaster preparedness of the coastal communities of the Local Government Unit in Gitagum, Misamis Oriental. The study employed a quantitative design and a descriptive method of research using survey questionnaires. The respondents were the three hundred eighty-six (386) randomly selected individuals living in the coastal areas and residents living along flood prone roads. Based on the findings, the risk communication strategies used by the LDRRMO of the Municipality of Gitagum, particularly on the timing and frequency of communications and the level of trust in institutions, have a significant impact on the participants' disaster preparedness. However, the community's trust in the local government's provision of risk information needs to be enhanced. The individual's attitude and awareness on preparedness are rated as satisfactory, suggesting further for an improved level of knowledge on weather conditions. Therefore, the risk communication strategies, specifically on timing and frequency and trust in institutions, by the LDRRMO can influence the disaster preparedness of a community. The study points to the need of assisting local government units in disaster preparedness on effective dissemination of PAGASA weather advisories.

Keywords: *Local Disaster Risk Reduction and Management Office, Local Government Unit, Risk Communication, Risk Strategies, Disaster Preparedness, Coastal Communities*

Chapter I

INTRODUCTION

Background of the Study

Disaster preparedness is essential for reducing the harmful effects of natural disasters on human health. The United Nations Office for Disaster Risk Reduction (UNDRR) defines disaster preparedness as the ability of governments, response and recovery organizations, communities, and individuals *"to effectively anticipate, respond to, and recover from the impacts of an imminent disaster"*. One of the ways to achieve this preparedness is through Risk Communication.

Accordingly, the World Health Organization (WHO) states that risk communication, which is the exchange of information about possible hazards, risks, and protective measures among experts, government, and the general public, is an essential component of disaster preparedness. Effective risk communication can help individuals and communities understand the risks associated with a particular disaster, such as coastal flooding and storm surge, and take appropriate actions to reduce the impact of the event. Disaster preparedness involves various activities to minimize damage and disruption from disasters, including planning, mitigation, response, and recovery. According to Bradley et al. (2014), there are distinct objectives for communication regarding disasters at each of the four stages of the cycle: mitigation and prevention, preparedness, response, and recovery. Hence, effective communication is crucial throughout these stages, from raising risk awareness to providing guidance during and after a disaster.

One of the most important strategies for preventing and lessening the effects of disasters is communication. For one, the goal of risk communication is to inform the public about a possible disaster event and create ways that may influence the event's outcome, including potential communication channels such as face-to-face conversations, phone calls, group meetings, mass media such as television, radio or the highly popular social media networks such as Facebook or X (formerly known as Twitter). It is these channels that weather advisories for the public is being coursed through. Despite various methods of communication, only half of the respondents in a study by USAID (2015) are said to be satisfied on the Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA) programs and services. The researchers recommend that satisfaction rate for PAGASA, as the official weather bureau, needs to be improved.

The Philippines is known as one of disaster-prone countries in the world. In recent years, the country has been visited by devastating typhoons that claimed so many lives and damaged properties. Seemingly, in Region 10, there are already several typhoons that passed which left catastrophic trails, such typhoons as Sendong and Pablo, tropical storm Vinta, and even the recent disaster caused by shear line. Heavily affected on these weather disturbances are coastal towns like Gitagum.

Natural disasters and catastrophic events are inevitable, yet ignoring their existence increases the likelihood of their occurrence and the subsequent consequences. Preparation is, nevertheless, the key to mitigate such natural disastrous phenomenon. The United Nations Office for Disaster Risk Reduction (2021) stipulates that risk communication is crucial in emergency preparedness, response,

recovery, and mitigation at both the policy and individual levels, as they increase public awareness of disaster risks and improve public safety.

Concomitant to this, different authors point out the different ways on how to improve public safety. Foremost, authors like Rahman & Mundai (2019) reinforced that risk communications and efforts to increase community disaster preparedness are correlated. The authors further cited Coppola (2009) that there are stages of Disaster Risk Communication (DRC). These stages include among others careful planning and developing campaign strategies. Thus, the authors developed a DRC framework in enhancing disaster preparedness, which includes the role of the authority to create risk messages, the risk message, the channels, and media used to transfer the risk messages, the target audiences who receive the risk messages and making the right decisions and taking the right actions thereafter, and the impact of the DRC. Although said framework was created and developed, the authors intend to utilize this in a future context. If done efficiently, risk communication can improve the delivery of information about risks especially in disaster-prone areas (Shi, 2020).

In contrast, Centeno et al. (2022) studied on the communication behavior of residents in disaster-prone areas in Laguna and Batangas. Although the study included the information sharing practices, it lacks on the residents' perspective on the communication strategy employed by the Local Disaster Risk Reduction and Management Office (LDRRMO). Kellens et al. (2013) and Bubeck et al. (2012) reported that few empirical studies existed on the effects of risk communication on preparedness, instead more focus was given on the predictors of risk preparedness, thus, the need for further research.

This study, therefore, hopes to fill in the gaps from previous studies related to perspective of residents on communication strategy employed by local authority, sharing of risk information, determine effects of risk communication on preparedness, and validate the elements included in the DRC framework particularly in communication factors. Towards the aforementioned gaps and recommendation, this study was conceptualized.

Statement of the Problem

The country has experienced many disastrous weather disturbances and most of the areas affected are those living in coastal towns. This study tried to answer the question: Does the risk communication strategies influence the coastal communities' level of disaster preparedness? If there is no adequate information on the manner and reception of risk communication efforts employed by concerned government institutions, such as the LDRRMO and the PAGASA, then coastal communities may not receive any fair warning and prepare for the impending weather disturbance.

Specifically, this study aimed to answer the following questions:

1. How do the respondents perceive the effectiveness of the risk communication strategies of the Local Disaster Risk Reduction and Management Office?
2. How prepared are the respondents during disaster in terms of the following preparedness dimensions:
 - 2.1 knowledge;
 - 2.2 awareness; and,

2.3 attitude

3. How significant is the relationship between the risk communication strategies and quality of communication to the respondents' level of disaster preparedness?
4. How does the risk communication strategies of the Local Disaster Risk Reduction and Management Office influence the respondents' level of disaster preparedness?

Objectives of the Study

Main objective:

This study aimed to determine the influence of risk communications strategies by the Local Disaster Risk Reduction and Management Office of the municipality of Gitagum on the level of disaster preparedness of the coastal communities.

Specific objectives:

1. To determine the perceived effectiveness of the risk communication strategies of the Local Disaster Risk Reduction and Management Office;
2. To determine the preparedness of the respondents during disaster in terms of the following preparedness dimensions:
 - 2.1 knowledge;
 - 2.2 awareness; and
 - 2.3 attitude

3. To determine the significant relationship between the risk communication strategies and the quality of communication to the respondents' level of preparedness;
4. To know the level of influence the communication strategies of the Local Disaster Risk Reduction and Management Office have on the respondents' level of disaster preparedness.

Significance of the Study

The significance of this study is that it can assist in determining what makes coastal communities of Gitagum, and other coastal barangays be well-prepared in the event of coastal flooding and storm surge. The results of this study may help contribute in the application of communication strategies that possess development communication values such as purposive and pragmatic to help society negate entropy (Ongkiko & Flor, 1998).

Further, concerned national government agencies would be able to craft policies related to effective communication programs that could enhance the quality of messaging and communication process. The output of this research can be used by the academic institutions for reference and future studies.

Chapter II

REVIEW OF RELATED LITERATURE

Numerous scholars who investigated risk communication have linked people's behavior and communication strategies to their preparation for disasters. These scholars have also shown that human perception, knowledge, and values enhance community resilience and help people be more prepared for disasters (Rahman & Mundi, 2019; Shi, et al., 2020; and Centeno, et al., 2022). However, further research is needed to understand risk information sharing in coastal communities, perceptions of LDRRMO communication strategies, effects of risk communication on preparedness, and the application of the DRC framework in assessing disaster preparedness in coastal barangays in Gitagum.

With the Philippines prone to be visited by 20 typhoons every year (Asian Disaster Reduction Center), Filipinos must be promptly alerted to potential disasters. Every after big disasters, victims lamented why they were not informed by their LDRRMO beforehand. Numerous lives and properties are lost and damaged in coastal areas, yet little research has been conducted on the level of preparedness and information among coastal households. Hence, risk communication is compromised.

To put this into context, the risk communication was further defined in this study as the efficiency of disseminating weather advisories to the intended audience. This includes the clarity of weather advisories, manner of dissemination, the users of information, and its influence to help communities better prepared for typhoons and storms. This study also covered the subject of message and channel used having any

influence on the outcome process of communication, emphasizing dissemination of weather advisories of the national government down to the local government and to the households living in these coastal areas. Using the Risk Perception and Communication Model of Fischhoff et al. (1978); Lupton (1999); Slovic (1989); & Sandman (2003), this study investigated the relationship of communication strategies utilized by the LDRRMO with the level of disaster preparedness in the coastal communities.

Risk Communication

Hendricks (2016) defines Risk Communication as “*an exchange of information about risks or hazards between interested parties*”. It is also defined by the National Academy of Science as an interactive, purposeful exchange of facts and information between individuals, groups, and institutions (Bayugo, et al., 2016). As a tool, risk communication is used to elevate trust, awareness, and preparedness actions on disaster (Rowan, 1991). Covello et al. (1986) examined the goals of risk communication, emphasizing on one's objective, and covering information, education, disaster warnings, and emergency information.

The Sendai Framework for Disaster Risk Reduction underlined the significance of communicating risk in disaster preparedness. Agyekum et al., (2022) purported that communicating weather and climate information is crucial as it provides users with valuable data that aids in decision-making.

Message Content and Framing

For communities to be prepared in times of disaster, they must be equipped with essential information. Basher (2016) explained that weather warnings provide users with accurate information to assess the risks and consequences of exposure to incoming weather hazards. However, the effectiveness of risk communication strategies can also depend on how people understand the information received (Maidl, et al., 2015). Therefore, the information should be concise and credible amidst using different channels (Peters, et al., 2006).

In the Philippines, the lead office that is mandated to provide adequate, up-to-date data, and timely information on atmospheric, astronomical, and other weather-related phenomena is the Philippines Atmospheric, Geophysical and Astronomical Services Administration (PAGASA). This weather bureau basically provides weather forecasts and tropical cyclone warnings, flood bulletins, hydrological, climatological, and farm weather forecast (PAGASA website, n.d.). Presently, the Bureau offers various products and services that provide scientific weather information to various stakeholders and users.

In 2015, USAID conducted a study in Cagayan de Oro, Iloilo, and Tacloban, focusing on the 24-hour weather public forecast and weather advisory as the main PAGASA programs. Respondents in this study have utilized PAGASA services to stay informed about current weather conditions, thereby aiding in their preparation. Despite this, respondents still have low awareness on other PAGASA programs and services. It is, therefore, recommended by USAID for PAGASA to create more information

awareness on its other programs and services as aid to weather information and as call to action to stakeholders.

