

## RESEARCH ARTICLE

# Preparedness confidence and challenges on disaster management among tourism establishments in Zamboanga City, Philippines

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### ABSTRACT

The tourism industry is extensively vulnerable to the impacts of disasters, both natural and man-made, which can significantly disrupt travel patterns and economic stability. In the face of such challenges, the tourism sector must prioritize disaster risk reduction and management strategies to enhance resilience. This mixed-method paper discussed the disaster preparedness confidence and challenges of tourism establishments in Zamboanga City, Philippines. The managers and owners of hotels and resorts were purposively sampled to be surveyed (n=22) and interviewed (n=7). The findings reveal that the tourism establishments in Zamboanga City were generally confident in their disaster preparedness, particularly for natural disasters like floods, earthquakes, landslides, and fires. This confidence was demonstrated through safety measures such as warning devices, emergency kits, safety signages, and evacuation areas. However, the study also showed a lack of confidence in areas related to employee training and comprehensive evacuation planning. Managers acknowledged that their training programs were often inadequate or outdated, which limits their overall disaster readiness. Despite the high perceived confidence, overconfidence could lead to complacency, as some managers admitted neglecting thorough risk assessments and updated protocols, potentially leaving critical vulnerabilities unaddressed.

**Keywords:** disaster management; disaster preparedness; tourism

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## 1. Introduction

The incidence of disasters, both natural and human-caused events, has significantly escalated in the 21st century, attributed to factors such as climate change, political instability, and various environmental or human influences. Although efforts to mitigate their effects were present, disasters continue to cause widespread devastation across regions and industries<sup>[1]</sup>. Recent disasters, including extreme fires, droughts, earthquakes, violent shootings, terrorism, and the COVID-19 pandemic, highlight the persistent fragility of social institutions<sup>[2]</sup>.

The rapid growth of the tourism industry—from a 56-fold increase between 1950 and 2018<sup>[3]</sup> to its contribution of US\$4.7 trillion to the global GDP in 2020<sup>[4]</sup>—highlights its economic importance. Following the pandemic, it is anticipated that the industry's growth will continue to accelerate<sup>[5]</sup>. The tourism industry is

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becoming more and more acknowledged for the global impact it has on sustainable development, social progress, and economic growth<sup>[6]</sup>. However, disasters have had a significant impact on the worldwide tourism industry, which is primarily reliant on favorable weather and natural resources<sup>[7,8]</sup>. For example, in the last twenty years, several epidemics like SARS (2002), Swine Flu (H1N1, 2009), MERS-CoV (2012), and COVID-19 have had a major influence on the travel and hospitality sectors worldwide mainly affecting Asia, the Americas, and Africa<sup>[9,10]</sup>. Tourist-catering businesses in Denali National Park, Alaska, home to North America's highest peak, experienced a US\$250,000 revenue loss in one year due to rising temperatures that caused permafrost thawing and subsequent landslides<sup>[11]</sup>. In the Philippines, tropical depressions impact tourism by affecting tourist arrivals (1.3%), tourism employment rates (0.1%), and travel prices (6.5%), with weather turbulence significantly influencing transport and in-country costs<sup>[12]</sup>.

Strategic procedures are put in place to reduce the risks at certain tourist spots to keep up with the influx of visitors and the quick expansion of the tourism industry<sup>[13]</sup>. The capacity of tourism enterprises, along with local, regional, and national authorities, to effectively adjust to emerging climatic conditions—whether these conditions present opportunities or potential risks—will be significantly influenced by their recognition of and response to climate change<sup>[14]</sup>.

Disaster preparedness is an essential component of disaster response and management. Disaster preparedness involves strategies employed to anticipate and mitigate the effects of disasters<sup>[15,16]</sup>. Hystad and Keller<sup>[17]</sup> found that numerous hotels perceive risk factors and disaster relief agencies as the primary entities accountable for tourist safety during disasters, whereas hotel managers primarily focus on recovery activities. This, along with the belief that managing such disasters exceeds the capabilities of hotel management, may influence the tourism industry's willingness to adequately prepare for such incidents<sup>[18]</sup>. Brown et al.<sup>[19]</sup> believed that hotels and resorts possess limited ability to further improve their disaster preparedness. In a local study of Sangat and Estores<sup>[20]</sup>, resort management in Southern Negros Occidental, Philippines generally adheres to required standards, policies, and procedures, particularly showing higher disaster risk management preparedness during typhoons or floods compared to before and after such events.

