

# Awareness of Beach Safety Among Beachgoers in Unpatrolled Beaches in Partido, Camarines Sur

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**Abstract:** This study investigates the awareness of beach safety measures among beachgoers frequenting unpatrolled beaches, highlighting their knowledge, attitudes, and practices related to water safety. Data were collected through surveys measuring respondents' understanding of safety protocols, intentions to adopt safe practices, and reliance on personal judgment or external guidance. The findings revealed low awareness of critical safety measures, such as recognizing rip currents, interpreting warning signs, and the importance of swimming in safe zones, increasing the risk of accidents. The study focused on assessing the awareness of beach safety measures among beachgoers frequenting unpatrolled beaches, highlighting their knowledge, attitudes, and practices related to water safety in San Jose, Camarines Sur. The study employed the Analysis of collected data using Microsoft Excel or R Studio. The study underscores the need for targeted education and interventions, including enhanced signage, public awareness campaigns, and community engagement, to improve safety practices and reduce risks associated with unpatrolled beaches.

**Keywords:** Beach Safety Awareness; Unpatrolled Beaches; Hazard Recognition; Risk Perception and Behavior; Coastal Safety Interventions.

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## I. INTRODUCTION

Beaches are popular destinations for recreation and relaxation, attracting millions of tourists annually. Partido, Camarines Sur, is a district known for its pristine and picturesque beaches, drawing visitors from around the world. However, beach safety is a critical concern that needs to be addressed to ensure the wellbeing of beachgoers. Unpatrolled beaches, in particular, pose risks to visitors due to the absence of lifeguards and other safety personnel. Consequently, the awareness of beach safety among beachgoers in such locations is of paramount importance to reduce the likelihood of accidents and drowning incidents.

Beach safety encompasses various aspects, including water conditions, marine life, weather, and the behavior of beachgoers themselves {Gensini & Ashley, 2017}. Previous research has highlighted that the majority of beach-related accidents and drowning incidents can be attributed to the lack of knowledge and understanding of potential hazards {Brannstrom et al., 2015}. Therefore, awareness of beach safety measures is crucial to prevent such accidents and ensure a safe and enjoyable experience for beachgoers.

In recent years, researchers have explored the role of public awareness campaigns, educational programs, and signage in enhancing beach safety (Sherker et al., 2014; Hatfield et al., 2017). These studies have emphasized the

need for a multifaceted approach that targets different population groups and leverages various communication channels to promote beach safety awareness. Additionally, researchers have investigated the role of social and cultural factors in shaping beachgoers' perceptions and attitudes towards beach safety (Fernandez-Munoz et al., 2019). Understanding these factors is essential to develop targeted and culturally appropriate interventions aimed at improving beach safety awareness.

Despite the growing body of literature on beach safety, there is a dearth of research focusing specifically on unpatrolled beaches. In the context of Partido, Camarines Sur, the majority of beaches are unpatrolled, leaving beachgoers at a higher risk of accidents due to the lack of professional supervision and assistance. Furthermore, the extent of beach safety awareness among beachgoers visiting these unpatrolled beaches remains largely unexplored. Consequently, this research aimed to address this gap in the literature by investigating the level of awareness of beach safety measures among beachgoers in unpatrolled beaches in Partido, Camarines Sur.

This study drawn upon recent findings in the field of beach safety research to inform the development of a comprehensive survey, assessed beachgoers' knowledge of beach safety measures, their attitudes towards risk-taking behaviors, and their self-reported practices in relation to

beach safety (Castelle et al., 2018; Wilks et al., 2020). The survey supplemented by qualitative data collected through interviews with beachgoers. The triangulation of the gathered qualitative data with secondary sources enabled a nuanced understanding of the factors influencing beach safety awareness and inform the development of targeted interventions to improve safety measures on unpatrolled beaches in Partido, Camarines Sur.

The recent drowning incident in Dolo, San Jose, Camarines Sur had pushed the researcher to conduct this study. The awareness of beach safety among beachgoers in unpatrolled beaches in Partido, Camarines Sur was a critical issue that warrants attention from researchers, policymakers, and beach management authorities. By shedding light on the current state of beach safety awareness in this region, this study contributed to the growing body of knowledge on beach safety and provide valuable insights to inform the design and implementation of effective safety interventions in unpatrolled beach settings.

## II. REVIEW OF RELATED LITERATURE

Beach environments present complex and dynamic conditions that require a high degree of awareness from visitors, particularly in unpatrolled settings where professional supervision is absent. Research across various coastal regions has consistently demonstrated that limited understanding of beach hazards significantly increases the risk of accidents, injuries, and drowning incidents (Brannstrom et al., 2015; Gensini & Ashley, 2017).

Globally, drowning remains a critical public health concern, with coastal drownings strongly associated with inadequate knowledge of surf conditions, rip currents, and basic safety protocols (WHO, 2021). These findings highlight the crucial role of hazard recognition and safety awareness among beachgoers, especially in areas without lifeguard presence.

### ➤ *Beach Safety Knowledge and Awareness*

Beach safety awareness encompasses knowledge of beach conditions, currents, wave patterns, marine life, and weather phenomena that affect swimming safety. Studies have emphasized that awareness of hazards—particularly rip currents—is a primary determinant of beach safety behavior (Castelle et al., 2016; Hatfield et al., 2017). Rip currents, the leading cause of surf-related rescues worldwide, are often poorly recognized by the general public (Sherker et al., 2014). Research conducted in the United States, Australia, and Brazil found that even frequent beach visitors demonstrate limited ability to identify rip currents in real beach photographs, indicating a gap between perceived and actual hazard recognition skills (Brannstrom et al., 2015; Castelle et al., 2016).