As for clarity of message, according to Taylor et al. (2018), individuals who are at risk should be informed, comprehended, and applied the information received to add value to the warnings and forecasts. On another note, Covello, et al. (1986) reckoned that many individuals lack understanding of technical risk information, leading to varying perceptions of such risks among high-ranking officials and scientists.

One of the lessons learned during Typhoon Haiyan is that "stock" warning message format failed to adequately inform residents of the need for a larger response (Lejano, et al., 2016). Many authors believe that "local narratives with vivid imagery" will be more effective to improve the responses in the future. Reportedly, by incorporating real images of past disasters, it is possible to interpret risks more effectively and foster community cooperation (Lejano et al., 2016; Otto, 2018). The authors reported that the respondents wanted the PAGASA advisories be translated into local languages when presenting it to concerned communities. One of the findings in their study is that "*routine, pro forma text*" fails to convey knowledge to intended recipients. Kalkstein et al (2007) emphasized that clear and simple language is crucial for understanding warning messages.

According to Mehriiz & Gosselin (2016), the quality of warnings can have positive effects on the response made by the public to weather warnings. The importance of an improved forecasting to make countries well-prepared was also

acknowledged by Choy, et al. (2018). They underscore advance technology, such as cloud computing system, helps weather service providers make accurate predictions.

Channel of Communication

The study specifically targets the Local Disaster Risk Management Office and the households of the identified coastal communities in Gitagum, Misamis Oriental on the manner and application of risk communication in disaster preparedness.

Section 12 of Republic Act 11021 defines the Local Disaster Risk Reduction and Management Office. The law provides that “*(a) There shall be established an LDRRMO in every province, city and municipality, and a Barangay Disaster Risk Reduction and Management Committee (BDRRMC) in every barangay which shall be responsible for setting the direction, development, implementation and coordination of disaster risk management programs within their territorial jurisdiction*”.

Among the many functions of the LDRRMO is the dissemination of information and raising public awareness on hazards, risks, effects, early warning signs, and counter-measures.

Shi et al., (2020) postulated that the effectiveness of a risk communication will depend on the quality of spread of information and understanding the needs of the receiver. This was further supported by Alias (2020) that weather information can be effective depending on the method of dissemination used. Mileti et al. (1992) said that individuals' preparedness actions are motivated by the timing and medium used in

receiving weather information, emphasizing the significance of utilizing various risk communication channels.

Moreover, authors Lejano et al. (2016) and Otto (2018) observed that there was a critical gap in communication with the weather bureau because of its “rote transmission of modeled forecast” (Lejano, et al, 2016). Hence, communication with the locals must be more “*contextualized and personalized*”.

In the country with limited infrastructure like the Philippines, communications between regional offices to local levels are done verbally, especially in barangays where there is lack of equipment use for communication and limited access to internet (Lejano et al., 2016). Seemingly, Liu et al. (2016) found that not all individuals prefer social media for sharing and receiving information during disasters. However, there are studies which reported that more government agencies have been using social media to share information between the citizens and government (Mora, et al., 2015; Lachlan, et al., 2014). Particularly in disaster communities in Laguna and Batangas, internet and social media are the most preferred means when it comes to sharing information, followed by text messaging (Centeno, et al., 2022).

In East and West Africa, key media used in communicating weather and climate information included radio, mobile phones, and television, with radio as the most preferred medium to receive weather and climate information (Agyekum et al., 2022). A study in China found that public information seeking behavior favors village committees and officials over Weibo and WeChat channels (Shi, et al., 2020).

In this view, there exist a large number of channels for risk information in coastal towns of rich developed countries, including television, radio, telephone and internet (Lindell and Perry, 2012; Tang et al., 2014). Internet is getting popular as a medium used in disseminating risk information in coastal areas, however, several authors disclosed that radio was the most widely used source of information in coastal households in Australia (Lindell and Perry, 2004; Cretikos et al., 2008).

Timing and Frequency

Oyekale (2015) referred timely weather forecasts as an essential adaptation initiative. Prior to that, a study by Leskens et al. (2014) acknowledged the significance of issuing advance weather warnings to give the public enough lead time to prepare and adapt its response to the weather conditions. However, Mehriz & Gosselin (2016) disclosed that only few coordinators relay weather warnings to other partner stakeholders involved in disaster management. In a study made for a coastal barangay in Iligan City, Embornas et al. (2021) reported a survey of participants' experience during 2011's Tropical Storm Sendong (internationally named Typhoon Washi), where PAGASA informed the public, but the disaster management council in barangay failed to notify the residents. Having been complacent due to historical records that there had been no typhoon passing on the locality, the residents were unprepared for the calamity that overwhelmed them afterwards. As emphasized by Mileti et al. (1992) and Mileti et al. (1995) in its studies, the timing of weather information in motivating preparedness actions is important.

Trust in Institutions

Important factors to include in disaster information are “*transparency, increased credibility, trust, and reliability with various stakeholders*” (Haddow & Haddow, 2013). However, Abunyewah et al. (2018) indicated that numerous risk communication strategies have been found to be ineffective in motivating the public due to weak persuasion by local authorities.

An experience during Typhoon Haiyan presented a process made by concerned line agencies which produced adverse results. The National Disaster Risk Reduction and Management Council (NDRRMC) sends the PAGASA bulletin to the concerned offices, accompanied by its own summary weather advisory, but only includes sparse information such as flood warnings and nothing more (Lejano et al., 2016). A study by Embornas, et al., (2021) reported that at the height of the incoming Super Typhoon Pablo (internationally named Typhoon Bopha) in 2012, the city government of Iligan was finally able to provide early warnings and precautionary measures to the communities whose households were affected by the previous storm (Embornas, et al., 2021). Sättele et al. (2015) espoused that failing to detect hazards and issue alerts can ultimately undermine public trust in the warning system. To enhance the value of weather-related warnings, it is crucial to communicate forecast updates without compromising trust, visualize uncertainty, and clearly indicate the possibility of low-probability high impact events (Zhang et al., 2019). Trust is a crucial element in molding an individual's response to the source of weather information which reflects its effectiveness (Steelman, et al., 2015).

The trust level given by the communities towards assorted source of weather information varies considerably. The public usually trust those that are viewed as “credible, reliable, caring, knowledgeable, expert, and honest” (Peters, et al., 1997; Mileti and Peek, 2000). They are likely to take preparedness actions on the warnings received if they considered the source as trustworthy (Fakhruddin, et al., 2020). There are other authors that pointed out that for people to take preparedness actions, the risk messages should be given by a trusted source with reliable channels in a “clear and simple language” (Abunyewah, et al., 2018). This is due to people determining the trustworthiness of the source (Basher, 2006; Granatt, 2004; West and Orr, 2007) and reliability of the risk messages to people’s needs and expectations (Earle, 2004; Lion, et al., 2002; Paton, et al., 2006).

Notwithstanding, various authors acknowledged that it is the information from official sources that are trustworthy than the informal ones (Steelman, et al., 2015). Another author declared that the official sources are “the most trusted source of hazard information” (Navitas, 2020). In a study by Yu et al. (2020), they reported that it is disaster information from local officials that increases knowledge of the communities on disaster preparedness.

There are also studies that revealed people seek information from various sources (Hagar, 2010; Ryan, 2013; Steelman et al., 2015; Taylor et al., 2007 2018). There are some people who would seek information from one and confirm it from another during disaster (Sorensen & Mileti, 1988). It was suggested by Meredith, et al. (2007) that getting information from various sources is critical. Gathering preference by the public on the information they need is significant in cultivating learning in risk

communication (National Academies of Sciences, 2018; Ryherd, 2016; Steelman, et al., 2015). In Cabanatuan City, a house-to-house communication strategy was most preferred by the people (Ferrer, et al., 2021). Interactive information seems to be the key to help the people understand hazard information (Becker, et al., 2012). Conclusively, Thieken et al. (2007) viewed this as knowledge that enhances awareness and preparedness. It is by acquiring higher knowledge that results to disaster preparedness (Thieken et al., 2007; Yu et al., 2020). Although, Abunyewah et al. (2018) pointed out that knowledge alone is insufficient for disaster preparedness; it should be combined with awareness creation to encourage individuals to take necessary actions.

Significance of communication strategies

Communication behavior is a common variable in DRRM study (Centeno, et al., 2022). The author cited Pulungan (1989) and Aleria (2008) that under the said behavior, information sharing practices can be gauged by looking at the message's pattern of information exchange, its frequency, and its substance. Communication behavior is significant in determining an individual's knowledge, attitudes, and practice, affecting their ability to gain or lack information.

In reference to weather and climate services, Agyekum et al. (2022) highlighted the importance of various studies in reducing risks arising from weather disturbances like drought, flooding, and loss of lives and livelihoods. These studies are discussed in the succeeding paragraphs.

According to Singh et al. (2018), the value of climate and weather data will depend on its ability to generate information that is useful and can be incorporated into decision-making. The key for climate-informed decision-making is, therefore, the availability, accessibility, and usability of accurate weather information (Dinku, et al., 2014; Agyekum, et al., 2022).

In an article from the Philippine Star, advisories from PAGASA are used by farmers in managing their farms to reduce losses in its inputs and crop damage (Valencia, 2020). However, there are also challenges in weather information for farmers such as: the lack of local translation of weather forecast, irregular dissemination of advisories, insufficient knowledge of farmers on risk management options, lack of communication strategies to immediately reach communities, and limited access of farmers to risk management technologies (Valencia, 2020).

Since more accurate weather information is being produced and used, Anaman et al. (2017) stressed the significance of weather advisories in terms of society preparedness for extreme weather occurrences. Agyekum et al. (2022) deduced that there are barriers that can hinder the use of information, such as: poor communication and understanding of weather information, lack of downscaled information, lack of logistics, lack of trust, and meteorological information not tailored to meet information needs of other vulnerable sectors. On similar note, Nkiaka et al. (2019) contested that the delivery of weather information may not also be an assurance that decision makers will be informed.

In line with the previous contention, the communication strategies from government agencies can influence disaster preparedness and decision-making (Vinance, et al., 2021). Communication can assist in heightened awareness and in knowing more on risk perception that aid in establishing disaster preparedness (Perez-Lugo, 2004). Awareness is the second predictor of intention for the public to prepare for a disaster, but it is not clear as to what extent (Maidl, et al., 2015). However, there are studies that postulate some extent relation of risk awareness to the level of preparedness, but such extent of correlations are weak, ambiguous, and not clear (Bubeck, et al., 2012; Maidl, et al., 2015). Similarly, studies of Abunyewah, et al. (2018), Ballantyne (2000) and Paton (2006) presented that awareness creation alone does not translate to disaster preparedness, and that there are considerable factors that may complement it. For Thieken et al. (2007), people's attitude affects their preparedness. Maidl et al. (2015), however, rejoined that attitude is not the precursor of factual knowledge and that the effect of communication strategies depends on the perception of the people to which information was given.