Zamboanga City, located in the southern tip of the Philippines, is acknowledged as a melting pot of ethnic groups including the Chavacano-speaking people, Tausugs, Samals, Yakans, and Badjaos. Charles Anthony C. Rotoni, serving as the Market and Product Development Officer at the Department of Tourism Regional Office IX, articulated that a component of the local government's initiatives in reopening of its two primary beach destinations—the Great Sta. Cruz Island and Once Islas<sup>[21]</sup>. Recently, the Sta. Cruz Island was featured in Travel+Leisure website as among the Top 11 most beautiful pink beaches in the world<sup>[22]</sup>. This paper was concerned about understanding the preparedness confidence of the key players (managers and owners) of hotels and resorts in Zamboanga City, Philippines. Research emphasizes that beliefs in the benefits of preparedness actions, awareness of potential barriers, and self-confidence in executing these actions are key to improving disaster readiness<sup>[23]</sup>. Confidence, as explored in other domains like financial management and education, similarly reflects one's self-assurance in their capabilities<sup>[24]</sup>. This confidence is shaped by factors such as previous experience, resource availability, and training quality<sup>[25]</sup> and can directly impact decision-making and response during emergencies.

## **2. Literature review**

### **2.1. Tourism as an economic industry**

At the onset of the 21st century, tourism evolved into a global phenomenon and emerged as a significant driver of economic development, influencing the reputation of many nations worldwide<sup>[26,27]</sup>. International

tourism represents a component of global economic connections, influencing numerous economic sectors, comprising various social elements, and aimed at enhancing national welfare<sup>[27]</sup>. Tourism significantly contributes to gross domestic product (GDP), growth in the economy, and employment generation<sup>[28]</sup>. Jus<sup>[29]</sup> found that before COVID-19 pandemic, the tourism and travel industry had a significant economic footprint, contributing US\$9.2 trillion to the global economy, supporting 334 million jobs in 2019, and was responsible for a direct contribution of 10.4% to the global GDP.

Globalization could have positive impacts on various aspects of social life<sup>[30,31]</sup>. Since the latter half of the twentieth century, a remarkable feature of the global economy has been the nearly continuous growth of international tourist services, together with the corresponding movement of individuals and financial transactions<sup>[32]</sup>. Lukianenko et al.<sup>[33]</sup> provide an analysis of the effects of globalization, internalization, and transnationalization on the growth of the worldwide tourism industry, highlighting the distinctive institutional transformations that arise from size, structural, and various other changes within the global economy<sup>[33]</sup>. Globalization also give rise to the use of technology in tourism as the presence of online platforms (*e.g.*, Booking.com, TripAdvisor) facilitating passengers to reserve hotels, rooms, and tours directly online<sup>[34]</sup>. The tourism industry is expected to continuously evolve in the coming years. The anticipated transformation of tourism over the next thirty years is driven by heightened human life expectancy<sup>[35]</sup>, a burgeoning middle class in G20 nations<sup>[36]</sup>, the growth of digitalization, artificial intelligence, and the metaverse<sup>[37,38]</sup>, as well as the emergence of individualized, significant, and transformative experiences<sup>[39-41]</sup>.

In the Philippines, tourism also had significant impact to the economy. According to a Statista report<sup>[42]</sup>, there were 5.45 million tourists visited the country in 2023, double the 2.03 total visits in 2022 (Statista, 2024). Based on the GDP, the Tourism Direct Gross Value Added (TDGVA) contributed to Php2.09 trillion (or 8.6 percent) to the Philippine economy in 2023, which is 47.9 percent higher compared to Php1.41 trillion valuation in 2022<sup>[43]</sup>.

## **2.2. Tourism during disasters**

Although tourism serves a critical component of the global economy, it is equally susceptible to the impacts of disasters like other industries. Various types of perceived threats or disasters have impacted the global tourism industry, including natural disasters, political turmoil, terrorist activity, economic downturns, and disease outbreaks<sup>[44-46]</sup>. In a 2020 report from United Nations Office for Disaster Risk Reduction (UNDRR), natural catastrophes saw a significant rise from 2000 to 2019, leading to economic damages amounting to US\$2.97 trillion globally<sup>[47]</sup>. The development of beaches, floodplains, and other high-risk areas, along with the increasing local population, significantly raises the likelihood of damage from disasters<sup>[47]</sup>. Recently, COVID-19 impacted the tourism industry as the limitations on travel, quarantines, lockdowns, and mandatory testing has resulted in a volatile and unpredictable landscape for both business operations and travel activities<sup>[48]</sup>.