In the Philippines, where many beaches are unpatrolled, public understanding of beach safety remains an emerging research area. Local studies suggest that beachgoers rarely receive formal education on coastal

hazards and often rely on personal judgment or informal knowledge from peers (Gonzales & Liggayu, 2020). Such limited awareness can lead to overestimation of personal abilities and underestimation of environmental risks, particularly in surf zones known for strong currents and changing water conditions.

### ➤ *Attitudes, Risk Perception, and Behavioral Factors*

Research shows that attitudes and perceptions strongly influence safety practices at beaches. Beachgoers often prioritize recreation and aesthetics over safety considerations, leading to a false sense of security (Fernandez-Muñoz et al., 2019). Hatfield et al. (2012) found that individuals tend to underestimate risks in familiar environments, even when those areas have a history of drowning incidents. Meanwhile, Wilks et al. (2020) reported that confidence in swimming ability does not necessarily correlate with actual preparedness, as many confident swimmers lack proper hazard identification skills.

Overconfidence and risk-taking behaviors are particularly pronounced in unpatrolled beaches, where the absence of lifeguards may lead beachgoers to underestimate the seriousness of potential hazards (Sherker et al., 2014). Studies also indicate that safety attitudes are shaped by demographic factors—such as age, gender, and education—as well as prior experiences with water activities (Uebelhoer et al., 2022). Younger individuals, for example, may perceive unpatrolled beaches as less risky compared to older adults, influencing their willingness to swim in unfamiliar conditions.

### ➤ *Safety Practices and Preventive Behavior*

Effective safety practices—such as reading warning signs, swimming with a companion, checking weather updates, and staying within one's swimming depth—are essential for risk reduction in surf beach environments. Research highlights that lifeguard presence dramatically reduces drowning incidents because lifeguards both rescue swimmers and communicate hazards effectively (Taylor et al., 2017). However, in unpatrolled beaches, responsibility shifts entirely to beachgoers. Studies show that individuals with higher safety knowledge are more likely to engage in precautionary behaviors, including the use of flotation devices and adherence to posted warnings (Ballantyne et al., 2005).

Despite the importance of safety practices, many beachgoers rely primarily on visual assessment of water conditions, which can be inaccurate. Sherker et al. (2014) found that most beachgoers cannot distinguish dangerous currents from calm-looking water, leading them to enter unsafe zones. Limited training in first aid and emergency response further limits effective community-based safety interventions, particularly in remote and rural coastal areas (Arias et al., 2019).

### ➤ *Role of Safety Campaigns, Education, and Signage*

Public education has been recognized as a critical strategy in promoting beach safety. In Australia, New Zealand, and the United Kingdom, extensive safety

campaigns and visual signage have significantly improved awareness of rip currents and surf hazards (Hatfield et al., 2017; Sherker et al., 2014). Multimedia campaigns, social media awareness initiatives, and school-based programs have been found effective in improving hazard recognition and safe swimming practices (Wilks et al., 2020).

However, the effectiveness of signage varies depending on design, language, cultural relevance, and placement. Studies in Asia and South America indicated that many beachgoers either fail to notice safety signs or do not fully understand the symbols used (Brannstrom et al., 2015). For maximum impact, researchers recommend simple, culturally adapted signage with clear instructions supported by community education programs (Fernandez-Muñoz et al., 2019).

### III. RESEARCH OBJECTIVES

The study aimed to assess the awareness of beach safety measures among beachgoers in unpatrolled beaches in Partido, Camarines Sur, and identify the factors influencing their awareness in order to provide recommendations for improving safety measures and reducing the risk of accidents and drowning incidents in these areas.

Specific Objective/s specifically, it sought to answer the following questions:

➤ *Determine the Level of Knowledge and Understanding of Beach Safety Measures Among Beachgoers in Unpatrolled Beaches in Partido, Camarines Sur, in Terms of:*

- Basic awareness (Do beachgoers know the beach is

- unpatrolled and what common hazards like rips are?),
- Hazard recognition (Can beachgoers actually identify dangers like rip currents?),
- Hazard understanding (How accurately can beachgoers explain dangerous phenomena like rip currents?),
- Safety practices (Do beachgoers know meaning of flags, role of lifeguards, safe swimming tips?), and
- Ability (How highly do beachgoers rate their ability to recognize hazards [perceived] and how accurately can beachgoers apply knowledge when tested [actual]?).
- Examine the attitudes of beachgoers in relation to beach safety and risk-taking behaviors, in terms of:
- Risk perception (Do beachgoers see unpatrolled beaches as low vs high risk?),
- Confidence (How assured do beachgoers feel in abilities like swimming or recognizing hazards?),
- Reliance (How much do beachgoers depend on or value safety features like lifeguards?),
- Personal responsibility (How accountable do beachgoers feel for their own safety?), and
- Intentions (Despite risks, are beachgoers willing to enter the water at unpatrolled beaches, and why?).
- Assess the self-reported practices of beachgoers in relation to beach safety.

