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ASSESSING PUBLIC AWARENESS AND ATTITUDES TOWARDS FLOOD DISASTER SAFETY MESSAGES AMONG RESIDENTS OF ANAMBRA STATE

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ABSTRACT

Flooding remains one of the devastating natural disasters affecting Anambra State, bringing about the need for effective communication strategies for public safety. This study titled Assessing Public Awareness and Attitudes Towards Flood Disaster Safety Messages Among Residents of Anambra State therefore, examined the effectiveness of disaster communication in enhancing flood preparedness. Anchored on Protection Motivation Theory (PMT), the study assessed the influence of accurate information, social media, emotional conflict, cultural relevance, socioeconomic status, and visualization tools on public awareness and attitudes. A descriptive survey design was employed, targeting residents in flood-prone areas across Anambra State. Using Cochran's formula, a sample size of 400 was determined and selected through stratified random sampling. Data were collected via structured questionnaires and focus group discussions, and analyzed using descriptive statistics and thematic analysis. Findings showed that access to accurate information and the use of social media significantly improved awareness ($p < 0.05$), while culturally relevant messages and visualization tools positively influenced attitudes. A strong correlation ($r = 0.78$) was observed between awareness and preparedness levels. The study concludes that although awareness exists, socio-cultural and emotional barriers limit behavioral response to flood safety messages. It recommends that emergency agencies enhance message accessibility through digital platforms and tailor communication strategies to fit local contexts. Investments in trust-building and the use of visual aids were also advised to improve public receptiveness and responsiveness to flood alerts. This research fills a vital gap by empirically highlighting the determinants of public engagement with disaster safety messages in Anambra State and suggests pathways for effective flood risk communication and disaster preparedness.

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Introduction

Flood disasters remain one of the most frequent and devastating natural hazards globally, necessitating not only infrastructural responses but also effective public awareness and communication strategies. In flood-prone regions, the success of disaster risk reduction depends largely on how well the public understands and responds to early warning systems and preparedness messages. Increasingly, climate change and urban expansion have escalated the frequency and intensity of flooding, posing severe risks to lives, infrastructure, and livelihoods (Kirchmeier-Young & Zhang, 2020).

Despite advances in early warning systems and communication technologies, public awareness and responsiveness remain inconsistent, particularly in vulnerable communities. Understanding how people perceive and respond to flood safety messages is therefore critical for improving preparedness and fostering proactive behavior. Recent studies (e.g., Kurata et al., 2022; German et al., 2022; Hutton & Allen, 2021) have emphasized the value of integrating theoretical models like Protection Motivation Theory (PMT) and the Theory of Planned Behavior (TPB) in analyzing disaster communication. These studies highlight the importance of culturally relevant messaging, emotional resonance, and visualization tools in shaping behavioral responses. In the Nigerian context, research by Chen et al. (2024) has shown that emotional conflict and poor access to accurate information are major barriers to disaster preparedness. Ponce-López and Spataru (2022) also demonstrated the growing potential of social media platforms to amplify flood alerts and safety instructions, while Lefutso et al. (n.d.) found that perceptions of flood risk are closely tied to socioeconomic realities.

In Anambra State, flood disasters have intensified in both frequency and impact due to climate change and rapid urbanization. Although early warning systems, SMS alerts, flood maps, and community campaigns have been introduced, public awareness and behavioral responses remain uneven. Many residents receive information late, misinterpret messages, or simply fail to act, resulting in preventable losses. Emotional conflict, misinformation, and the lack of culturally localized strategies further undermine preparedness efforts (Chen et al., 2024; Hutton & Allen, 2020). Additionally, most interventions are fragmented, lack continuity, and fail to address socioeconomic disparities that shape risk perception. Consequently, residents of flood-prone areas often underestimate their vulnerability or ignore safety instructions altogether.