The Philippines is often regarded as a gateway to natural disasters due to its geographical location making it highly susceptible to natural calamities, including typhoons, earthquakes, volcanic eruptions, and tsunamis. Approximately 20 typhoons occurring annually, making them the most prevalent natural hazard in the Philippines, the likelihood of floods is significantly heightened in nations that experience recurring typhoons<sup>[49,50]</sup>. In the World Risk Report 2024, the Philippines has been named the most vulnerable country to extreme natural occurrences and climate change for the third year in a row<sup>[51]</sup>. Borje<sup>[51]</sup> cited the how Super typhoon "Carina" in July was exacerbated by inadequate drainage systems and excessive garbage clogging waterways such as canals and streams, resulting in major flooding in Metro Manila and surrounding

provinces. Tourism enterprises such as eateries, coffee shops, and entertainment venues were particularly hard hit, causing many to close early or suspend operations temporarily. Resort reservations, flights, and ferry timetables were all canceled or delayed, severely affecting the tourism economy.

Scholars prioritize on the management of recovery for tourism destinations, as well as the shortcomings in the classification, structure, and distribution of disasters affecting the tourism sector<sup>[52]</sup>. While numerous studies have examined the effects of disasters on tourism and its management<sup>[13,53,54]</sup>, the relationship between disasters and the tourism and hospitality industry remains complicated. Researchers have yet to provide a clear and systematic framework that covers an extensive knowledge of disaster, risk, and crises in this context<sup>[52]</sup>. Similarly, the impact of disasters, risks, and emergencies on the hospitality and tourism industries has been a subject of scholarly debate from a theoretical perspective. Consequently, this paper introduced the concept of disaster preparedness confidence to represent the psychological construct of disaster preparedness.

### **2.3. Disaster preparedness confidence**

Numerous research is examining individual disaster preparedness in relation to its psychological dimensions and emotional component within the literature<sup>[55]</sup>. Beliefs are widely recognized as motivating and stimulating variables in the cultivation of disaster preparedness practices<sup>[56,57]</sup>. The sensitivity towards disaster preparedness behaviors, the valuation of these actions, the belief in their advantages, an awareness of barriers associated with their implementation, and the self-confidence in executing these behaviors can constitute in improving disaster preparedness<sup>[23,58]</sup>. Some also considered the concept of self-efficacy<sup>[59]</sup> and motivation<sup>[49]</sup> when analyzing disaster preparedness. This paper, however, was concerned about understanding how disaster preparedness can also be attributed to a person's confidence.

In psychology, confidence is the self-assurance in one's capabilities, the conviction of one's ability to overcome challenges and achieve success, linked with the readiness to act in accordance with that belief<sup>[60,61]</sup>. This concept of confidence was consistent across different fields. For example, financial confidence conveys a psychological construct that encapsulates an individual's perception of their capability to proficiently manage and regulate their financial circumstances<sup>[24]</sup>. An individual demonstrating financial confidence is likely to deal with financial challenges with a notable sense of self-assurance, resilience, and an optimistic outlook<sup>[62]</sup>. Similarly, a person's confidence in their ability to succeed in licensing examinations may be boosted by their academic achievements and teaching background, just like the way effective study practices can enhance the confidence of learners regarding their performance in exams<sup>[63]</sup>.

Essentially, disaster preparedness confidence is a reflection of how assured individuals or organizations feel about their ability to effectively respond to and manage disaster-related risks. It is governed by self-efficacy<sup>[64]</sup>, or the belief in one's capacity to execute necessary actions during emergencies<sup>[25]</sup>. This confidence is shaped by factors such as previous experience in disaster management, the availability of resources, and the quality of training programs. In the literature, perceived susceptibility emerges as the primary variable influencing preparation behaviors<sup>[65,66]</sup>. Furthermore, insufficient resources, including time, knowledge, or social support, can significantly diminish individuals' motivation to engage in protective measures, thus creating obstacles to preparedness behavior<sup>[67]</sup>. Following these factors, a systematic review indicated that nurses lacked sufficient preparation for disasters and expressed a lack of confidence in their ability to respond effectively<sup>[68]</sup>. However, the context of preparedness confidence in tourism industry was less explored. While some studies have examined broader practices within the sector, the specific role of confidence in preparedness—how hotel and resort managers, staff, and stakeholders perceive their readiness to handle crises—remains under-researched. This gap was significant because preparedness confidence can

directly influence decision-making during emergencies, affect the speed of response, and determine the adequacy of preventive measures taken.