Based on the studies mentioned, specifically by Kellens, et al. (2013) and Bubeck, et al. (2012), Pulungan (1989) and Aleria (2008), and Centeno, et al. (2022), the research gaps identified are on the perspective on the communication strategies employed by authorities, the sharing of information by people living in coastal communities, and effects of risk communication to the coastal residents' preparedness to typhoons and storms.

Theoretical Framework

This study utilized the Risk Perception and Communication Model (Fischhoff, Slovic, Lichtenstein, Read, & Combs (1978); Lupton, 1999; Slovic, 1989; Sandman, 2003). This model has no single author or developer; rather, it has been developed and improved over time by numerous scholars and researchers. The model has evolved through the work of multiple researchers in the fields of risk communication, psychology, and sociology. Several authors pioneered this model such as Fischhoff et. al. (1978) who first studied risk perception and communication and explain how people's perception and evaluation of risks relate to their change of behavior. However, other recent research has concentrated on the impact that risk communication strategies can have on preparedness for disasters. Additional aspects were contributed by that research, including those by Bostrom & Löfstedt (2003) and Leiserowitz, Maibach, Roser-Renouf, Feinberg, & Howe (2013), which focused on the influence of communication methods on behavior related to disaster preparedness.

In addition, the Risk Perception and Communication Model, as defined by several authors (Fischhoff, Slovic, Lichtenstein, Read, & Combs (1978); Lupton, 1999; Slovic, 1989; Sandman, 2003), is a widely used framework on how communication can be used to promote preparedness behaviors. The model suggests that people's perceptions of risks are shaped by a variety of factors, including their beliefs, values, emotions, and personal experiences. These perceptions, in turn, influence how people respond to risks, such as whether they take protective actions or ignore the risk altogether.

In view of the foregoing, this study was grounded on the assumption that the certain communication strategies of the Local Disaster Risk Reduction Management Office may influence disaster preparedness.

Communication plays an important role in shaping one's perception or behavior. In relation to the model, it emphasizes the importance of effective communication in perceiving the risk and promoting preparedness behavior. Effective communication should be clear, accurate, and actionable in providing specific guidance on the risk and what actions people should take to prepare for and respond to a hazard. Additionally, message content and framing are important factors such as how the message is relayed, the tone and language used, and the inclusion of vivid or personal anecdotes can all impact how the message is interpreted.

Moreover, the channel of communication, such as radio, print media, television, social media, or interpersonal communication, must be considered to determine the efficacy of the dissemination. Communication should also be timely in providing information as soon as it is available and ongoing.

The source of information must also be credible. Trustworthiness, reliability, and perceived expertise of the source providing the risk information can significantly affect how the message is received and acted upon by the public. Covello et al. (1986) mentioned that the lack of trust and credibility, and the lack of knowledge on addressing concern of communities are among the problems from the source of information. Therefore, trust in institutions is another crucial element in promoting effective risk communication. The effectiveness of risk communication messages can

be significantly influenced by the public's trust in the institutions delivering these messages.

In the context of disaster preparedness, the Risk Perception and Communication Model can be used to identify factors that may influence people's perceptions of different risks. For example, research has shown that people are more likely to take preparedness actions if they perceive the risk to be severe and if they feel that they have some level of knowledge and awareness over the risk. Covello et al. (1986) warned that inaccurate perceptions of level of risk can be one of the problems of the receiver of information.

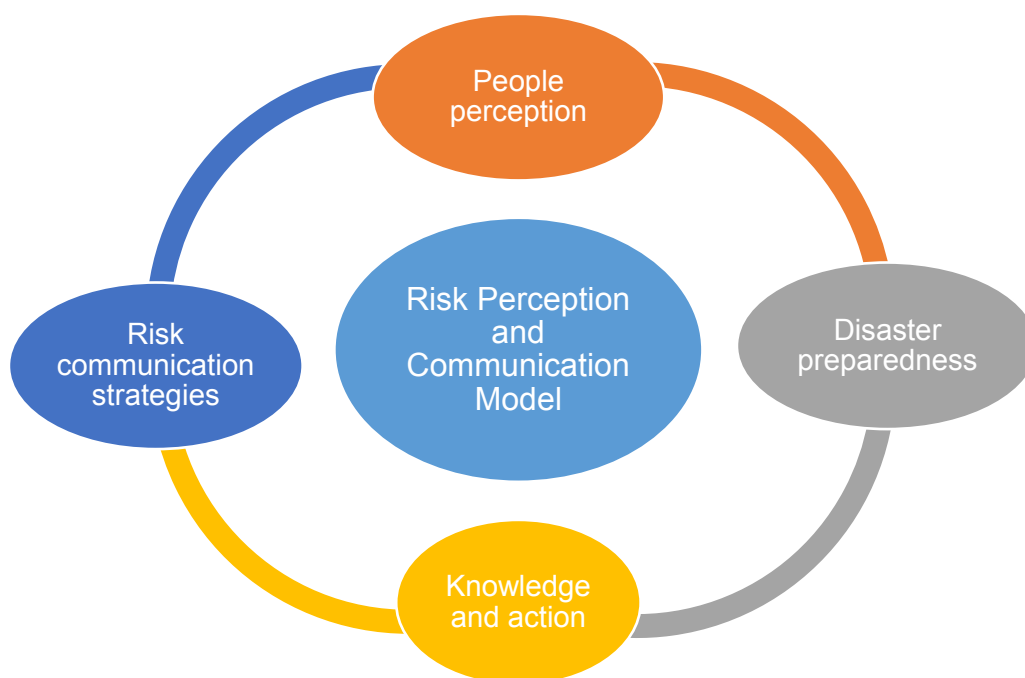
For this reason, the model recognizes that people's level of preparedness depends on a range of factors, such as their knowledge of the risk, their perceived ability to act, and their social networks. Tuladhar et al. (2014) identified several factors that may be related to disaster preparedness such as the level of knowledge, perception, and awareness of the disaster risks, and the ability to adapt to such situations. Determining these factors may lead to a deeper understanding on how communication may affect disaster preparedness, which may lead to creating effective communication strategies, and provide clear guidance on how people can act to reduce risk.

The Risk Perception and Communication Model is a valuable framework for understanding how people perceive and respond to risks, as well as how communication is utilized by them to increase disaster preparedness. Communication may be designed to effectively inform individuals and encourage them to act and

protect themselves and their communities by considering the numerous aspects that determine risk perception. An interactive and collaborative strategy among the concerned citizens is critically important in gaining knowledge on community needs and concerns so that authorities can increase their communication efforts (Covello et al., 1986).

Considering the collective discussions of the model, the figure below presents the theory in diagram:

Figure 1. *Theory diagram on Risk Perception and Communication Model*

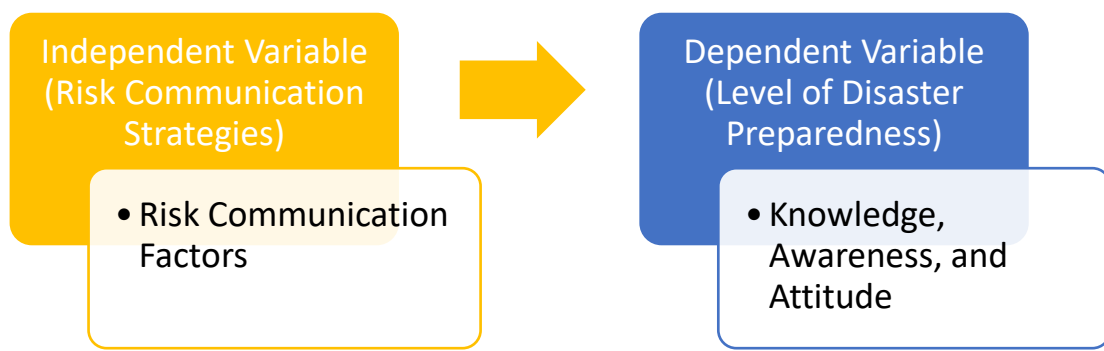


Conceptual Framework

The perceived risk by the coastal residents on an incoming weather disturbance that affect their behavior and attitude may depend on the effectiveness of risk communication strategies. In reference to the Risk Perception and Communication Model, the strategies of the LDRRMO that are incorporated in the risk communication

factors – such as message content and framing, channel of communication, timing and frequency, and trust in institutions – help perceive the risk such as coastal flooding and storm surge, and influences disaster preparedness of the coastal communities. Depending on the people’s perception on risk from the information received, the outcome will be the knowledge gained by the individual and its preparedness actions.

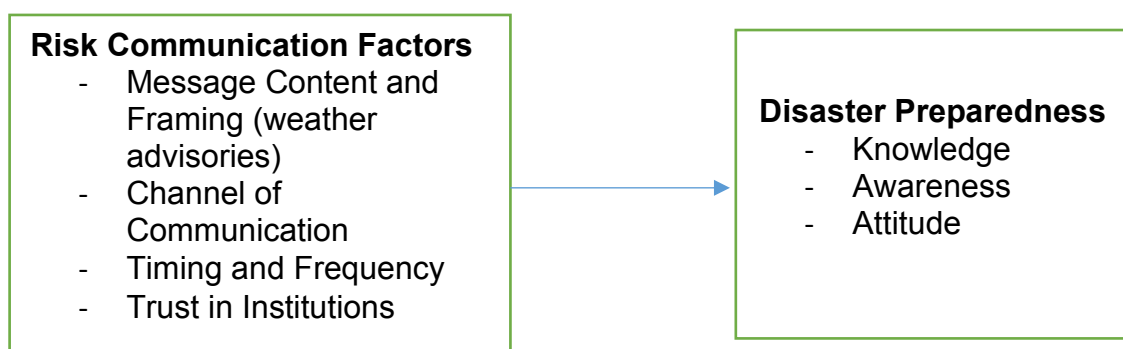
Figure 2. *Conceptual model with independent and dependent variable*



Generally, the study aimed to determine the influence of risk communications strategies by the Local Disaster Risk Reduction and Management Office. Below is the schematic representation of the concepts used in this study. This was divided into two groups. On one hand, the first group is on Risk Communication Factors which basically covers the message, channel, and the timing and frequency of risk communication, specifically on cascading the weather advisories; while also looking into the people’s trust in the institutions involved. This, help determine the perceived effectiveness of the risk communication strategies of the LDRRMO. On the other hand, the second group is on Disaster Preparedness which assess the level of knowledge, awareness, and attitude of the respondents, since it determines the preparedness of the respondents during disaster in terms of the aforementioned dimensions. Based on the

independent and dependent variables, the relationship between the risk communication strategies and the quality of communication to the respondents' level of preparedness, and, ultimately, the level of influence of the communication strategies of the LDRRMO have on the level of disaster preparedness of the respondents, is determined.