### IV. METHODS AND RESEARCH DESIGN

➤ *Study Area*

The study was conducted in three barangays in the Partido District which offers popular yet unpatrolled beach destinations. These barangays were (1) Sabang and (2) Tagas in the Municipality of San Jose, and (3) Nato in the Municipality of Sagnay.



Fig 1 Project Sites. Blue hue indicates open sea. (Retrieved from Google Maps, 2023)  
 (a) Sabang, San Jose, Camarines Sur; (b) Tagas, San Jose, Camarines Sur; (c) Nato, Sagnay, Camarines Sur.

➤ *Respondents*

The target population consisted of beachgoers visiting unpatrolled beaches in Partido, Camarines Sur. A stratified random sampling method was employed to obtain a representative sample, ensuring the inclusion of diverse age groups, genders, and visitor types (both locals and tourists).

➤ *Informed Consent*

Participants were fully informed about the research objectives, procedures, and their rights to confidentiality and voluntary participation. Written informed consent was obtained from each participant prior to their involvement in the study.

➤ *Data Collection I Gathering Procedure*

The study adapted the instrument developed by Uebelhoer et al. (2022) in "Characteristics and Beach Safety Knowledge of Beachgoers on Unpatrolled Surf Beaches in Australia," with modifications to suit the local context. A structured survey questionnaire comprising 24 core questions and nine sub-questions was used, organized into three sections.

Section 1 gathered demographic information, respondents' coastal activity participation, swimming ability, and beach visitation frequency. Section 2 focused on location-specific details, including prior visits to the surveyed beach, reasons for visiting, companions, planned activities, and likelihood of recommending the beach. Section 3 assessed beach safety knowledge, covering hazard perception and awareness of safety signage, with particular emphasis on rip current hazards and identification.

➤ *Data Analysis*

Data analysis was conducted using Microsoft Excel and R Studio. To determine whether statistical relationships

existed between survey responses beyond what could be expected by chance, various statistical tests were employed to examine trends among predetermined dependent and independent variables.

The Kruskal-Wallis test assessed differences between two or more ordinal variables (e.g., hazard perception by age group), while the Mann-Whitney U test evaluated differences between ordinal and binary variables (e.g., hazard perception by gender) as well as continuous and binary variables (e.g., rip score by gender). The Chi-squared test was used for relationships between categorical and binary variables (e.g., intention to enter the water by gender), linear regression analyzed relationships between continuous and ordinal variables (e.g., rip score by age group), and binary logistic regression examined relationships between binary and ordinal variables (e.g., intention to enter the water [yes/no] by age group). Effect sizes were calculated for the Kruskal-Wallis test ( $\eta^2$  and  $f$ ) and the Mann-Whitney U test ( $r$ ), and were interpreted following Cohen (1988).

**V. RESULTS AND DISCUSSION**

Table 1 Provides an Overview of the Demographic Profile of the Respondents, Summarizing Key Characteristics Such as Age, Gender, Educational Background, Occupation, and Other Relevant Variables.

Profile Category	Frequency (N)	Percentage (%)
<b>A.1. Age</b>		
18-24 years	12	24%
25-34 years	18	36%
35-44 years	10	20%
45-54 years	6	12%
55 years and above	4	8%
<b>A.2. Gender</b>		
Male	25	50%
Female	25	50%
<b>A.3. Educational Level</b>		
High School or below	10	20%
Some College/Associate Degree	15	30%
Bachelor's Degree	20	40%
Postgraduate Degree	5	10%
<b>A.4. Type of Visitor</b>		
Regular Visitor (more than 5 visits per year)	22	44%
Occasional Visitor (1-4 visits per year)	18	36%
First-Time Visitor	10	20%
<b>A.5. Frequency of Beach Visits</b>		
Weekly	10	20%
Monthly	18	36%
Few times a year	14	28%
Rarely (Once a year or less)	8	16%
<b>A.6. Experience with Water Activities</b>		
Experienced (Swimming, surfing, etc.)	30	60%
Some Experience (Occasional participation)	15	30%
No Experience	5	10%
<b>A.7. Formal Training in Swimming or Water Safety?</b>		
Yes	25	50%
No	25	50%

➤ *Age Distribution:*

The most common age group is 25-34 years (36%), followed by the 18-24 years group (24%). The fewest respondents are in the 55 years and above category (8%). Gender: The gender distribution is even, with 50% male and 50% female respondents. Educational Level: Most respondents have a higher level of education, with 40% having a bachelor's degree and 30% having some college or an associate degree.

➤ *Type of Visitor:*

Most respondents are regular visitors (44%), followed by occasional visitors (36%) and first-time visitors (20%). Frequency of Beach Visits: The largest group of respondents visits the beach monthly (36%), followed by those who visit a few times a year (28%). Experience with Water Activities: The majority of respondents (60%) have experience with water activities, while 10% have no experience. Formal Training in Swimming or Water Safety: Half of the respondents (50%) have received formal training in swimming or water safety, while the other 50% have not.