### 3. Methods

#### 3.1. Research design

This paper employs a mixed-method research approach to examine the confidence of managers and owners in their preparedness for disasters. Mixed-method can be described as a process that involves the collection, analysis, and combination of quantitative and qualitative information at a certain step of the research process within a single study<sup>[69]</sup>. The term “mixing” suggests that the information or the findings were combined and/or connected at one or more stages along the course of the research<sup>[70]</sup>. Specifically, this paper was governed by explanatory design that aim to describe the confidence of the managers and owners, as well as identify their challenges in maintaining preparedness within their organization. Explanatory design is a relatively straightforward mixed methods approach, utilizing qualitative findings to illuminate, strengthen, clarify, or expand quantitative outcomes<sup>[71]</sup>. This paper has the explanatory mixed-method model shown in the **Figure 1**.

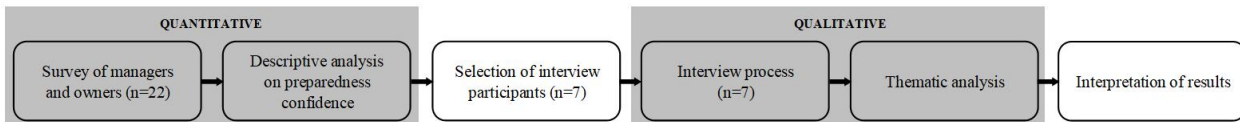


Figure 1. Mixed-method explanatory design.

#### 3.2. Participants and sampling technique

Participants were purposively sampled to be interviewed in this study. Purposive sampling methods are widely applicable across various research paradigms and facilitate the identification of quality samples through reducing biases, hence enhancing the reliability and credibility of the findings<sup>[72]</sup>. In selecting the participants, the researchers identified hotels and resorts in Zamboanga City, Philippines that have been operating (with license) for more than three years. Using Google Maps to identify potential hotels/resorts to be studied, there were 22 establishments selected, each had a representative to participate in the study, *i.e.*, either the owner or the manager.

**Table 1** presents the summary of participants’ age (in years) and management experience (in years). The average age of the owners/managers was 42.5 years while the average management experience was 14.14 years.

Table 1. Summary of the participants’ age and management experience.

Variable	Mean	Median	StDev.	Minimum	Maximum
Age (years)	42.5	42	7.94	29	55
Management Experience (years)	14.14	12	7.24	5	30

**Table 2.** presents the summary of participants’ according to their sex, role, and establishment.

Table 2. Summary of participants’ profile based on sex, role, and establishment.

Variable	Category	Frequency	Percentage (%)
Sex	Male	12	54.5
	Female	10	45.5
Role	Owner	11	50

	Manager	11	50
Type of Establishment	Hotel	11	50
	Resort	11	50

After the survey was conducted, participants (n=7) were selected for follow-up interviews. Participants in the interview process were selected randomly using random number assignment for each of them.

### 3.3. Research instrument

A Likert-scale was developed to gather the responses from the study participants. Likert scale instruments are frequently employed to evaluate psychological constructs, delineating a particular dimension of a someone's affect or thinking that can be methodically characterized and quantified<sup>[73]</sup>. The Likert scale consists of a series of interconnected statements related to an actual or hypothetical scenario, prompting participants to express their level of agreement on a numeric scale, with each item contributing to a measurement of a specific aspect of an attitude<sup>[74]</sup>. This paper divided the preparedness confidence into 5 constructs (types of disasters), each had 7 items.

To ensure the reliability of the questionnaire, a panel was formed, consisting of disaster risk reduction experts, engineers, and other relevant professionals. These individuals brought diverse expertise from fields such as emergency management, urban planning, and environmental science. The panel assessed whether the questions accurately captured the necessary information related to disaster preparedness and resilience, ensuring that the instrument was reliable for the study's purposes<sup>[75]</sup>.

Cronbach's alpha was also used to determine the credibility of the questionnaire. Internal consistency pertains to the degree to which items in an instrument or test assess the same construct<sup>[75]</sup>. Internal consistency is estimated using coefficient alpha index<sup>[76,77]</sup>, commonly set to 0.7 threshold<sup>[75]</sup>. As shown in **Table 2**, the questionnaire was sufficient in measuring the preparedness confidence of the participants.

**Table 2.** Computed cronbach's alpha of the questionnaire.

Questionnaire Subscales	Items	Cronbach's Alpha
<i>Preparedness Confidence (Hotel)</i>		
Flood	7	0.947
Earthquake	7	0.905
Landslide	7	0.879
Soil Erosion	7	0.885
Fire	7	0.894
<i>Preparedness Confidence (Resort)</i>		
Flood	7	0.871
Earthquake	7	0.927
Landslide	7	0.872
Soil Erosion	7	0.872
Fire	7	0.878

An interview guide was also developed to be used in the one-on-one interview process. An interview guide comprises a sequence of meticulously formulated questions and prompts that direct the dialogue, ensuring that the essential issues relevant to the study objectives are addressed<sup>[78]</sup>. The guide offers a definitive interview structure while permitting flexibility<sup>[79,80]</sup>, allowing the interviewer to investigate

additional themes or pursue intriguing responses that may emerge throughout the interview<sup>[81]</sup>. **Table 3** presents the interview guide questions in this study gathering the responses about the participants' challenges in disaster management.