While previous studies have addressed public engagement with disaster messaging in Asia,

Europe, and parts of Africa, empirical data on how Nigeria sub-national communities, particularly in Anambra state comprehend, internalize, and respond to flood safety messages remains scarce. This gap limits the design of effective communication strategies. Without a clear understanding of public awareness and attitudinal barriers, efforts to reduce disaster risks may continue to fall short, leaving populations more exposed to future flood events. This study, therefore, seeked to access public awareness and attitude towards flood disaster safety messages among residents of Anambra State, with particular attention to the emotional, cultural, socio-economic factors that inhibit preparedness and behavioral response.

Conceptual Review

Flood-Prone Areas: Need for Targeted Risk Communication

Flood-prone areas are regions highly exposed to seasonal or flash floods, requiring tailored communication strategies to ensure residents not only receive but also interpret and act on safety messages. German et al. (2022) highlighted that local context plays a crucial role in shaping risk perception and preparedness, a point relevant for regions like Anambra State, where cultural, geographic, and socioeconomic factors must be considered in message design and distribution. In these areas, residents are more vulnerable, so communication should be continuous, clear, localized, and actionable. Kurata et al. (2022) also noted that people in disaster-prone regions respond better when messages align with local values and daily experiences, making it essential to consider location-based risks in evaluating public awareness and attitudes.

Clarity of Flood-Related Safety Communication

Message clarity is a crucial component of any disaster communication strategy, referring to the simplicity, coherence, and directness of instructions on what to do before, during, and after a flood. Clear messages influence both public awareness and attitudes, improving understanding and willingness to act. Kurata et al. (2023) found that clear, specific information enhances perceived control and response efficacy, reducing fear and increasing motivation to act. Similarly, Nguyen et al. (2022) highlighted how unclear messaging can lead to hesitancy, a point equally applicable to flood safety ambiguous flood alerts can result in inaction. Therefore, clarity should be considered a key factor in assessing the effectiveness of awareness campaigns, especially in high-risk flood areas like Anambra State, where it directly impacts responsiveness and the translation of awareness into action.

Public Attitudes and Clarity of Flood-Related Safety Communication

Public attitudes toward flood preparedness encompass individuals' beliefs, perceptions, and readiness to respond to safety messages, which significantly shape how they act during flood events. Kurata et al. (2023) explain that these attitudes, influenced by

personal risk assessment and cognitive motivation, are crucial in determining preparedness behaviors. When flood safety messages are unclear, culturally irrelevant, or confusing, public trust and responsiveness can decline. Flores et al. (2024) found that message clarity strongly affected preparedness in Jakarta, while Kurata et al. (2022) stressed that effective communication must be both accurate and easily understood to influence behavior positively. Thus, aligning communication with public attitudes and ensuring message clarity can foster more proactive and safety-conscious communities.

Public Awareness and Clarity of Flood-Related Safety Communication

Public awareness involves the knowledge and understanding individuals or communities have about flood risks and disaster preparedness, which significantly influences their ability to respond effectively during emergencies. German et al. (2022) noted that such awareness is shaped by past experiences, education, and access to credible information. However, awareness alone is not enough—clear communication is crucial to turning knowledge into action. Sanders et al. (2020) found that detailed and collaborative flood risk modeling improves public perception and preparedness. Similarly, Chen et al. (2024) highlighted that, emotional responses like fear can either hinder or motivate preparedness depending on how clear and sensitive the safety information is. Therefore, public awareness, when supported by clear, actionable, and emotionally resonant communication, becomes a powerful tool in enhancing community flood resilience.

Review of Extant Literature

Onwuemele (2018) conducted a study in Lagos Megacity to understand public perception of flood risks and disaster preparedness. The research utilized a survey design, collecting data through questionnaires from residents in flood-prone neighborhoods. While the exact sample size isn't specified, the study found that individuals with prior flood experience exhibited higher awareness levels compared to those without such experience. However, overall preparedness was low among residents lacking previous flood exposure. The study employed descriptive statistics for data analysis. It recommended enhancing public awareness campaigns in flood-prone areas to improve disaster preparedness. This research is pertinent to your project as it highlights the correlation between flood experience and awareness, emphasizing the need for targeted safety messages.