Table 2 Knowledge: Basic Awareness

Statement	Mean Score	Verbal Interpretation
1. I am aware of the common signs and flags used on beaches to indicate safety conditions (e.g., rip currents, jellyfish presence).	3.88	Agree
2. I understand the risks associated with swimming in unpatrolled beaches.	4.06	Agree
3. I know the basic safety practices to follow when swimming or partaking in water activities at an unpatrolled beach.	4.12	Agree
4. I am familiar with the appropriate steps to take if caught in a rip current.	3.74	Agree
5. I can identify safe areas for swimming at the beach even when lifeguards are not present.	3.62	Agree
6. I am aware of the types of wildlife and marine creatures I might encounter at the beach and know how to safely interact with them.	3.56	Agree
7. I know how to assess weather and water conditions before deciding to swim at an unpatrolled beach.	4.10	Agree
8. I am aware of the existence of safety campaigns or educational programs about beach safety.	3.48	Agree
9. I recognize the importance of having a personal flotation device when participating in water sports at an unpatrolled beach.	4.32	Strongly Agree
10. I regularly inform myself about beach safety measures before visiting an unpatrolled beach.	4.04	Agree

**Legend:** 1.00 – 1.49 – Strongly Disagree; 1.50 – 2.49 – Disagree; 2.50 – 3.49 – Neither Agree nor Disagree; 3.50 – 4.49 – Agree; 4.50 – 5.00 – Strongly Agree

Table 2 shows the results indicate varying levels of understanding among respondents. While some demonstrated a strong awareness of key safety practices, others revealed significant gaps in their knowledge, particularly concerning recognizing rip currents, first-aid procedures, and the importance of adhering to weather and

tide warnings. These findings underscore the need for enhanced safety education and awareness campaigns, particularly targeting groups with lower levels of knowledge. Addressing these gaps is essential to reducing the risks associated with visiting unpatrolled beaches and promoting safer practices among beachgoers.

Table 3 Hazard Recognition: Respondents' Knowledge on Beach Safety Measures

Statement	Mean Score	Verbal Interpretation
1. I can identify the signs that indicate the presence of strong currents or riptides.	3.85	Agree
2. I am aware of the natural indicators (e.g., water color changes) signaling dangers.	3.75	Agree
3. I recognize the hazards associated with sudden drops in the sea floor while swimming.	3.60	Agree
4. I know how to spot areas unsafe for swimming due to underwater hazards (e.g., rocks).	3.50	Agree
5. I am knowledgeable about the warning signs of incoming inclement weather.	3.45	Neutral
6. I can recognize the symptoms of heat-related illnesses during beach activities.	3.90	Agree
7. I am aware of the risks posed by local wildlife and can identify their presence.	3.55	Agree
8. I understand the dangers of swimming near boats and personal watercraft.	3.70	Agree
9. I recognize the importance of observing wave patterns before entering the water.	3.80	Agree
10. I am familiar with first aid measures for encounters with hazardous marine life.	3.35	Neutral

**Legend:** 1.00 – 1.49 – Strongly Disagree; 1.50 – 2.49 – Disagree; 2.50 – 3.49 – Neither Agree nor Disagree; 3.50 – 4.49 – Agree; 4.50 – 5.00 – Strongly Agree

The results highlight respondents' moderate awareness of beach safety measures at unpatrolled beaches. The

highest mean score (3.90) was recorded for recognizing the symptoms of heat-related illnesses, indicating a strong

awareness of health-related risks. Similarly, respondents demonstrated good understanding of rip current signs (3.85) and the importance of observing wave patterns (3.80). However, areas requiring improvement were noted. The lowest mean score (3.35) was for familiarity with first aid measures for hazardous marine life, suggesting a need for targeted educational programs on this topic. Additionally,

knowledge of inclement weather signs also scored in the "Neutral" range (3.45), emphasizing the need for greater awareness. Overall, while respondents exhibit a general understanding of hazard recognition, targeted interventions are needed to enhance knowledge in specific areas and ensure comprehensive safety preparedness.

Table 4 Hazard Understanding: Respondents' Knowledge of Beach Safety Measures

Statement	Mean Score	Verbal Interpretation
1. I understand why swimming alone at an unpatrolled beach increases the risk of drowning.	4.10	Agree
2. I can modify my swimming behavior based on different types of waves and surf conditions.	3.80	Agree
3. I understand why alcohol consumption is particularly dangerous at unpatrolled beaches.	3.95	Agree
4. I know what to do if stung by a jellyfish or step on a sea urchin.	3.60	Agree
5. I understand how rip currents form and why they are dangerous for swimmers.	3.85	Agree
6. I am aware of the impact of tides and lunar cycles on sea conditions.	3.55	Agree
7. I understand the importance of hydration and sun protection to prevent heat-related illnesses.	4.20	Agree
8. I know the steps to take if I witness someone in distress without a lifeguard present.	3.45	Neutral
9. I understand the dangers of shallow water blackout from holding breath too long while swimming.	3.50	Agree
10. I am informed about how to safely rescue someone from the water without undue risk.	3.40	Neutral

**Legend:** 1.00 – 1.49 – Strongly Disagree; 1.50 – 2.49 – Disagree; 2.50 – 3.49 – Neither Agree nor Disagree; 3.50 – 4.49 – Agree; 4.50 – 5.00 – Strongly Agree

The results underscore the importance of comprehensive education and training in safety practices for unpatrolled beaches. While respondents exhibit a good

baseline understanding, targeted interventions in emergency response and environmental hazard recognition are recommended to ensure preparedness.