**Table 3.** Guide questions as an interview framework.

<b>Thematic Identifiers</b>	<b>Interview Questions</b>
Overconfidence and False Assumptions	<ul style="list-style-type: none"> <li>• Can you describe a time when your hotel/resort assumed it was fully prepared for a disaster but encountered unforeseen challenges?</li> <li>• How do you assess the effectiveness of your disaster preparedness measures?</li> <li>• How would you evaluate your employees' awareness and preparedness for handling emergencies?</li> </ul>
Employee Training and Awareness	<ul style="list-style-type: none"> <li>• What training programs or drills are currently in place to improve staff readiness during disasters?</li> </ul>
Challenges in Creating Backup Plans	<ul style="list-style-type: none"> <li>• What difficulties have you faced when developing backup plans for disaster management?</li> <li>• How have past experiences shaped your approach to preparing for future disasters?</li> </ul>
Lack of Local Government Support	<ul style="list-style-type: none"> <li>• How has the support (or lack thereof) from local government and barangays affected your disaster preparedness efforts?</li> <li>• What role do you believe local authorities should play in supporting disaster readiness?</li> </ul>
Financial Constraints in Disaster Preparedness	<ul style="list-style-type: none"> <li>• What financial challenges have you faced in implementing disaster preparedness measures?</li> <li>• How do financial limitations affect your ability to upgrade infrastructure for disaster resilience?</li> </ul>
Comprehensive Risk Assessments	<ul style="list-style-type: none"> <li>• How often do you conduct risk assessments for potential disasters?</li> <li>• What factors do you consider when assessing the risks specific to your hotel/resort?</li> <li>• Have you sought external expertise in disaster management?</li> </ul>
Collaboration with Experts	<ul style="list-style-type: none"> <li>• How has collaborating with disaster management experts impacted your preparedness strategies?</li> </ul>
Inadequate Planning and Proactive Measures	<ul style="list-style-type: none"> <li>• What proactive measures have been taken to address potential disaster risks at your hotel/resort?</li> <li>• What are the biggest obstacles to comprehensive disaster planning in your establishment?</li> </ul>

### **3.4. Data gathering procedure**

The researcher obtained approval from the management of the hotels and resorts where data was collected, ensuring compliance with institutional and ethical guidelines. An invitation letter, along with a consent form for participants, was sent to the management to facilitate the recruitment process. The consent form included detailed information about the study's purpose, procedures, and the rights of participants. Participants were required to affix their signatures on the consent form to confirm their understanding and agreement to partake in the research.

In gathering the quantitative data, the participants were provided with a questionnaire that contained the specific scale utilized in the study. This questionnaire was designed as a checklist, allowing participants to systematically fill out the necessary information in response to each item. Participants were assured that their responses would remain confidential.

A semi-structure interview was conducted after gathering the quantitative data. The interview started with an introduction of the study objectives, purpose, terms for confidentiality, and the use of data. A semi-structured interview guide, consisting of key thematic questions, was utilized to direct the conversation while allowing for spontaneous follow-up questions based on the participant's responses. As the interview progressed, the interviewer carefully recorded responses, either through detailed notes or audio recording (with the participant's consent), to capture the nuances of the discussion. After the interview, the collected data was transcribed and analyzed for recurring patterns and themes.

### 3.5. Data analysis

Jeffreys's Amazing Statistics Program (JASP) version 0.18.2 was used to analyze the quantitative data. Weighted mean (denoted as  $\bar{x}$ ) was utilized to determine the disaster preparedness confidence of hotel and resort owners/managers in Zamboanga City, Philippines. The weighted mean is a statistical measure that provides an average of a set of values, considering the relative importance or weight of each value in the dataset. To calculate the weighted mean, each value is multiplied by its corresponding weight then summated, as shown in the equation below.