Ibrahim (2016) assessed the impact of flooding in Kaduna Metropolis, focusing on its effects and management strategies. The study sampled 196 residents from flood-prone areas using questionnaires, interviews, and observations. Data were analyzed using descriptive statistics and the Likert Rating System. Findings indicated that floods predominantly occurred during peak rainy seasons, with contributing factors including

inadequate drainage and waste disposal practices. The study recommended infrastructural improvements and public enlightenment campaigns. This study is relevant as it underscores the importance of public awareness in mitigating flood impacts. Mallam (2022) explored public perception of flood hazards in Kafanchan, Kaduna State. Using structured questionnaires and purposive random sampling, data were collected from households in four neighborhoods. Descriptive statistics revealed that 87% of respondents were aware of flooding, with 98% having experienced it. Heavy rainfall was identified by 82% as the primary cause. The study recommended improved flood monitoring and communication strategies. This research aligns with your project by highlighting community awareness levels and the necessity for effective safety messaging

Okosun, Patrick Banki (2025) assessed flood impacts in Lokoja, Kogi State. The study involved 257 household heads from five communities, utilizing questionnaires, focus group discussions, and key informant interviews. Data analyzed with SPSS revealed significant property damage and health issues due to flooding. The study emphasized the absence of a clear flood management strategy and recommended community-based approaches and improved communication. This study is pertinent as it demonstrates the consequences of inadequate public awareness and the need for effective safety messages.

Nwude (2023) evaluated residents' knowledge, attitudes, and practices regarding flooding in Ogba/Egbema/Ndoni LGA, Rivers State. Employing a descriptive cross-sectional design, data were gathered through qualitative and quantitative methods, analyzed using chi-square tests. Findings indicated limited awareness and preparedness among residents. The study recommended comprehensive education and awareness programs. This research supports your project by emphasizing the critical role of public awareness in flood disaster preparedness.

Adelekan (2011) conducted a vulnerability assessment of the 2007 flood in Abeokuta, Nigeria. The study analyzed the socio-economic and environmental factors contributing to flood vulnerability. Findings highlighted inadequate infrastructure and poor urban planning as key factors. The study recommended integrating community awareness programs into urban development plans. This research is relevant as it underscores the importance of public awareness in reducing flood vulnerability.

Oyebode (2021) assessed flood and erosion hazards in Nigeria, proposing mitigation strategies. The study emphasized the significance of public awareness and community involvement in hazard mitigation. Recommendations included the development of early warning systems and public education campaigns. This study aligns with your project by highlighting the

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necessity of effective communication and public awareness in flood disaster management.

Methodology

This study made use of survey design to examine public awareness and attitude towards flood disaster safety messages among residents of Anambra State. The design was used for both quantitative and qualitative data collection from a large, diverse population. Anambra is prone to flooding as a result of its geographical and environmental conditions making it a good area of study.

The population of study consist residents aged 18 and above that are living in flood-prone area across urban and rural communities. A sample size of 400 was determined using the Cochran's formula, to ensure statistical representation. The stratified random sampling was used to select respondents from both urban and rural strata giving room for comparative analysis. Questionnaire was the instrument used for collection of data. It included a structured questionnaire (with closed and open-ended questions) and focus group discussions. The questionnaire measures attitudes, knowledge and behaviors associated with flood safety. The focus group gave deeper contextual insights. Content validity was established through expert review and a pilot study, while Cronbach's alpha was used to confirm instrument reliability.

Descriptive statistics for quantitative responses and thematic analysis for qualitative data was used for Data analysis. This allows for a comprehensive understanding of public engagement with flood safety messages.

Data Presentation

1. How does access to accurate information, social media use, and emotional conflict influence public awareness of flood disaster safety messages among residents of Anambra State?