Figure 3. *Schematic Representation of the Concepts Used in this Study*



Operational definition of terms

In this study, the following terms were used:

- a. Level of Influence – this refers to the effect of the communication strategies of the Local Disaster Risk Reduction Management Office to the preparedness level of an individual. This is determined by testing the influence of the independent variables used in this study such as Risk Communication Factors in terms of Message Content and Framing (weather advisories), Channel of Communication, Timing and Frequency, and Trust in Institutions to the dependent variable which is Disaster Preparedness in terms of Knowledge, Awareness and Attitude using Multiple Linear Regression. For example, respondents were asked to rate the risk communication strategies and their level of preparedness. The mean ratings shall then be tested if there are significant influences from the independent to the dependent variables.

- b. Effectiveness – this refers to the perception of the respondents on the effectiveness of the communication strategies of the Local Disaster Risk Reduction Management Office. This is determined in this study using descriptive statistics such as frequency, mean and percentage. Respondents were asked to rate the risk communication strategies and their level of preparedness in an agreement scale of 5, rated as strongly agree as the highest and strongly disagree as the lowest. A scoring guideline, as shown in Chapter 3 was used to determine the level of effectiveness as perceived by the respondents with each scale interpreted as “very high” to “very low” effectiveness.

- c. Relationship – this refers to the relation between communication strategies and disaster preparedness. This is determined by the correlation between independent variables, which is risk communication factors, and dependent variables, which is the disaster preparedness in the following dimensions of knowledge, awareness, and attitude. Using Pearson R correlation statistics showing whether an increase or decrease in one variable corresponds to an increase or decrease in another variable.

- d. Communication strategies – this refers to the methods used by the Local Disaster Risk Reduction Management Office to disseminate weather information.

- e. Risk Communication factors
 - e1. Message content and framing – refers to the information contained in a message and is relayed to concerned individuals and office. In this study, the message was in a form of weather advisories that provides warning to coastal communities. This is measured on the clarity, completeness of information, visual representation, and manner of composition.

 - e2. Channel of communication – this applies to various communication channels that are being used to disseminate information from weather advisories, such as in radio, social media, or interpersonal communication. In this research, this is measured on how these channels can effectively relay the information to the participants. This is also tested if the effectiveness of channel can influence the disaster preparedness of the respondents.

e3. Timing and frequency – this refers to the timely and regular dissemination of weather information. This is gauged by the speed at which information about the weather event is released and the frequency of updates.

e4. Trust in Institutions – this refers to the level of trust by households living in coastal communities to institutions disseminating weather information. This is determined by the reliability of the information disseminated either from local authorities, PAGASA, or from family and friends.

f. Disaster Preparedness

Disaster Preparedness – this term refers to the level of preparedness of an individual in terms of three dimensions such as knowledge, awareness, and attitude. These three sub-variables are defined below:

Knowledge refers to the extent to which respondents understand the information presented in weather advisories. It is measured by the correctness of information through the respondent's ability to accurately recall details from the advisories.

Awareness pertains to the respondent's recognition and understanding of current weather conditions, potential risks, and necessary public actions. It is measured by how well respondents identify the potential impacts of weather events and their awareness of specific actions to take response to advisories.

Attitude describes the respondents' reactions and willingness to act upon receiving weather advisories. It is measured by their reaction, the initial emotional and cognitive responses to the advisories, and their willingness to undertake recommended actions based on the advisories.

Chapter III

METHODOLOGY

Research Design

This study utilized a quantitative design and a descriptive causal method of research to test the influence and relationship between independent variables on risk communication factors to the dependent variables of disaster preparedness. Since survey scales and statistical data were used to determine the causal links between the variables, a quantitative design was most appropriate in this study. Inferential statistics, such as linear regression and correlation, was employed to explain the causes and effects of the variables utilized in this study, while descriptive statistics was applied to describe the characteristics of the participants (Hildreth, 2013; Hooper, et al., 2007).

Locale of the Study

This study was conducted in the coastal areas of the municipality of Gitagum, a 5th class municipality of the province of Misamis Oriental. It has a total land area of 4,340 hectares and stretches along the shoreline of the Mindanao Sea. There are 11 barangays in the municipality with five (5) located along the coast, namely: Burnay, Matangad, Pangayawan, Poblacion, and Quezon. The proponent chose this area because the municipality had recently experienced disasters which impacted the coastal barangays, specifically on coastal flooding and storm surges caused by *habagat* (southwest monsoon). Moreover, the effects of the weather impact road safety, where the highway is considered as accident-prone area. During inclement weather, some sections of the highway become flood-prone.

Respondents

The respondents of this study were the three hundred eighty-six (386) randomly selected individuals living in the coastal areas and residents living along flood prone roads in Gitagum, Misamis Oriental. A set of criteria was followed in choosing the respondents. These criteria include: a) must be a long-time resident of two years or more in one of the five (5) coastal barangays of Gitagum, and; b) must be exposed to any risk communication strategy or have received any disaster information from the local disaster risk reduction management office. Inclusion of these two criteria were crucial in order to gauge the experience and knowledge of the respondents on the process and effectiveness of the communication strategy employed by the LDRRMO.

Research Instrument

A survey questionnaire in Cebuano Visayan Language was used to gather data. The instrument was composed of three (3) parts namely the profile of the respondents in terms of gender, marital status, income, and source of income; the risk communication factors, such as message content and framing, channel of communication, timing and frequency, and trust in institutions; and the assessment of the respondents' disaster preparedness in terms of knowledge, awareness, and attitude.

Data Gathering Procedures

Prior to gathering of the actual data, a letter of permission to conduct the survey was sent to each barangay captain of the five (5) coastal barangays 15 days before the actual visit. The researcher set a schedule with the barangay captains for the

distribution of the questionnaires. The data were gathered from February 6 until March 15, 2024.

Data Analysis

Validity and Reliability of Instruments

Validity and reliability testing are very crucial to ascertain the level of quality of instruments used in this study. It ensures that the instruments used are consistent and accurate with the intended outcomes (Auzmendi, et al., 2010; Ayre & Scally, 2014). To accomplish content validity and reliability, two phases were done. First, two experts from the related field were tapped to review and approve the survey questionnaire to test the survey instrument's validity. Secondly, the reliability of the survey instrument was checked using Cronbach's Alpha. The Cronbach's Alpha (α) or *coefficient alpha* was developed by Lee Cronbach in 1951. It is a widely used reliability testing method that measures the internal consistency of the survey instrument (Hu & Bentler, 2009). Many research studies have relied on this method for reliability testing (Ayala & Manzano, 2014; Cinches, et al., 2017; Kuruppu, et al., 2018; Rohani & Amani, 2016; Teka, 2022). George & Mallery (2010), as cited by Cinches, et al. (2017), suggests that a coefficient between 0.70 to 0.90 is acceptable. Hence, a pilot study was then conducted to 30 respondents from other coastal community of the Municipality of Lugait of Misamis Oriental to determine the reliability of the survey instrument. Result was all variables of the survey instrument are reliable.

Table A shows the reliability test of the variables used in this study.

Table A. Reliability Test for All Variables

Variables	No. of Indicators	Cronbach's Alpha	Remarks
Message Content and Framing	5	.895	*Reliable
Channel of Communication	5	.891	*Reliable
Timing and Frequency	5	.906	*Reliable
Trust in Institutions	5	.850	*Reliable
Knowledge	5	.964	*Reliable
Awareness	5	.914	*Reliable
Attitude	5	.915	*Reliable

Scoring Guidelines

Table B presents the scoring guidelines and its interpretation about the respondents perceived level of knowledge on the Local Disaster Risk Reduction and Management Office communication strategies, and their level of disaster preparedness.

Table B. Scoring Guidelines and Indicators Risk Communication Strategies and Disaster Preparedness

Range	Pt. Value	Description	Interpretation
4.21 to 5.00	5	Strongly Agree	Very High
3.41 to 4.20	4	Agree	High
2.61 to 3.40	3	Moderately Agree	Moderate
1.81 to 2.60	2	Disagree	Low
1 to 1.80	1	Strongly Disagree	Very Low

Although a Likert scale for KAP was used, the data were transformed from ordinal (ranked) to interval (scores). Thus, the mean was used as the measure of central tendency and Pearson-R for the correlation of the variables.

Statistical Treatment and Procedures

To address the problems of this study, certain statistical treatments and procedures were used. Table C presents the order of the statement of the problems and its statistical treatment.

Table C. Scoring Guidelines and Indicators for Statement of the problem and Statistical Treatment

Problem	Statistical Treatment
1. How do the respondents perceive the effectiveness of the risk communication strategies of the local disaster risk reduction and management office? 1.1 Message Content and Framing 1.2 Channel of Communication 1.3 Timing and Frequency 1.4 Trust in Institutions	Descriptive Statistics – Frequency, Percentage and Mean Distribution
2. How prepared are the respondents during disaster in terms of the following preparedness dimensions? 2.1 Knowledge 2.2 Awareness 2.3 Attitude	Descriptive Statistics – Frequency, Percentage and Mean Distribution
3. How significant is the relationship between the risk communication strategies and quality of communication to the respondents' level of disaster preparedness?	Pearson-R Correlation

4. How does the risk communication strategies of the local disaster risk reduction and management office influence the respondents' level of disaster preparedness?	Multiple Linear Regression
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As presented in Table C, problem number 1 used descriptive statistics such as frequency, percentage, and mean distribution to describe the respondents' understanding of the risk communication strategies done by the LDRRMO in terms of Message Content and Framing, Channel of Communication, Timing and Frequency and Trust in Institutions. Similar descriptive statistical tool was also applied to problem number 2 to determine if perceived risk as provided by weather advisories can promote preparedness behavior among the respondents in terms of the following dimensions knowledge, awareness, and attitude.

To determine if there is a significant relationship between the risk communication strategies and the quality of communication to the respondents' level of preparedness, Pearson-R Correlation was employed for problem number 3. Finally, to test whether the LDRRMO's risk communication strategies influence the respondents' level of disaster preparedness, multiple linear regression was utilized for problem number 4.

Research Ethics and Data Management

As part of the ethical considerations, the respondents were made to be aware that (1) they should be at least 18 years old to participate; (2) their participation is

voluntary and that they can withdraw anytime if they feel uncomfortable participating in this survey; (3) their names shall be concealed in the discussion of the results of the research and if in case this research is published locally or internationally; (4) there are no known risks involved in the conduct of this study; (5) the author may send a copy of the results to the respondents, if requested; (6) the data gathered shall be secured and be treated with utmost confidentiality, and; (7) the results of this study can serve as reference for follow-up studies. Once all the filled-out questionnaires were received by the researcher, they were consolidated to an MS-Excel file. The author assumed full responsibility for the confidentiality of this survey. The questionnaires were kept safe and free from possible data outsourcing. After the findings were sought, all data stored in the researcher's electronic devices were disposed to prevent any future access.