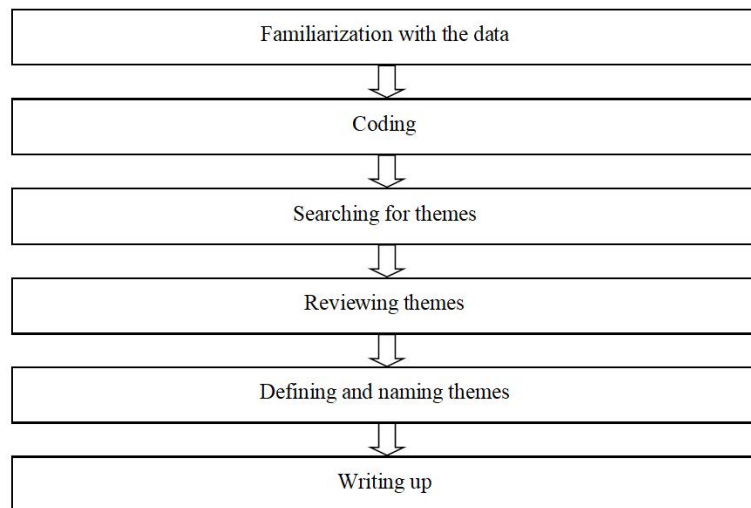
$$\text{Weighted mean } (\bar{x}) = \frac{\sum w_i x_i}{\sum w_i}$$

Where:

$x_i$  represents the weight associated with the  $i$ -th observation

$w_i$  represents the weight of data values

For the narrative data from one-on-one interviews, reflexive thematic analysis was used. Thematic analysis facilitates the identification and understanding of common meanings and experiences by concentrating on the determination of statement implications within a data set<sup>[78,82]</sup>. The themes emerge from the connection of the researcher to the data, influenced by their values, experiences, and underlying assumptions<sup>[83]</sup>. The coding process in reflexive thematic analysis exhibits a degree of flexibility and development, permitting codes to adjust in response to the researcher's growing understanding of the data. The subjective nature of coding is highlighted, necessitating that researchers remain *reflexive* regarding the potential impact of their perspectives on the analysis<sup>[84]</sup>. Braun and Clarke<sup>[83]</sup>, as shown in **Figure 2**, suggested to follow the six phases of reflexive thematic analysis in analyzing the narrative data.



**Figure 2.** Phases of reflexive thematic analysis.

## 4. Results

### 4.1. Preparedness confidence of hotels

**Table 4** presents the summary of the descriptive analysis conducted for preparedness confidence. As shown, the hotel owners and managers believed their establishment was *highly prepared* ( $\bar{x}=3.728$ ) for any disaster to come. Specifically, they feel highly prepared for disasters like flood ( $\bar{x}=3.70$ ), earthquake ( $\bar{x}=3.72$ ), landslide ( $\bar{x}=3.72$ ), soil erosion ( $\bar{x}=3.72$ ), and fire ( $\bar{x}=3.78$ ). Consequently, they were positive about how prepared their establishment is when a disaster comes.



**Table 4.** Preparedness confidence of hotel owners and managers.

Type of Disaster	Preparedness Level ( $\bar{x}$ )	Description
Flood	3.70	Highly Prepared
Earthquake	3.72	Highly Prepared
Landslide	3.72	Highly Prepared
Soil Erosion	3.72	Highly Prepared
Fire	3.78	Highly Prepared
<b>Composite mean</b>	<b>3.728</b>	<b>Highly Prepared</b>

*Note:* 1.00-1.74 (Least Prepared); 1.75-2.49 (Less Prepared); 2.50-3.24 (Moderately Prepared); 3.25-4.00 (Highly Prepared)

## 4.2. Preparedness confidence of resorts

**Table 4** summarizes the descriptive analysis conducted for preparedness confidence. As presented, the resort owners and managers believed their establishment was *highly prepared* ( $\bar{x}=3.516$ ) in times of disasters. Specifically, they were positive about their preparation for flood ( $\bar{x}=3.48$ ), earthquake ( $\bar{x}=3.47$ ), landslide ( $\bar{x}=3.54$ ), soil erosion ( $\bar{x}=3.53$ ), and fire ( $\bar{x}=3.56$ ). It appears that the resort owners and managers were confident in their preparedness.

**Table 4.** Preparedness confidence of resort owners and managers.

Type of Disaster	Preparedness Level ( $\bar{x}$ )	Description
Flood	3.48	Highly Prepared
Earthquake	3.47	Highly Prepared
Landslide	3.54	Highly Prepared
Soil Erosion	3.53	Highly Prepared
Fire	3.56	Highly Prepared
<b>Composite mean</b>	<b>3.516</b>	<b>Highly Prepared</b>

*Note:* 1.00-1.74 (Least Prepared); 1.75-2.49 (Less Prepared); 2.50-3.24 (Moderately Prepared); 3.25-4.00 (Highly Prepared)

## 4.3. Challenges in disaster preparedness

Thematic analysis extracted the responses about the challenges of hotel and resort owners and managers during disasters. Themes were generated to identify common challenges that the establishment experiences. There were five major challenges that the hotel and resort owners and managers in Zamboanga City, Philippines are experiencing: false assumption, training and awareness, planning, lack of government support, and financial constraints.