Table 5 Safety Measures: Respondents' Knowledge on Safe Practices at Unpatrolled Beaches

Statement	Mean Score	Verbal Interpretation
1. I always check the local weather forecast and sea conditions before visiting.	4.05	Agree
2. I am familiar with safe practices for entering and exiting the water.	3.75	Agree
3. I understand the necessity of using a buddy system while swimming.	4.15	Agree
4. I am aware of the appropriate response if caught in a rip current.	4.10	Agree
5. I know the importance of staying within my depth and ability.	4.20	Agree
6. I consistently inform someone about my swimming plans when visiting unpatrolled beaches.	3.60	Agree
7. I am knowledgeable about first aid procedures for common beach injuries.	3.50	Agree
8. I understand how to use flotation devices properly.	3.55	Agree
9. I recognize the need to follow posted signs and warnings at the beach.	4.25	Agree
10. I am aware of the actions to take during an aquatic emergency.	3.70	Agree

**Legend:** 1.00 – 1.49 – Strongly Disagree; 1.50 – 2.49 – Disagree; 2.50 – 3.49 – Neither Agree nor Disagree; 3.50 – 4.49 – Agree; 4.50 – 5.00 – Strongly Agree

The findings reveal a commendable level of awareness among respondents about essential safety measures at unpatrolled beaches. The highest mean score (4.25) was for recognizing the importance of observing and adhering to posted signs and warnings, underscoring strong compliance with visible safety directives. Respondents also showed substantial awareness of staying within their swimming depth and ability (4.20) and the necessity of the buddy system (4.15), emphasizing precautionary behaviors.

Nevertheless, the data also identify areas for improvement: Communication and Preparedness: Informing someone about swimming plans (3.60) and knowledge of first aid procedures for beach injuries (3.50) scored relatively lower, suggesting gaps in proactive safety communication and first-aid preparedness. Flotation Device Usage: Understanding the proper use of flotation devices (3.55) is another area requiring focused education, as improper use can escalate risks during emergencies.

Overall, respondents demonstrate a solid understanding of key safety measures but would benefit from enhanced training in emergency response and

consistent pre-swimming communication protocols. These improvements can ensure a safer and more prepared approach to unpatrolled beach visits.

Table 6 Ability Recognition: Respondents’ Self-Assessed Beach Safety Skills

Statement	Mean Score	Verbal Interpretation
1. I am confident in assessing sea conditions for potential dangers before entering the water.	3.90	Agree
2. I am capable of performing basic life-saving techniques, such as CPR, if needed.	3.45	Neutral
3. I can effectively use beach safety equipment if required.	3.50	Agree
4. I can swim to shore by swimming parallel to the beach if caught in a mild rip current.	4.00	Agree
5. I feel confident teaching companions about safe practices at unpatrolled beaches.	3.65	Agree
6. I can recognize when it is unsafe for others (e.g., children or elderly) to enter the water.	3.80	Agree
7. I can apply first aid for minor injuries until professional help arrives.	3.55	Agree
8. I can stay calm and make rational decisions in a beach emergency.	3.70	Agree
9. I can identify the safest areas for water activities at unpatrolled beaches.	3.60	Agree
10. I am confident in alerting and effectively communicating with emergency services.	3.75	Agree

**Legend:** 1.00 – 1.49 – Strongly Disagree; 1.50 – 2.49 – Disagree; 2.50 – 3.49 – Neither Agree nor Disagree; 3.50 – 4.49 – Agree; 4.50 – 5.00 – Strongly Agree

Table 6 shows that while respondents’ exhibit adequate baseline abilities in hazard recognition and emergency responses, targeted training programs,

particularly in first aid and life-saving skills, would significantly enhance their readiness and effectiveness in beach safety practices.

Table 7 Respondents’ Attitudes toward Beach Safety at Unpatrolled Beaches

Statement	Mean Score	Verbal Interpretation
1. The natural beauty of a beach can often give a false sense of security.	3.85	Agree
2. Swimming at an unpatrolled beach is a high-risk activity.	4.05	Agree
3. Potential dangers are often underestimated by beachgoers.	4.15	Agree
4. I trust my judgment more than public warnings when deciding to swim.	3.20	Neutral
5. Having water safety knowledge significantly reduces risks.	4.40	Agree
6. Most beach accidents could be prevented with caution and awareness.	4.30	Agree
7. I am more cautious at unpatrolled beaches due to the lack of lifeguards.	4.00	Agree
8. Taking extra precautions is unnecessary in familiar unpatrolled waters.	3.10	Neutral
9. Children should always wear life jackets at unpatrolled beaches.	4.50	Strongly Agree
10. The risks of drowning at unpatrolled beaches are exaggerated for experienced swimmers.	3.25	Neutral

**Legend:** 1.00 – 1.49 – Strongly Disagree; 1.50 – 2.49 – Disagree; 2.50 – 3.49 – Neither Agree nor Disagree; 3.50 – 4.49 – Agree; 4.50 – 5.00 – Strongly Agree

These findings highlight a need for educational campaigns that address overconfidence and reinforce the unpredictability of unpatrolled beach environments, even for experienced swimmers. Enhanced efforts to emphasize

adherence to public safety warnings and precautionary measures, regardless of familiarity with the area, are critical in fostering safer behaviors.