Chapter IV

RESULTS AND DISCUSSION

This chapter provides a detailed presentation and interpretation of the data collected for this study. The analysis is presented according to the sequence of the research questions: (1) the effectiveness of risk communication strategies, (2) level of preparedness, (3) relationship between the risk communication strategies and quality of communication to the respondents' level of disaster preparedness, and (4) influence of the risk communication strategies of the Local Disaster Risk Reduction and Management Office to the respondents' level of disaster preparedness

Effectiveness of risk communication strategies

Table 1 presents the percentage and mean distribution of the respondent's perceived effectiveness of the risk communication strategies in terms of message content and framing, channel of communication, timing and frequency, and the trust in institutions by the Local Disaster Risk Reduction and Management Office.

With an overall mean of 4.16 and a standard deviation of 0.545, results suggest that participants generally agreed on the effectiveness of the risk communication strategies of the LDRRMO. The standard deviation of 0.545 suggest that responses were relatively consistent around the mean. Specifically, a substantial majority (89.7%) of participants rated the effectiveness as 'Agree' or 'Strongly Agree,' while a small proportion rated 'Moderately Agree' (9.1%), indicating potential areas for improvement. On the other hand, few respondents expressed 'Disagree' (1%) or 'Strongly Disagree' (0.3%), implying limited dissatisfaction. Based on the average

weighted mean, the results suggest that the risk communication strategies that are in use, such as the message content and framing, channel of communication and timing and frequency, are perceived to be effective, even though a small percentage of participants remained dissatisfied.

Among the specific indicators, the category 'Message Content and Framing', has mean responses ranging from 4.14 to 4.22, with all indicators, such as clarity and the ability to prepare communities, rated positively. This indicates that the content provided by the LDRRMO is considered comprehensive and understandable. The results supported findings of Taylor, et al. (2018) and Kalkstein, et al (2007) that information must be communicated, received, understood, and used by people. The results also concurred with the research of Shi et al. (2020) that the effectiveness of a risk communication depends on the quality of spread of information, the comprehension of the receiver, (Maidl, et al, 2015), and the dissemination method used (Alias, et al 2020).

In the 'Channel of Communication' category, the means were consistently above 4.15, indicating strong agreement that the LDRRMO effectively disseminates weather information through accessible and accurate methods, including radio and social media. More participants, however, affirmed that they received information from PAGASA. This means that participants were generally satisfied on how information was delivered by LDRRMO to communities in coastal areas, although more of them confirmed receiving such information directly from PAGASA. The results confirm the study of Tang et al. (2015) enumerating radio and the internet as one of the information channels utilized in coastal communities of developed societies (Lindell and Perry,

2012). Radio was also regarded as popular medium in coastal households in Australia based from the research made by Cretikos et al. (2008). In Laguna and Batangas, disaster-prone communities reportedly prefer internet and social media in sharing information (Centeno, 2022). It is, social media, in particular, that is widely used by government agencies in sharing information in times of disaster (Mora et al., 2015 and Lachlan, et al., 2014). The findings are an affirmation that coastal communities are using the modern technology in contrast to what Lejano et al. (2016) lamented that barangays lack equipment for use in communication and a limited access to internet which affects its preparedness.

The 'Timing and Frequency' of the advisories also received positive ratings, with all items averaging above 4.12, demonstrating that the timing and regularity with which weather information was communicated were appropriate. The claim of Oyekale (2015) referring timely weather forecasts as an essential adaptation initiative is supported in this study. For the LDRRMO in Gitagum, the timing and frequency of the advisory allowed communities to have adequate time to prepare. In contrast to the incident in Iligan City wherein Embornas, et al. (2021) narrated in its study that during Tropical Storm Sendong (internationally named Typhoon Washi) in 2011, the barangay DRRMO failed to notify the residents which resulted to catastrophic loss of lives and properties.

Further, in 'Trust in Institutions', there is a lower rating on reliability of information from family and peers compared to the local authority. However, a higher trust rating for PAGASA shows a nuanced perspective on the credibility of different information sources. This hints at some trust issues, particularly in the local

dissemination systems, despite a generally positive outlook. A study by Mehiriz & Gosselin (2016) revealed that only few coordinators reportedly relay weather warnings to others involved in disaster management. Lejano et al. (2016), on the other hand, revealed that the weather advisory sent out by concerned local offices during Typhoon Haiyan, lacks other crucial information other than flood warnings. Risk communication strategies have been found to be ineffective to motivate the community because of weak persuasion by local authorities (Abunyewah, et al., 2018).

The perspective of participants in this study on trust in institutions can be reflected further in the study of Peters et al. (1997) in which the authors presented that the public trust varied significantly in terms of sources of information. In this present study, the participants' reliance to PAGASA reflects the studies of Covelo (1986), Mileti, et al. (2000, 2006) and Peters, et al. (1997) where more trust is likely given to an information source that is seen to be credible and reliable. This is also noted from the research of various authors (Hagar, 2010; Ryan, 2013; Steelman et al., 2015; Taylor et al., 2007 2018) that people engage with dependable sources of information to aid in making decisions during times of disaster. Navitas's (2020) assertion that official sources are the ones more trusted by the public was supported by other research findings (Meredith et al., 2007; Mileti et al., 2006; Steelman et al., 2015). Nonetheless, this study found that both LDRRMO and PAGASA were deemed more trustworthy sources of information than relatives and peers. Haddow and Haddow (2013) explained that transparency, trust, and reliability are factors that government must include in their disaster communication.

Getting information from various sources during disaster emergencies is said to be critical according to Meredith, et al. (2007), but results of this study revealed that information coming from official sources is trusted more than informal ones (Steelman et al., 2015). On trusting the official source than family and peers, Sorensen & Mileti (1988) averred that people are seeking confirmation from reliable sources apart from receiving information from another.

Table 1. Frequency, percentage and mean distribution of the respondent's perceived effectiveness of the risk communication strategies (N=386)

Range	Pt. Value	Description	F	%
4.21 to 5.00	5	Strongly agree	191	49.5%
3.41 to 4.20	4	Agree	155	40.2%
2.61 to 3.40	3	Moderately Agree	35	9.1%
1.81 to 2.60	2	Disagree	4	1%
1.00 to 1.80	1	Strongly disagree	1	0.3%
Total				
Mean				4.16
Description				Agree
Std. Deviation				.545

No.	Indicators	Mean	SD	Description
A. Message Content and Framing				
1	The weather advisory provided by the PAGASA through LDRRMO is clear and understandable	4.22	.677	Strongly Agree
2	The weather advisory is complete with information	4.14	.736	Agree
3	The weather advisory contains visual representation on type of weather	4.16	.718	Agree
4	The weather advisory is capable to prepare the households living in coastal communities for an incoming weather disturbance	4.21	.709	Strongly Agree
5	The weather advisories received are designed to cater to the information needs of coastal communities	4.17	.746	Agree
	<i>Mean</i>	<i>4.18</i>		<i>Agree</i>
B. Channel of Communication				

6	The LDRRMO sends weather information to the barangays in a manner that it is accessible and accurate	4.15	.717	Agree
7	The LDRRMO informs households about the weather through radio	4.16	.771	Agree
8	The LDRRMO informs households about the weather through social media	4.15	.764	Agree
9	Coastal communities receive weather information directly from PAGASA	4.25	.737	Strongly Agree
10	The manner of sending information to the communities by the LDRRMO is effective	4.20	.757	Strongly Agree
	<i>Mean</i>	4.18		<i>Agree</i>
	C. Timing and Frequency			
11	The LDRRMO sends weather information to the barangays that gives us enough time to be ready	4.23	.696	Strongly Agree
12	The weather information from LDRRMO is sent immediately and accurately	4.18	.740	Agree
13	The LDRRMO always informs households about the weather through radio.	4.18	.738	Agree
14	The LDRRMO always informs households about the weather through social media	4.16	.729	Agree
15	The barangays always receive weather advisories from PAGASA	4.12	.724	Agree
	<i>Mean</i>	4.17		<i>Agree</i>
	D. Trust in Institutions			
16	We feel safe because the information dissemination about the extent of the disaster is reliable	4.10	.675	Agree
17	The communication strategies enable us to be ready because the information coming from the authorities can be trusted	4.15	.717	Agree
18	We become vigilant since the authorities have a reliable system of information dissemination about the extent of the disaster	4.17	.746	Agree
19	The barangays adhere more to the weather information from PAGASA than from the local authority	4.26	.664	Strongly Agree
20	Information from family and friends are more reliable than the local authority	3.89	.943	Agree
	<i>Mean</i>	4.11		<i>Agree</i>

Level of preparedness

Table 2 presents the percentage and mean distribution of the respondent's level of preparedness during disaster in terms of knowledge, awareness, and attitude.

With an overall mean score of 4.08, falling within the 'Agree' range, along with a low standard deviation of 0.447, results suggested most of the participants are well prepared in terms of knowledge, awareness, and attitude. This shows that majority have a positive outlook, with 92.7% of the participants (358 out of 386) agreeing or strongly agreeing that they are well-prepared. While majority feel adequately informed and ready, the presence of a small yet insignificant proportion of respondents (6.2%) who moderately agree and a small number who disagree (1%) indicates that there are areas for further improvement. However, it should be noted that there might be some concerns that needs attention to those who feel unprepared, possibly through targeted interventions or enhanced communication strategies such as enhancement of the participants level of understanding of temperature and humidity level (3.93); their level of knowledge on wind forecast and coastal water condition (3.94); as well as the type of weather system (3.94). All these indicators were rated as low by the participants.

Among the three specific categories of the indicators, 'Attitude' towards weather preparedness and response measures scored the highest, with a mean of 4.16. This may mean that the community not only receives weather information but also actively engages with it. They read advisories, follow the actions recommended by the LDRRMO and PAGASA, prepare for evacuations during typhoons, support the communication strategies employed by LDRRMO, and importantly, disseminate this

information within their social networks. As what Thieken et al. (2002) opined, attitude has an effect in a person's risk preparedness.

Following closely is the 'Awareness' category, with an overall mean of 4.13, which indicates that participants are well-informed about the timing, specifics of preemptive actions, and the sources of their weather information. Additionally, residents were informed about potential flooding preparations in low-lying areas and understood that the weather information they received was based on PAGASA advisories. This finding entails that the community is well-informed and alert to weather-related risks, which is critical for timely and effective disaster response. The results supported the research of Maidl, et al (2015) that awareness is a second predictor of people's intention to prepare for disaster. Taken into account what Perez-Lugo (2004) noted, the use of communication in raising awareness can lead to disaster preparedness. The findings, however, debunked the study of Abunyewah, et al (2018) that awareness is insufficient to motivate people to prepare for a disaster. Although, awareness affects the level of preparedness to an extent (Scolobig et al., 2012). In previous studies, although many authors find the relationship between risk awareness and disaster preparedness as either weak or ambiguous, the present study shows that variables under awareness, such as preemptive actions to take, evacuation guidelines, and source of weather information influence the respondents' level of preparedness.