### Theme 1: False assumption

Overconfidence and false assumptions among hotel management surfaced as a major barrier, as participants disclosed situations in which they mistakenly thought their businesses were completely equipped to handle upcoming crises.

For instance, a significant flooding event revealed that the hotel's misplaced confidence in its existing infrastructure led to serious shortcomings in disaster preparedness. This underscores the importance of conducting thorough risk assessments and regularly updating disaster plans to address emerging threats effectively.

Resort establishments face serious risks from risky assumptions and overconfidence in their ability to plan for disasters. Participants related incidents in which they thought their resorts were adequately prepared to endure approaching disasters, only to be confronted with catastrophic outcomes when disasters materialized.

“In our case, we experience severe flooding last time, in relation to this we had challenges on disaster preparedness on false confidence that we will not get flooded, and the resort is already equipped with such facilities.”

“Typhoons, storm surges, and flooding occurred due to our false assumptions that the resort could withstand them.”

#### Theme 2: Training and awareness

Participants also pointed out that a significant obstacle is the ignorance of hotel employees about emergency preparedness. Hotel staff may find it difficult to react appropriately to unplanned emergencies without the right training and awareness campaigns, endangering the security of both visitors and staff. Staff members can be sufficiently prepared to handle emergencies by addressing this issue and putting in place thorough training programs and frequent drills.

For resort owners and managers, challenges are made worse by the lack of training among resort employees, who find it difficult to react appropriately to crises and put both the lives of visitors and staff at risk. To solve this problem and make sure that employees are properly prepared to manage unanticipated calamities, extensive training programs and frequent drills are essential.

“The only problem we may encounter is the awareness of our staffs on how to handle unforeseen disaster.”

#### Theme 3: Planning

Creating a workable backup plan turned out to be another big obstacle for hotels trying to be prepared for disasters. Especially considering their past experiences, developing methods to appropriately address disaster risks might be challenging. For the managers and owners, this highlighted how important it is to draw lessons from the past and keep improving backup plans to handle new challenges. Working with professionals in disaster management and carrying out exhaustive risk assessments can help create strong backup plans customized to meet the unique requirements of every hotel.

“For our resort, we experienced severe flooding. Our fence and some glass were destroyed during the flooding. It happened because we thought the water level could be controlled.

“We also made mistakes in planning the walling.”

“Soil Erosions due to big waves and lack of proper planning.”

#### Theme 4: Lack of government support

Another major challenge that owners and managers mention was the lack of support from the barangay and local government. For them, policies and infrastructure improvements cannot be properly implemented without enough direction and assistance. This lack of support was especially noticeable after disasters like typhoons when vital infrastructure like reef rafts was destroyed because local officials did not provide enough assistance.

These difficulties are further compounded by the lack of comprehensive planning; significant flooding and structural damage have been linked to resort management's inadequate response to disaster preparedness. Participant responses represent the critical need for proactive planning and collaboration with local authorities to mitigate risks effectively.

“Last 2019, we experienced typhoon and storm surge which destroyed our reef rafts and cottages, due to lack of planning and support from the barangay and LGU.”

#### Theme 5: Financial constraints

Lastly, resorts have financial challenges in their efforts to be disaster-ready, especially when it comes to the costs of infrastructure improvements like building retaining walls. Participants noted the difficulties presented by tight funds, which make it difficult for them to put effective disaster preparedness measures in place.

Despite these challenges, resorts must prioritize funding for preparedness programs to increase resilience and provide protection from calamities in the future. Resorts may get over their financial obstacles and improve their preparation by working with professionals in disaster management and investigating affordable options.

The participants suggested to prioritize funding for disaster preparedness programs, train staff, and collaborate closely with local authorities to protect the security and welfare of visitors and staff during emergencies.

“Expenses in the construction of retaining walls.”

## 4. Discussion

Descriptive analysis indicated that the hotel and resort owners and managers were highly positive about their disaster preparedness. They feel highly prepared about their level of preparedness when disasters like flood, earthquake, landslide, soil erosion, and fire came. Preparedness confidence refers to the degree of assurance that individuals or organizations feel regarding their ability to effectively respond to and manage potential disasters.