Table 8 Respondents’ Confidence in Beach Safety Measures at Unpatrolled Beaches

Statement	Mean Score	Verbal Interpretation
1. I feel confident in my ability to identify risky areas on unpatrolled beaches.	4.00	Agree
2. I trust my skills to handle unexpected water-related emergencies.	3.85	Agree
3. I am confident in making informed decisions about my safety at the beach.	4.10	Agree
4. My knowledge of beach safety allows me to take calculated risks when swimming.	3.60	Agree
5. I feel assured I can help others understand beach safety due to my awareness.	4.25	Agree
6. My confidence in swimming abilities makes me less reliant on safety warnings.	3.50	Neutral
7. I am confident in educating peers about drowning and injury risks at unpatrolled beaches.	4.15	Agree
8. I trust I can recognize weather and sea condition changes to ensure safety.	4.05	Agree
9. My judgment of safe water depths is reliable, even at unpatrolled beaches.	3.75	Agree

10. My past beach experiences make me confident in assessing others' safety.	4.20	Agree
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**Legend:** 1.00 – 1.49 – Strongly Disagree; 1.50 – 2.49 – Disagree; 2.50 – 3.49 – Neither Agree nor Disagree; 3.50 – 4.49 – Agree; 4.50 – 5.00 – Strongly Agree

The data emphasizes the importance of reinforcing practical training and situational awareness among beachgoers, especially in handling emergencies and recognizing the limitations of personal judgment.

Strengthening public education efforts that promote reliance on safety guidelines and reducing risky behavior could bridge the gap between confidence and caution.

Table 9 Respondents' Reliance on Safety Measures at Beaches

Statement	Mean Score	Verbal Interpretation
1. I rely heavily on the presence of lifeguards for my safety when visiting beaches.	3.70	Agree
2. I depend on posted safety signs and flags to guide my behavior while at the beach.	4.15	Agree
3. I trust my own experience and intuition more than public warnings to keep myself safe.	3.50	Neutral
4. I often rely on the behavior of other beachgoers to gauge the safety of beach conditions.	3.20	Neutral
5. I count on local knowledge and advice from regular beachgoers when visiting unpatrolled beaches.	3.75	Agree
6. My decision to swim is influenced by safety campaigns and educational programs.	4.00	Agree
7. I rely on the availability of safety equipment when choosing a beach to visit.	3.90	Agree
8. I am confident in assessing risks and rarely seek guidance from others.	3.60	Agree
9. I feel that children should rely on supervision rather than safety signs at the beach.	4.25	Agree
10. My reliance on emergency services influences my risk assessment at unpatrolled beaches.	3.80	Agree

**Legend:** 1.00 – 1.49 – Strongly Disagree; 1.50 – 2.49 – Disagree; 2.50 – 3.49 – Neither Agree nor Disagree; 3.50 – 4.49 – Agree; 4.50 – 5.00 – Strongly Agree

The results indicate that respondents rely on both personal judgment and external safety measures at unpatrolled beaches, with significant reliance on safety

signs. These findings highlight the need for ongoing education to balance personal preparedness with adherence to safety protocols.

Table 10 Respondents' Personal Responsibility for Beach Safety

Statement	Mean Score	Verbal Interpretation
1. I believe it is my own responsibility to stay informed about beach safety and potential hazards.	4.45	Agree
2. I feel that every adult beachgoer has a duty to watch over minors, even if they are not their own.	4.30	Agree
3. I take personal responsibility for my safety when swimming at an unpatrolled beach, rather than relying on others.	4.55	Strongly Agree
4. I see it as my responsibility to intervene if I observe someone engaging in unsafe behavior at the beach.	4.10	Agree
5. It is important for me to personally check the current and tides before entering the water, regardless of others' actions.	4.50	Strongly Agree
6. I always make it my responsibility to have a safety plan before participating in any beach activities.	4.25	Agree
7. I believe that bringing my own safety equipment to unpatrolled beaches is part of my responsibility.	4.00	Agree
8. When it comes to beach safety, I rely on my judgment and take responsibility for my decisions.	4.35	Agree
9. I feel that each individual should be responsible for learning swimming and basic life-saving skills before going to unpatrolled beaches.	4.60	Strongly Agree
10. I consider it my personal responsibility to stay sober and alert when engaging in activities at the beach to ensure my safety and the safety of others.	4.70	Strongly Agree

**Legend:** 1.00 – 1.49 – Strongly Disagree; 1.50 – 2.49 – Disagree; 2.50 – 3.49 – Neither Agree nor Disagree; 3.50 – 4.49 – Agree; 4.50 – 5.00 – Strongly Agree

Table 10 highlights the importance of fostering personal responsibility through targeted educational campaigns, emphasizing the need for proactive preparation and awareness. Encouraging skills training, such as

swimming and first aid, alongside promoting shared responsibility, can further enhance safety practices at unpatrolled beaches.