Despite of the communities showing preparedness actions, their understanding on the type of weather conditions affecting coastal areas confirms the low ratings in the knowledge category. The 'Knowledge' category was rated the lowest among the

three categories with a mean score of 3.96. In the study of Yu et al. (2020), individuals with higher disaster knowledge are more likely to adopt preparedness measures, after receiving information from local authorities (Thieken et al. (2002). According to Abunyewah, et al. (2018), to motivate people in adopting preparedness measures, knowledge should be developed in parallel with awareness. Perhaps to capture learning within risk communication, local authorities may initiate citizen engagement by gathering sentiments from the public on the information they need (National Academies of Sciences, 2018; Ryherd, 2016; Steelman, et al., 2015).

Table 2. Frequency, percentage, and mean distribution of the respondent's perceived level of preparedness in terms of knowledge, awareness, and attitude (N=386)

Range	Pt. Value	Description	F	%
4.21 to 5.00	5	Strongly agree	136	35.2%
3.41 to 4.20	4	Agree	222	57.5%
2.61 to 3.40	3	Moderately Agree	24	6.2%
1.81 to 2.60	2	Disagree	4	1%
1 to 1.80	1	Strongly disagree	0	0%
Total				
Mean				4.08
Description				Agree
Std. Deviation				.447

No.	Indicators	Mean	SD	Description
	A. Knowledge			
1	Level of knowledge on forecast weather conditions (e.g. localized thunderstorms) and its impacts	3.95	.680	Agree
2	Level of knowledge on forecast wind and coastal water condition	3.94	.734	Agree
3	Level of understanding of temperature and relative humidity level	3.93	.735	Agree
4	Level of knowledge on the type of weather system (e.g. tropical cyclone warning signal)	3.94	.733	Agree

5	Level of knowledge on what to do after receiving a cyclone warning	4.06	.700	Agree
	<i>Mean</i>	3.96		Agree
	B. Awareness			
6	The level of awareness by households living in coastal barangays on weather condition are high	4.03	.640	Agree
7	Affected areas are to perform preemptive evacuation after PAGASA issues a red warning signal	4.20	.653	Agree
8	The level of awareness on the LGU's evacuation guidelines in times of coastal flooding and storm surge by households living in coastal barangays are high	4.09	.644	Agree
9	Residents in low-lying areas are advised to prepare for possible flooding during adverse weather condition	4.14	.688	Agree
10	Weather information from LDRRMO is based on PAGASA advisories	4.18	.646	Agree
	<i>Mean</i>	4.13		Agree
	C. Attitude			
11	Weather information received from LDRRMO is read by the household members	4.15	.590	Agree
12	The barangay acted on warnings received from LDRRMO and PAGASA	4.16	.704	Agree
13	The household members prepare for evacuation whenever there is a typhoon warning in the municipality	4.15	.639	Agree
14	The household members support the communication strategy from LDRRMO	4.14	.664	Agree
15	The household members relay the weather information to others (e.g. relatives, neighbors, and friends).	4.13	.702	Agree
	<i>Mean</i>	4.16		Agree

Relationship between the Risk Communication Strategies and Quality of Communication to the Respondents' Level of Disaster Preparedness

Null Hypothesis:

Ho1: There is no significant relationship between the risk communication strategies and quality of communication to the respondents' level of disaster preparedness.

Table 3 presents the results of a statistical analysis examining the relationships between the independent variable risk communication strategies in terms of Message Content and Framing (MCF), Channel of Communication (COC), Timing and Frequency (TAF) and Trust in Institutions (TII) to the dependent variables of Disaster Preparedness in terms of Knowledge (KN), Awareness (AW), and Attitude (ATT). With P-value of 0.000 in all variables, results reveal that there are significant correlations in between the variables tested.

Message Content and Framing (MCF) showed a moderate correlation with Awareness ($R = 0.457$) and Attitude ($R = 0.473$), but a weaker correlation with Knowledge ($R = 0.223$). This suggests that how messages are framed can improve people's awareness, attitudes and knowledge acquisition. Similarly, Channel of Communication (COC) shows stronger correlations with awareness ($R = 0.407$) and Attitude ($R = 0.495$) compared to Knowledge ($R = 0.231$), indicating the importance of the medium through which information is conveyed in shaping awareness and attitudes.

Timing and Frequency (TAF) appeared to have a substantial correlation, particularly on Attitude ($R = 0.604$) and Awareness ($R = 0.565$) and with a moderate correlation on Knowledge ($R = 0.296$). This implies that an improved timing and frequency of communication results to a more positive attitude and awareness. Trust

in Institutions (TII) demonstrates moderately strong correlations across all outcomes, with the highest being for Attitude ($R = 0.544$), followed by Awareness ($R = 0.480$) and Knowledge ($R = 0.390$). This indicates that the more trustworthy an institution is in conveying its message, the more it enhances the knowledge, awareness, and attitudes of people in disaster prone areas.

Overall, an enhanced risk communication strategy in terms of message content and framing, the channel of communication used, the timing and frequency of message conveyed, and the trustworthiness of the institutions conveying the message can enhance the public's disaster preparedness. The results also indicate the critical role of these communication factors in effectively disseminating information and shaping public perceptions and attitudes when it comes to disaster preparedness. With the above results, this study confirms that H_01 is not accepted because results show there is a significant correlation between the risk communication strategies and the level of disaster preparedness.

The above results confirmed the findings of Pulungan (1989) and Aleria (2008) on communication behavior that information sharing practices can be gauged by looking at the pattern of information exchange, its frequency, and the substance of the message. This behavior is linked to the acquisition or lack of information, which can be analyzed through an individual's knowledge, attitudes, and practice (Centeno, et al., 2022). For a received risk information to result to an individual's preparedness action, the risk messages should come from a trusted source of information in "clear and simple language" and through a reliable channel (Abunyewah, et al., 2018). This process is highlighted because the concerned populace first determines the

trustworthiness of the source (Basher, 2006; Granatt, 2004; West and Orr, 2007) and if the risk messages address their needs and expectations (Earle, 2004; Lion, et al., 2002; Paton, et al., 2006).

Table 3. Correlation Matrix Between Risk Communication Strategies and Quality of Communication to the Respondents' Level of Disaster Preparedness

Independent Variable (Risk Communication Strategies)		Dependent Variables (Disaster Preparedness)		
		Knowledge (KN)	Awareness (AW)	Attitude (ATT)
Message Content and Framing (MCF)	R	.223**	.457**	.473**
	P-Value	.000	.000	.000
Channel of Communication (COC)	R	.231**	.407**	.495**
	P-Value	.000	.000	.000
Timing and Frequency (TAF)	R	.296**	.565**	.604**
	P-Value	.000	.000	.000
Trust in Institutions (TII)	R	.390**	.480**	.544**
	P-Value	.000	.000	.000

** . Correlation is significant at the 0.01 level (2-tailed).

Influence of the Risk Communication Strategies of the Local Disaster Risk Reduction and Management Office to the Respondents' Level of Disaster Preparedness

Null Hypothesis:

- Ho2: a. Message content and framing does not influence respondent's level of disaster preparedness.
- b. Channel of communication does not influence respondent's level of disaster preparedness.
- c. Timing and Frequency does not influence respondent's level of disaster preparedness.

- d. Trust in Institutions does not influence respondent's level of disaster preparedness.

Table 4 shows the multiple linear regression on the test of influence of the independent variables towards the respondents' level of preparedness.

The results confirmed the findings of this study, with a constant of 1.980, suggesting the base level of Disaster Preparedness (DP) when all independent variables are zero. The adjusted R² value of 0.408 indicates that approximately 40.8% of the variability in DP is explained by the model, in which the data used in this study indicate a good fit for research. The F-value of 67.46, along with a P-value of less than 0.05, shows that the model is statistically significant, providing a substantially better fit than a model with no explanatory variables. These results highly suggest that while not all communication-related factors are significant, Timing and Frequency (TAF), along with Trust in Institutions (TII), are decisive in predicting and enhancing DP. With a corresponding respective P-value of 0.622 and 0.223 that is higher than the suggested value of 0.05, the impact of Message Content and Framing (MCF) and Channel of Communication (COC) to DP is not statistically significant. This means that MCF and COC does not significantly influence DP. The adjusted R-squared value signifies that while the model explains a substantial portion of DP variability, there is still room for other factors or variables that might also contribute to explain the dependent variable. Therefore, HO2-A and HO2-B are accepted.

Significantly, TAF exhibits a strong positive influence on DP, with a coefficient of 0.293. This substantial influence is statistically supported by a robust T-value of

5.779 and a P-value of less than 0.001, firmly establishing that as TAF scores increase in one unit, DP increases by 29%. TII also shows a positive coefficient of 0.248, which correlates strongly with an increase in DP. This relationship is highlighted by a significant T-value of 5.305 and a P-value of less than 0.001, confirming the critical role that trust in institutions plays in enhancing DP. When TII increase by one unit, DP increases by 25%.

The findings noted that the timeliness and trust in institutions influenced more the respondents' level of preparedness than the quality of weather information. These findings confirmed the study of Oyekale (2015) of which timeliness on weather advisories is important for adaptation initiative, as the timing of receiving information is crucial to motivate the community's actions (Mileti, et al., 1992, 1995). The findings also corroborated with previous studies reinforcing the importance of timing of information received by the public to motivate their actions (Mileti, et al, 1995).

Subsequently, results also revealed that trusting the source of information has significance in the disaster preparedness which reflects Steelman's et al. (2015) conclusion that it is trust that influences people's response to the information received. Trustworthiness of sources is crucial for people to take preparedness actions after receiving the warnings (Fakhrudin, et al., 2020).

Many researchers already deduced that disaster information from local officials can increase knowledge on preparedness of the communities (Yu, et al, 2020). In a coastal barangay in Iligan City, the local government provided early warnings and precautionary measures to the communities after being complacent in previous

weather disturbances and experienced the disastrous impact of Tropical Storm Sendong as a result (Embornas, et al., 2021). Abunyewah, et al (2018) disclosed that several risk communication strategies of local authorities actually lack persuasion that results to people not being motivated. In the end, it depends on the trust of the people in the government that influences local authorities perceived responsibility on preparedness (Botzen et al., 2009a; O’Sullivan et al., 2012; Eiser et al., 2012).

Conclusively, Yu et al (2020) noted that government agencies must have an effective communication strategy, as this has major influence on disaster preparedness (Vinance et al., 2021).

Table 4. *Multiple Linear Regression on the Influence of Message Content and Framing, Channel of Communication, Timing and Frequency, and Trust in Institutions to Level of Disaster Preparedness*

Independent Variables	B	T-Value	P
Message Content and Framing (MCF)	.023	.494	.622
Channel of Communication (COC)	-.057	-1.221	.223
Timing and Frequency (TAF)	.293	5.779	.000
Trust in Institutions (TII)	.248	5.305	.000
Dependent Variable	Disaster Preparedness (DP)		
Constant		1.980	
Adjusted R-Squared		.408	
F Value		67.46	
P		.000	

$$RP=1.980+0.293(TAF)+0.248(TIF)$$

Chapter V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study explored the factors influencing disaster preparedness in coastal Gitagum households, focusing on LDRRMO's risk communication strategies to assess respondents' preparedness. Specifically, this study sought to determine the following: (1) the respondents perceived effectiveness of the risk communication strategies of the LDRRMO in terms of message content and framing, channel of communication, timing and frequency, and trust in institutions; (2) their preparedness during disaster in terms of knowledge, awareness, and attitude; (3) the relationship between the risk communication strategies and quality of communication to the respondents' level of disaster preparedness, and; (4) the influence of the risk communication strategies of the LDRRMO on the respondents' level of disaster preparedness.