Disaster preparedness confidence can be described as the level of assurance and self-reliance that individuals or organizations possess regarding their ability to effectively respond to and manage disaster risks. This confidence stems from their perceived readiness to handle various emergencies, such as natural disasters (floods, earthquakes, landslides) or man-made crises (fires, infrastructure failures). Confidence, in essence, is the belief or trust an individual has in their abilities, decisions, or the effectiveness of certain actions<sup>[61,85]</sup>. When a disaster comes, organizations react to the disaster in connection with their agendas, while insufficient resources and a lack of confidence within these organizations hinder knowledge sharing among hospitality entities<sup>[86]</sup>. It was apparent in this study that hotels and resorts in Zamboanga City, Philippines were confident about their disaster preparedness, especially in times of floods, earthquakes, landslides, fire. For example, they equip their establishments with warning devices, emergency kits, safety signages, and designated evacuation areas.

However, descriptive analysis revealed that the managers and owners were less confident when it comes to training and having evacuation plans. Qualitative analysis further reinforced these findings, with several participants acknowledging the need for improved training initiatives and comprehensive evacuation procedures. Specifically, they admitted that their training programs for employees were either insufficient or

outdated, limiting their ability to effectively manage emergencies. For example, one manager explained that their establishment *lacks planning*, which caused them to have ineffective measures when a disaster came. In fact, one also explained that this should become a *lesson* for them to make their disaster preparedness measures more compact. In disaster preparedness, low confidence can be influenced by various factors such as inadequate training, insufficient resources, or a lack of clear plans and strategies. People feel less confident about what they are doing if they sense uncertainty or doubt about their abilities, knowledge, or the adequacy of the resources available to them<sup>[87,88]</sup>. The consequences of disasters have intensified due to inadequate preparedness and planning for forthcoming hazards, resulting in more serious impacts and a prolonged regression to the intended outcome<sup>[86,89]</sup>.

Although disaster preparedness confidence might not be sufficient to represent the general preparedness of an entity to disasters, it still can be an indicator of their perceived readiness. Confidence can serve as a driving force that propels actions and outcomes. For example, in the context of language learning, as students gain greater confidence in their first language, there is often a corresponding increase in their sociability, outgoing behavior, and open-mindedness<sup>[90]</sup>. Following this logic, it might be possible that when a manager or owner feels confident about their disaster preparedness, they are more likely to take proactive steps in crisis management, such as implementing comprehensive safety protocols, conducting regular staff training, and communicating effectively during emergencies. However, one important consideration is the risk of overestimating confidence, which can lead to complacency and inadequate preparedness. Qualitative analysis revealed that when individuals feel overly confident in their disaster readiness, they may neglect to conduct thorough risk assessments, fail to update safety protocols, or overlook critical gaps in their emergency plans. This misplaced confidence can result in significant vulnerabilities when a real crisis occurs, as they may be unprepared to handle the full scope of the disaster.

## **5. Conclusion**

The study revealed that hotel and resort owners and managers in Zamboanga City, Philippines exhibited a high degree of confidence in their disaster preparedness, particularly in their ability to handle natural disasters such as floods, earthquakes, landslides, and fires. This preparedness was reflected in the implementation of basic safety measures, such as emergency kits, warning devices, and designated evacuation areas. However, despite their confidence, gaps remained in specific areas, such as training programs and evacuation planning, where the respondents feel less prepared. This lack of training and outdated or incomplete evacuation plans indicates potential vulnerabilities in their disaster strategies. Confidence in preparedness, while essential, should not replace the need for continuous assessment and improvement, as overconfidence may result in complacency and inadequate disaster response during actual emergencies.

The findings suggest that while confidence can motivate proactive disaster preparedness, there is a critical need to balance this confidence with ongoing training and thorough disaster planning. For hotel and resort establishments, this means investing in regular employee training programs, updating evacuation plans, and performing continuous risk assessments to ensure comprehensive readiness. Policymakers and local authorities should also collaborate with the hospitality sector to offer support and resources, ensuring that preparedness strategies evolve to meet emerging threats. A more integrated approach to disaster, combining psychological components (like confidence) with structural components (like evaluation planning), can equip establishments to handle disasters effectively and protect both employees and guests.

This study was limited in scope to hotel and resort owners and managers in Zamboanga City, which may not reflect the disaster preparedness of similar establishments in other regions. The study also focused

heavily on self-reported confidence, which may be subject to bias, especially in the absence of objective measures of preparedness. The qualitative findings highlighted the importance of training and evacuation planning, but further research was needed to explore how these elements can be systematically improved across the hospitality sector. Lastly, while confidence in preparedness was a focal point of the study, actual preparedness practices and outcomes during real disaster events were not directly assessed.

## **Conflict of interest**

The authors declare no conflict of interest.

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