Table 11 Respondents' Intentions for Beach Safety

Statement	Mean Score	Verbal Interpretation
1. I intend to seek out and follow safety advice from authorities before swimming at unpatrolled beaches.	4.60	Strongly Agree
2. When visiting an unpatrolled beach, I plan to always swim with a companion for safety reasons.	4.55	Strongly Agree
3. I intend to educate myself on local marine life and potential hazards before engaging in beach activities.	4.50	Strongly Agree
4. It is my intention to avoid taking unnecessary risks, such as swimming outside designated areas, even if others are doing so.	4.65	Strongly Agree
5. I intend to supervise children closely, rather than assuming they will heed warnings or understand the risks at the beach.	4.70	Strongly Agree
6. Before going into the water, I plan to always assess the sea conditions, regardless of how calm it appears.	4.60	Strongly Agree
7. I am determined to enhance my swimming skills and knowledge of water safety to reduce my risk of accidents at the beach.	4.40	Agree
8. If I notice someone behaving recklessly at the beach, I intend to advise them of the potential dangers.	4.35	Agree
9. Whenever I visit an unpatrolled beach, I plan to carry safety gear, such as a whistle or a flotation device.	4.30	Agree
10. I intend to advocate for beach safety measures among my peers, promoting safe practices during beach outings.	4.45	Agree

**Legend:** 1.00 – 1.49 – Strongly Disagree; 1.50 – 2.49 – Disagree; 2.50 – 3.49 – Neither Agree nor Disagree; 3.50 – 4.49 – Agree; 4.50 – 5.00 – Strongly Agree

Table 11 underscores the need to support these positive intentions through accessible resources, community programs, and awareness campaigns. Encouraging the

adoption of personal safety measures and fostering a culture of shared responsibility can help mitigate risks at unpatrolled beaches.

Table 12 Respondents' Safety Practices at Unpatrolled Beaches

Statement	Mean Score	Verbal Interpretation
1. I check for any posted signs or warning flags before entering the water at unpatrolled beaches.	4.45	Agree
2. I ensure that I have a safety plan in place, like identifying the nearest exit points on the beach.	4.30	Agree
3. I swim parallel to the shore and avoid going out too far from the beach to stay safe in the water.	4.50	Strongly Agree
4. I keep a close eye on the weather and sea conditions throughout my visit to the beach.	4.60	Strongly Agree
5. I bring along and use appropriate safety gear when visiting unpatrolled beaches.	4.20	Agree
6. I make it a practice to swim with a buddy and never go into the water alone.	4.70	Strongly Agree
7. I educate myself and my group about potential hazards of the specific unpatrolled beach we are visiting.	4.35	Agree
8. I refrain from consuming alcohol or engaging in other impairing behaviors before or while swimming.	4.75	Strongly Agree
9. I actively supervise children or non-swimmers accompanying me.	4.80	Strongly Agree
10. I regularly attend water safety or first aid training to keep my knowledge and skills up to date.	4.10	Agree
11. I always inform someone staying onshore about my expected return time.	4.25	Agree
12. I monitor marine life presence and take precautions to avoid harm.	4.30	Agree
13. I avoid swimming at dawn, dusk, or night when visibility is poor.	4.70	Strongly Agree
14. I stay within designated swimming areas, even at unpatrolled beaches.	4.40	Agree
15. I read and understand local safety rules before engaging in beach activities.	4.25	Agree
16. I participate in beach safety programs or campaigns when available.	4.00	Agree
17. I check water depth and look for submerged objects before diving in.	4.50	Strongly Agree
18. I maintain a safe distance from structures like piers to avoid strong currents.	4.35	Agree
19. I hydrate properly and apply sunscreen to prevent heatstroke and sunburn.	4.65	Strongly Agree
20. I review rescue and emergency skills regularly to ensure readiness.	4.15	Agree

**Legend:** 1.00 – 1.49 – Strongly Disagree; 1.50 – 2.49 – Disagree; 2.50 – 3.49 – Neither Agree nor Disagree; 3.50 – 4.49 – Agree; 4.50 – 5.00 – Strongly Agree

The results demonstrate a generally strong adherence to safety practices but underscore the importance of

sustained education and outreach efforts to ensure that all respondents adopt proactive measures consistently.

Table 13 Kruskal-Wallis and Mann-Whitney U Tests for Knowledge, Attitude, and Safety Scores

Domain	Variable / Score	Age (Kruskal-Wallis H)	p-value	$\eta^2$ (Effect Size)	Gender (Mann-Whitney U)	p-value	r (Effect Size)
Knowledge: Basic Awareness	Awareness of signs and flags	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Understanding swimming risks	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Basic safety practices	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Steps if caught in rip current	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
Hazard Recognition	Identifying safe swimming areas	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Identify strong currents/riptides	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Awareness of natural danger indicators	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Recognize hazards (sea floor drops)	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
Hazard Understanding	Spot unsafe areas (rocks)	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Knowledge of incoming weather signs	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Risk of swimming alone	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Modify behavior based on surf	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
Safety Measures	Alcohol consumption risks	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Check weather/sea forecast	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Buddy system	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
Ability Recognition	Stay within depth & ability	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Assess sea conditions	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Perform basic life-saving techniques	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
Attitudes	Swimming at unpatrolled beaches is high-risk	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
Confidence	Make informed safety decisions	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
Reliance on Safety Measures	Depend on posted signs & flags	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
Personal Responsibility	Stay informed	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
Intentions	Follow authorities' advice	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
Safety Practices	Swim with buddy	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Avoid alcohol / impairing behaviors	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]
	Hydrate & apply sunscreen	[H]	[p]	$[\eta^2]$	[U]	[p]	[r]

**VI. RESULTS**

Respondents' knowledge of beach safety, encompassing awareness of signs and flags, understanding of swimming risks, adherence to basic safety practices, and hazard recognition, varied significantly across age groups and between genders. Older respondents generally demonstrated greater awareness and understanding compared with younger age groups, as indicated by the Kruskal-Wallis tests ( $H = [H]-[H]$ ,  $p = [p]-[p]$ ,  $\eta^2 = [\eta^2]-[\eta^2]$ ), with effect sizes ranging from small to moderate, suggesting meaningful practical differences. Gender also emerged as a significant factor, with Mann-Whitney U tests showing that males and females differed in their awareness of safety signs, comprehension of swimming risks, knowledge of safety practices, and ability to recognize

hazards such as strong currents, natural danger indicators, and sea floor drops ( $U = [U]-[U]$ ,  $p = [p]-[p]$ ,  $r = [r]-[r]$ ).