A quantitative design and a descriptive method were employed in this study. The respondents were given validated and reliability-tested researcher-made survey questionnaire. Three hundred eighty-six (386) individuals from the five coastal communities of Gitagum participated in this study. Results of the study revealed that communication strategies employed by LDRRMO are good, but it is timing and frequency and trust in institutions that have influence on the level of preparedness of an individual. The respondents exhibit good attitude and awareness on preparedness actions despite low level of knowledge on weather conditions.

Conclusion

The findings further indicated a high level of satisfaction from the participants with the perceived effectiveness of weather advisories in terms of message content, delivery, and timing. With this, the participants were aware of coastal weather conditions, the necessity of preemptive evacuations following severe warnings, and LGU evacuation guidelines during coastal flooding and storm surges. The findings suggested that the LDRRMO's existing educational or training activities were generally effective. Based on the results, the proactive ratings of the participants significantly enhance their community resilience and readiness for weather-related emergencies.

Although, there is a need for improvement in enhancing trust in local authority communications. Trust in local authority communications is crucial as these communities often serve as the initial point of contact during emergencies, and strengthening this trust enhances response efficacy and community resilience.

Improving the coastal communities' disaster preparedness signifies the importance of not just providing timely and frequent updates regarding potential threats, but also building and maintaining trust between the community and the institutions responsible for disaster management. The LDRRMO can enhance community readiness and resilience by maintaining quality communication and building trust, enabling effective response during disaster events. Effective risk communication should consider the various factors and target specific groups of people who may be more vulnerable or less prepared.

Majority of the participants were seen to have a strong awareness and attitude towards weather-related risks. This may imply that participants are well-informed on the risks based on the disseminated weather advisories, recognizing their seriousness, and feeling a sense of responsibility or urgency to respond appropriately. This study confirms that risk communication plays a crucial role in a community's preparedness for disasters because participants heeded the weather advisories and informed others about them. However, the knowledge scores show a slight decrease, suggesting a potential for further understanding or deepening of specific technical aspects of weather conditions. There is a need to upgrade the participants' level of knowledge particularly on weather conditions. Furthermore, timely communication is crucial during disaster preparedness. When information about potential risks and preparedness measures is communicated promptly, individuals have the necessary time to understand, plan, and take appropriate actions. Early warnings and continuous updates help individuals stay informed and prepared ahead of time, reducing the panic and confusion that can occur with last-minute information.

Recommendations

Overall, this study was done to fill in the gaps from previous studies related to perspective of residents on communication strategy employed by LDRRMO, sharing of risk communication, and effects of risk communication on preparedness of the coastal residents.

Based on the outcome of the study, the following recommendations are offered:

1. The study emphasizes the importance of enhancing the risk communication strategies of the LDRRMO, including message content and channel of

communication, to deepen understanding and address any underlying issues in future communication. The local government units may apply the development communication values of purposive and pragmatic in their risk communication strategy. They need to strengthen their messages through persuasion, awareness creation, and community interaction to understand the community's needs and preferences. To enforce this, a citizen engagement is vital. As to improving more the communication strategies on timing and frequency and on trust in institutions, which the study reveals to have more influence on the level of preparedness, the LGUs need to be proactive in sending advance and accurate information for the communities to be prepared in any incoming weather disruption. These recommendations may ultimately help build more the trust of the communities to the LDRRMO by improving the weather advisories with the audience needs in mind.

2. As for the National Government Agencies, they can efficiently assist the local government units in disaster preparedness by providing orientations on proper dissemination of PAGASA weather advisories, since the study revealed that there might be concerns needing attention for those respondents who are feeling unprepared in spite of the majority of the participants being adequately informed and prepared. Thus, the need for further research on the local situation of coastal communities. Further, a separate risk communication training workshops may be conducted by NGAs annually to include capacitating LGUs on analyzing weather data as basis of decisions for implementing their Disaster Risk Reduction and Management programs. Interventions might also be needed relative to enhancement of the participants level of understanding

on temperature and humidity level, wind forecast, and coastal weather condition, including type of weather system.

3. In the policy side, enhancing weather advisories based on PAGASA content could improve the reliability and trustworthiness of the LDRRMO, and increase community knowledge. Another recommendation is for the risk communication plan to be included in the Disaster Preparedness Outcome Area indicator of the Seal of Good Local Governance award, aiming to build community trust by improving risk communication strategies.

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ANNEXES

Annex A. Validation Sheet for Survey Questionnaire

Name of Researcher: Rochelle D. Dagang

Title of Research: Communicating Risk and Disaster Preparedness Among Coastal Communities in Gitagum, Misamis Oriental

To the Evaluator:

Please validate the survey questionnaire based on the items stipulated under each component. The following criteria and rating scale is provided below. Indicate the degree of validity for each criterion based on the attached questionnaires.

Rating Scale: 5 = very much valid 2 = not so valid
 4 = very valid 1 = not valid
 3 = moderately valid

INDICATOR	5 Very much valid	4 Very valid	3 Moderately valid	2 Not so valid	1 Not valid
1. The instruction of the questionnaire is easy to understand by the respondents.	/				
2. The questionnaire is easy to administer.	/				
3. The questionnaire has reasonable length for the respondents to answer.	/				
4. The questionnaire's items are appropriate for the level of understanding of the respondents.	/				
5. The contents are relevant to the study.	/				
6. The contents are relevant to the DRR program.		/			
7. The questionnaire's items are clearly stated.	/				
8. The questionnaire's items are focused on what they intend to measure.	/				
9. The instrument is not offensive to the intended respondents and/or any member of the community.	/				
10. The questionnaire can be used for program evaluation purposes.	/				

Comments/Suggestions/Recommendation:

Validated by: HAZEL L. OCLONA
 Position of Evaluator: Division Chief

Source:

Stephen Borgani, Principle of Questionnaire Construction, 1996 Elizabeth Martin, Survey Questionnaire Construction, 2006 Kit Howard, Validating Questionnaires Kestrel Consultation 2006; www. Scribd.com

Validation Sheet for Survey Questionnaire

Name of Researcher: **Rochelle D. Dagang**

Title of Research: **Communicating Risk and Disaster Preparedness Among Coastal Communities in Gitagum, Misamis Oriental**

To the Evaluator:

Please validate the survey questionnaire based on the items stipulated under each component. The following criteria and rating scale is provided below. Indicate the degree of validity for each criterion based on the attached questionnaires.

Rating Scale: 5 = very much valid 2 = not so valid
 4 = very valid 1 = not valid
 3 = moderately valid

INDICATOR	5 Very much valid	4 Very valid	3 Moderately valid	2 Not so valid	1 Not valid
1. The instruction of the questionnaire is easy to understand by the respondents.	/				
2. The questionnaire is easy to administer.	/				
3. The questionnaire has reasonable length for the respondents to answer.	/				
4. The questionnaire's items are appropriate for the level of understanding of the respondents.	/				
5. The contents are relevant to the study.		/			
6. The contents are relevant to the DRR program.	/				
7. The questionnaire's items are clearly stated.		/			
8. The questionnaire's items are focused on what they intend to measure.	/				
9. The instrument is not offensive to the intended respondents and/or any member of the community.		/			
10. The questionnaire can be used for program evaluation purposes.	/				

Comments/Suggestions/Recommendation:

Use the tool to enhance other survey and follow-up research.



Validated by: **DR. JOSEFINO S. BASCUG**
 Position of Evaluator: **CONSULTANT, UN-FAO (CCA-DRRM SPECIALIST)**

Source:

Stephen Borgani, Principle of Questionnaire Construction, 1996 Elizabeth Martin, Survey Questionnaire Construction, 2006 Kit Howard, Validating Questionnaires Kestrel Consultation 2006; www. Scribd.com

Annex B. Survey Questionnaire

GAMIT SA AKONG PAG SUTA UG PANGUTANA (Research Instrument)

Maayong adlaw! Ako si Rochelle, isa ka estudyante sa Graduate School sa UP Open University nga buot mahibalo sa mga lumulupyo diha sa daplin sa kabaybayunan kabahin sa pagpahibalo sa kadelikado ug pagpangandam sa umaabot nga kalamidad.

Buot nakong masayran gikan sa mga nagpuyo daplin sa baybayon kung unsa ang inyong nahibaw-an ug na sinati kung makadawat kamo ug kasayuran sa lakaw sa panahon nga gikan sa inyong MDRRMO. Ang inyong mga tubag makatabang sa akong gi-research kung sakto ug maayo ba nila kamo pagpahibalo kabahin sa mga kalamidad nga mahitabo.

Palihug basaha ang akong mga pangutana ug isulat ang tubag sa gi gahin nga luna. Markahi ug check (/) ang inyong napili nga tubag. Isa ra ang pili-a. Walay lain masayod niining inyong mga tubag.

Unang Parte. Pasiunang kasayuran bahin kanimo

Imong Ngalan (puydi dili tubagon)	
Edad	
Pagkatawo	<input type="checkbox"/> Laki <input type="checkbox"/> Bayi
Unsay Nahuman pag Eskuyal	<input type="checkbox"/> Elementarya <input type="checkbox"/> Segundarya <input type="checkbox"/> Kolehiyo <input type="checkbox"/> Mas taas pa sa Kolehiyo
Pila ang Kita matag Buwan	<input type="checkbox"/> Ubos sa Php3,000.00 <input type="checkbox"/> Php3,000.00 hangtud Php5,000.00 <input type="checkbox"/> Php6,000.00 hangtud Php10,000.00 <input type="checkbox"/> Milabaw sa Php10,000.00
Asa gikan imong kita	<input type="checkbox"/> Panarbaho <input type="checkbox"/> Panagat <input type="checkbox"/> Paninda <input type="checkbox"/> Inadlaw nga Sweldo <input type="checkbox"/> Uban pang panginabuhi-an, unsa man? _____

Ikaduhang Parte. Palihug pag tubag sa sukdanan sa imong pag-uyon sa mga pahayag:

- 5 – Uyon kayo ko
- 4 – Uyon ra ko
- 3 – Dili klaro nako
- 2 – Dili lang ko mo uyon
- 1 – Dili gyud ko mo uyon