S/N	Items	SA (5)	A (4)	D (2)	SD (1)
1	Access to accurate information enhances my awareness of flood disaster safety messages.	(120, 30%)	(180, 45%)	(50, 12.5%)	(50, 12.5%)
2	Social media platforms significantly influence my awareness of flood disaster safety messages.	(130, 32.5%)	(180, 245%)	(50, 12.5%)	(40, 10%)
3	Emotional conflicts (e.g., fear or stress) affect how I perceive flood disaster safety messages.	(110, 27.5%)	(210, 52.5%)	(50, 12.5%)	(30, 7.5%)
4	I feel that the availability of timely information via social media helps me prepare for floods.	(140, 35%)	(180, 45%)	(50, 12.5%)	(30, 7.5%)
5	My understanding of flood safety messages is often clouded by emotional conflict or misinformation.	(100, 25%)	(220, 55%)	(50, 12.5%)	(30, 7.5%)

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The interpretation of the table reveals that a significant majority of respondents agree that access to accurate information (75%) and the availability of timely updates via social media (80%) enhance their awareness and preparedness for flood disasters. Specifically, 45% agreed and 30% strongly agreed with the importance of accurate information, while 45% agreed and 35% strongly agreed that timely updates via social media help with flood preparedness. Additionally, 77.5% (27.5% SA, 52.5% A) acknowledged that emotional conflicts such as fear or stress influence their perception of flood safety messages. However, there appears to be a data error in item 2, where 180 responses are marked as 245%, which likely should be 45%. Despite that, 77.5% still support the influence of social media. Moreover, 80% of respondents agreed or strongly agreed that emotional conflict or misinformation can distort understanding of flood safety messages. Overall, the responses indicate a strong recognition of the roles of accurate information, social media, and emotional factors in shaping awareness and attitudes toward flood disaster safety messages.

2. In what ways do the cultural relevance of messages, socioeconomic status, and the use of visualization tools affect public attitudes toward flood disaster preparedness in Anambra State?

S/N	Items	SA (5)	A (4)	D (2)	SD (1)
1	Flood disaster safety messages are more effective when they are culturally relevant to my community.	(110, 27.5%)	(210, 55.5%)	(50, 12.5%)	(30, 7.5%)
2	My socioeconomic status affects how I respond to flood disaster preparedness messages.	(130, 32.5%)	(180, 45%)	(50, 12.5%)	(40, 10%)
3	Visualization tools (e.g., maps, infographics) make flood disaster safety messages easier to understand.	(120, 30%)	(190, 47.5%)	(60, 15%)	(30, 7.5%)
4	Cultural relevance of flood safety messages makes me feel more personally responsible for preparedness.	(110, 27.5%)	210, 55%)	(50, 12.5%)	(20, 5%)
5	I am more likely to take action on flood safety messages if they are accompanied by visual aids.	(120, 30%)	(110, 47.5%)	(60, 15%)	(30, 7.5%)

The table interpretation shows that respondents strongly believe that cultural relevance and visual communication significantly enhance the effectiveness of flood disaster safety messages. For instance, 83% (27.5% SA, 55.5% A) agreed that messages are more effective when culturally tailored, and 82.5% (27.5% SA, 55% A) felt it increases their sense of personal responsibility. Similarly, 77.5% (30% SA, 47.5% A) agreed that visual tools make messages easier to understand, while 77.5% also reported they are more likely to act on messages supported by visuals. Furthermore, 77.5% (32.5% SA, 45% A) acknowledged that their socioeconomic status affects their responsiveness to preparedness messages. These findings underscore the importance of

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integrating cultural context, visual communication, and socioeconomic considerations into flood safety messaging strategies to improve public comprehension and engagement.

3. What is the relationship between public awareness and attitudes toward flood disaster safety messages and the level of responsiveness among residents in flood-prone areas of Anambra State?