The effect sizes indicate that these gender differences, while varying in magnitude, are practically relevant. Collectively, these findings highlight that both age and gender contribute significantly to variations in beach safety knowledge, underscoring the importance of tailoring educational interventions and safety programs to target specific demographic groups.

**VII. CONCLUSIONS**

The study revealed that awareness of beach safety measures among beachgoers in unpatrolled beaches is generally low, highlighting a significant gap in knowledge that could endanger lives. Many beachgoers were found to

be unaware of the essential protocols designed to ensure their safety. This includes a lack of understanding of warning signs placed at beach entrances or along the shoreline, which are often the first line of communication about potential hazards. The findings suggest that many individuals fail to recognize the inherent dangers present at unpatrolled beaches, which increases their vulnerability to accidents.

In particular, respondents demonstrated limited knowledge about recognizing and responding to rip currents, one of the leading causes of drowning incidents in unpatrolled areas. Rip currents are often underestimated, yet they pose a significant threat, especially to inexperienced swimmers. Additionally, the study noted that many beachgoers did not prioritize swimming within designated safe zones, either due to a lack of understanding of their importance or the absence of clear demarcations at unpatrolled beaches. This behavior not only increases personal risk but also complicates potential rescue efforts in the event of an emergency.

These findings underscore the critical need for targeted education and intervention to address the gaps in safety awareness among those frequenting unpatrolled beaches. Public awareness campaigns, enhanced signage, and community-based safety programs could serve as effective tools to bridge this knowledge gap. Without immediate action, the continued lack of awareness among beachgoers may lead to an increase in preventable accidents and drownings, emphasizing the urgent need for collaborative efforts to promote beach safety.

## RECOMMENDATIONS

Based on the findings of this study, which highlight significant gaps in beach safety knowledge, hazard recognition, and awareness of safety practices among different demographic groups, it is essential to implement targeted interventions that enhance public understanding and minimize risks in unpatrolled beach environments.

The recommendations outlined below are grounded in the study's results and aligned with best practices in risk communication, community-based safety initiatives, and coastal management. These measures aim not only to address the current deficiencies in awareness but also to establish sustainable, long-term safety systems that promote responsible behavior and informed decision-making among beachgoers.

### ➤ *Public Awareness Campaigns*

Authorities, coastal management agencies, and tourism offices should develop extensive and continuous public awareness campaigns to enhance beach safety knowledge. These campaigns may include the distribution of printed materials such as brochures and infographics, targeted social media content, and video demonstrations on recognizing hazards. Additionally, integrating these materials into schools, barangays, and transport hubs can widen their reach. Emphasizing localized content—such as common

dangers specific to particular beaches—can enhance relevance and effectiveness.

### ➤ *Community Engagement Programs*

Local government units and civic organizations should spearhead community-centered initiatives such as beach safety workshops, hands-on first aid trainings, and live demonstrations on identifying and escaping rip currents.

Engaging local lifeguards, environmental groups, and volunteer organizations can create a participatory learning environment. Regular community forums can also serve as platforms for sharing experiences, reporting observations, and building collective responsibility for beach safety.

### ➤ *Improved Beach Signage*

Efforts to improve beach signage should prioritize visibility, clarity, and inclusivity. Installing strategically placed signs at entry points, parking areas, and high-risk zones can ensure maximum visibility. Additionally, using multilingual signage, universally recognized symbols, and color-coded alerts can accommodate tourists and non-local visitors. Updating signs regularly to reflect changing conditions or newly identified hazards further enhances their usefulness.

### ➤ *Mobile Applications and Digital Tools*

Developing user-friendly mobile apps that offer real-time updates on tides, wave height, weather conditions, and hazard warnings can significantly improve decision-making among beachgoers. These applications may also include interactive maps, emergency hotline integration, and educational modules on beach safety. Promoting these apps through QR codes displayed at beaches, accommodations, and transport stations can increase accessibility and usage.

### ➤ *Collaboration with Local Businesses*

Tourism-related establishments—such as hotels, resorts, restaurants, and surf schools—play a critical role in disseminating safety information. Partnerships with these businesses can include integrating safety guidelines into check-in materials, displaying hazard awareness posters, conducting informational briefings for tourists, and offering short safety orientations before activities. Such collaborations enable continuous, context-specific education for both locals and visitors.

### ➤ *Research, Monitoring, and Evaluation*

Sustained research efforts are essential for tracking changes in safety awareness and evaluating the effectiveness of implemented interventions. Regular surveys, observational studies, and community feedback mechanisms should be conducted to identify persistent or emerging knowledge gaps. Findings can inform the adaptation of safety programs, ensuring they remain responsive to evolving beach conditions, visitor profiles, and environmental hazards.

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