A. Comprehension of risk communication efforts by the LDRRMO

Tubaga kung unsa gyud ka ka-uyon or dili uyon sa akong mga pahayag						
A. Ang sulod ug pag balay sa mensahe (Message content and framing)		5	4	3	2	1
	Kung adunay umaabot nga dautan nga panahon...					
1	masabtan ang mga pagbalita sa kahimtang sa panahon o weather advisory sa PAGASA pinaagi sa LDRRMO					
2	kumpleto ang sulod sa pagbalita kahimtang sa panahon o weather advisory					
3	ang pagbalita sa kahimtang sa panahon o weather advisory adunay mga makita nga hulagway kung unsang klaseha kini					
4	ang pagbalita sa panahon makapasabot para maka pangandam kamo sa umaabot nga dautan nga panahon					
5	ang pagbalita sa kahimtang sa panahon o weather advisory na ha-om sa mga lumulupyo sa kabaybayunan					

	B. Pagsubay sa Balita (Channel of communication)	5	4	3	2	1
6	ang LDRRMO nakahatag ug pahibalo sa pamaagi na dali mahibalo-an ug sakto ang balita					
7	ang LDRRMO nagpahibalo sa kabanayan kabahin sa panahon pinaagi sa radyo					
8	ang LDRRMO nagpahibalo sa kabanayan kabahin sa panahon pinaagi sa Pisbuk (Facebook) o uban social media					
9	ang mga nagpuyo sa baybay makadawat ug balita sa panahon gikan sa PAGASA					
10	epektibo gyud ang paagi sa LDRRMO sa pagpahibalo sa atong kabanayan					
	C. Tukmang Oras ug Naandan (Timing and Frequency)	5	4	3	2	1
11	ang LDRRMO nagpahibalo sa barangay kabahin sa dautang panahon nga igo kita maka pangandam daan					
12	napahibalo dayon ug sakto ang LDRRMO sa kahimtang sa panahon					
13	nagpahibalo kanunay sa mga kabanayan pinaagi sa radyo ang LDRRMO kabahin sa lakaw sa panahon					
14	nagpahibalo kanunay sa mga kabanayan pinaagi sa Pisbuk (Facebook) o uban social media ang LDRRMO kabahin sa lakaw sa panahon					
15	sige makadawat ug pahibalo ang barangay kabahin sa lakaw sa panahon gikan sa PAGASA					
	D. Pagsalig sa mga Institutions (Trust in Institutions)	5	4	3	2	1
16	kampante na mi sa mga pahibalo kung unsa man gani ang mahitabong dautang panahon					
17	katoohan ang mga balita ug pagpahibalo gikan sa mga otoridad					
18	maigmaton na kami kay katoohan man ang mga balita ug pagpahibalo gikan sa mga otoridad					
19	motuman ug motoo man gyud ang mga barangay sa mga balita kabahin sa lakaw sa panahon gikan sa PAGASA					
20	mas katoohan ang mga pagpahibalo gikan sa mga paryente ug mga higala kaysa sa otoridad					

Palihog ihulagway ang gidak-on sa imong kahibalo gamit ang taksanan sa ubos:

5 – Maayo Kaayo (Excellent)

2 – Dile Kaayo (Poor)

4 – Maayo (Good)

1 – Mas dile Kaayo (Very Poor)

3 – Sakto lang (Fair)

B. Level of preparedness

Tubaga kung unsa kadak-on ang imong kahibalo base sa ubos na sukdanan		5	4	3	2	1
	A. Kahibalo (Knowledge)					
21	Unsay sukod sa kahibalo ninyo kabahin sa lakaw sa panahon ug epekto niini sama sa dalugdog					
22	Unsay sukod sa kahibalo ninyo kabahin sa gikusgon sa hangin ug ang kondisyon sa kabaybayunan					
23	Unsay sukod sa kahibalo ninyo kabahin sa ka init sa panahon					
24	Unsay sukod sa kahibalo ninyo kabahin sa klase sa panahon, pananglitan ang signal sa bagyo					
25	Unsay sukod sa kahibalo ninyo kabahin sa kung unsa ang buhaton pagkahuman makadawat sa pasidaan sa bagyo					

Palihug pag tubag sa sukdanan sa imong pag-uyon sa mga pahayag:

- 5 – Uyon kayo ko**
- 4 – Uyon ra ko**
- 3 – Dili klaro nako**
- 2 – Dili lang ko mo uyon**
- 1 – Dili gyud ko mo uyon**

Level of preparedness

Tubaga kung unsa gyud ka ka -uyon or dili uyon sa akong mga pahayag		5	4	3	2	1
B. Kahibalo (Awareness)						
26	Taas ang lebel sa kahibalo sa kabanayan nga nanimuyo daplin sa kabaybayunan kabahin sa panahon					
27	Ang apektado nga mga lugar pabakwiton pagkahuman sa pag isyo sa PAGASA ug red warning					
28	Taas ang lebel sa kahibalo sa LGU kabahin sa paghatag ug pagtudlo sa nanimuyo sa daplin sa kabaybayonan kung adunay pagdako sa dagat ug dagko nga balod					
29	Mga nanimuyo sa ubos nga mga lugar kay mangandam pirmi sa possible nga pagbaha kung dili maayo ang panahon					
30	Ang pagpahibalo kabahin sa lakaw sa panahon sa LDRRMO kay gikan sa PAGASA					
C. Kinaiya (Attitude)		5	4	3	2	1
31	Ginabasa ang mga gipahibalo sa kabanayan nga nadawat sa LDRRMO					
32	Mituman ang barangay sa mga pahibalo gikan sa LDRRMO ug PAGASA					
33	Ang kabanayan andam na pirmi nga mo bakwit sa panahon sa bagyo					
34	Suportado sa mga banay ang pamaagi sa LDRRMO					
35	Ang miyembro sa kabanayan nagpahibalo sa mga paryente, silingan ug mga higala sa lakaw sa panahon sa ilang dapit					

Daghan kaayong salamat sa inyong pag sabot ug pag gahin sa panahon niining akong gihangyo kaninyo. Giapresyar kini pag-ayo.

Annex C. Certificate of Reliability

CERTIFICATE OF RELIABILITY

This is to certify that the following variables used for the research of Ms. Rochelle D. Dagang entitled Communicating Risk and Disaster Preparedness Among Coastal Communities in Gitagum, Misamis Oriental were tested for reliability (Cronbach Alpha) using IBM SPSS.

The results were as follows:

Variables	No of Indicators	Cronbach Alpha	Remarks
Message Content and Framing	5	.895	*Reliable
Channel of Communication	5	.891	*Reliable
Timing and Frequency	5	.906	*Reliable
Trust in Institutions	5	.850	*Reliable
Knowledge	5	.964	*Reliable
Awareness	5	.914	*Reliable
Attitude	5	.915	*Reliable

*Based on reliability criteria of value greater than or equal to .700 (George and Mallery, 2003)

This certification is given upon the request of the above-named researcher. Given this 11th day of January 2024. Attached are screenshots of the output data.

Assessed by:



Dr. Anthony Ly B. Dagang
Statistician, Lourdes College
Cagayan De Oro City

Variables	Screenshots																																																										
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Timing and Frequency

Reliability Statistics

Cronbach's Alpha	N of Items
.906	5

Item Statistics

	Mean	Std. Deviation	N
C1	3.87	.629	30
C2	3.87	.629	30
C3	3.83	.699	30
C4	3.93	.640	30
C5	3.80	.664	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
C1	15.43	5.082	.796	.878
C2	15.43	5.220	.738	.890
C3	15.47	5.085	.686	.903
C4	15.37	4.930	.843	.868
C5	15.50	5.017	.765	.885

Trust in Institutions

Reliability Statistics

Cronbach's Alpha	N of Items
.850	5

Item Statistics

	Mean	Std. Deviation	N
D1	3.80	.805	30
D2	3.80	.714	30
D3	3.83	.747	30
D4	3.73	.691	30
D5	1.67	.994	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D1	13.03	6.240	.758	.792
D2	13.03	6.447	.821	.781
D3	13.00	5.931	.948	.743
D4	13.10	6.507	.837	.779
D5	15.17	7.868	.194	.961

Knowledge

Reliability Statistics

Cronbach's Alpha	N of Items
.964	5

Item Statistics

	Mean	Std. Deviation	N
E1	3.43	.504	30
E2	3.40	.563	30
E3	3.43	.504	30
E4	3.43	.568	30
E5	3.37	.490	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
E1	13.63	4.102	.837	.965
E2	13.67	3.747	.917	.952
E3	13.63	3.964	.920	.952
E4	13.63	3.689	.940	.948
E5	13.70	4.079	.881	.958

Awareness

Reliability Statistics

Cronbach's Alpha	N of Items
.914	5

Item Statistics

	Mean	Std. Deviation	N
F1	3.57	.568	30
F2	3.67	.606	30
F3	3.63	.556	30
F4	3.67	.661	30
F5	3.67	.606	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
F1	14.63	4.930	.580	.933
F2	14.53	4.326	.802	.891
F3	14.57	4.461	.829	.886
F4	14.53	4.051	.838	.883
F5	14.53	4.189	.870	.876

Attitude

Reliability Statistics

Cronbach's Alpha	N of Items
.915	5

Item Statistics

	Mean	Std. Deviation	N
G1	3.50	.682	30
G2	3.67	.606	30
G3	3.67	.606	30
G4	3.60	.563	30
G5	3.67	.547	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
G1	14.60	4.662	.562	.947
G2	14.43	4.461	.763	.900
G3	14.43	4.323	.829	.886
G4	14.50	4.397	.876	.878
G5	14.43	4.323	.951	.865

Annex D. Letter for Punong Barangays



UP OPEN UNIVERSITY
Faculty of Information and Communication Studies
Master of Development Communication

January 19, 2024

HON. LEON M. AGUIPO, JR.
Punong Barangay
Barangay Poblacion, Gitagum
Misamis Oriental

Dear PB Aguipto:

Greetings!

Our coastal towns in Misamis Oriental had always been affected by disastrous weather disturbances all year, which includes the municipality of Gitagum. There is a need, therefore, for our coastal communities to have adequate information about the weather.

In view hereof, a study is being made on the manner and reception of risk communication efforts employed by concerned government institutions, such as the Local Disaster Risk Reduction Management Office (LDRRMO) and the Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA). The study shall determine if coastal communities receive any fair warning and are prepared for impending weather disturbance.

In this connection, as a graduate student of Master of Development Communication, may I request for your permission to conduct a survey in your barangay. There will be eighty (80) randomly selected household respondents living in coastal areas for this study. A set of criteria will be followed in this study to ensure that the results are dependable, namely: (a) the respondents must be a long-time resident of two years or more in one of the five (5) coastal barangays of Gitagum; and (b) respondents must be exposed to any risk communication strategy or have received any disaster information from the LDRRMO.

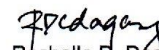
Furthermore, your assistance in distributing the provided questionnaires for the respondents will be highly appreciated. I tentatively scheduled for a brief discussion about this data gathering activity on February 6, 2024 hoping for your availability.

For questions and clarifications, you may contact MLGOO Loida A. Pelayo of DILG Gitagum. She could be approached to confirm our scheduled activity, too.

Hoping for your support to this program.

Thank you and God bless.

Sincerely,


Rochelle D. Dagang
Graduate student