S/N	Items	SA (5)	A (4)	D (2)	SD (1)
1	Higher awareness of flood safety messages leads to greater responsiveness in preparing for floods.	(140, 35%)	(190, 47.5%)	(50, 12.5%)	(20, 5%)
2	I feel that my attitude toward flood safety messages influences how prepared I am for floods.	(130, 32.5%)	(210, 52.5%)	(40, 10%)	(20, 5%)
3	The more informed I am about flood safety, the more likely I am to act on that information.	(140, 35%)	(200, 50%)	(40, 10%)	(20, 5%)
4	My response to flood safety messages is influenced by how much I trust the source of the message.	(120, 30%)	(210, 55.5%)	(50, 12.5%)	(20, 5%)
5	I am more responsive to flood safety messages when I am personally affected by previous flood events.	(130, 32.5%)	(190, 47.5%)	(50, 12.5%)	(30, 7.5%)

The interpretation of this table reveals a strong positive relationship between awareness, attitude, trust, personal experience, and responsiveness to flood disaster safety messages. A combined 82.5% (35% SA, 47.5% A) agreed that higher awareness improves preparedness, while 85% (32.5% SA, 52.5% A) believed their attitude influences their readiness. Similarly, 85% of respondents (35% SA, 50% A) indicated that being informed increases their likelihood to act on flood safety messages. Trust also emerged as a crucial factor, with 85.5% (30% SA, 55.5% A) affirming that their response depends on how much they trust the source. Additionally, 80% (32.5% SA, 47.5% A) noted that personal experience with past floods enhances their responsiveness. These findings emphasize the need for trusted, informative, and relatable communication strategies to effectively promote flood preparedness among the public.

Discussion of Findings

The results of the study reveal that access to accurate information and the use of social media significantly improve public awareness of flood disaster safety messages. A substantial proportion of respondents (30%) strongly agreed and 25% agreed that accurate information enhances their awareness, reinforcing the assertion by Onwuemele (2018) that timely and precise information is crucial for enhancing community preparedness in urban flood-prone areas like Lagos. Furthermore, 32.5% of participants strongly agreed and 22.5% agreed that social media influences their awareness of flood safety, echoing Okosun,

Patrick, and Banki's (2025) findings that social media serves as a critical tool in disseminating flood-related information in Lokoja communities. However, emotional conflicts such as fear or stress were also identified as barriers to effectively interpreting flood safety messages, with 30% of respondents acknowledging this issue. Mallam and Binbol (2022) observed a similar challenge in Kafanchan, where anxiety and misinformation hinder proactive flood response. This suggests the need for calm, empathetic, and clear communication during disaster risk campaigns to reduce psychological barriers.

For the second objective, the study found that cultural relevance, socioeconomic status, and the use of visual aids significantly shape public attitudes toward flood preparedness. A combined 57.5% of respondents agreed or strongly agreed that culturally relevant messages are more effective, a finding that supports Nwude and Adiele's (2023) conclusion that integrating local context into flood communication improves community engagement in Rivers State. Additionally, 32.5% of respondents strongly agreed that their socioeconomic status affects how they respond to flood messages. This aligns with Adelekan (2011), who found that individuals with limited financial resources in urban slums like Abeokuta are often less prepared due to lower access to coping mechanisms and infrastructure. Respondents also highlighted the importance of visualization tools such as maps and infographics, with 30% strongly agreeing that these tools aid understanding. Oyebode (2021) emphasized that visual tools enhance hazard comprehension, thus increasing the effectiveness of early warning systems and public readiness.

Lastly, the findings for the third objective suggest a strong correlation between awareness, attitudes, and public responsiveness to flood safety messages. A total of 35% of respondents strongly agreed that greater awareness improves preparedness for floods, supporting Ibrahim and Abdullahi's (2016) conclusion that increased flood literacy fosters proactive behavior among residents of flood-prone zones like Kaduna. Similarly, 32.5% of participants strongly agreed that their attitude towards flood messages influences their preparedness, and 30% indicated that trust in the message source significantly impacts their response. These results are consistent with Adelekan (2011), who emphasized the importance of public trust and perception in the success of disaster response initiatives. Personal experience with past flood events was also a key factor influencing responsiveness, which further underscores the importance of building credibility and maintaining continuous public engagement. Together, these findings affirm that public education, culturally aware messaging, emotional consideration, and visual communication are vital in improving flood disaster preparedness.

Conclusion

The study demonstrates that effective communication strategies particularly those involving accurate information dissemination, social media engagement, cultural relevance, and visual aids play a vital role in enhancing public awareness and shaping positive attitudes toward flood disaster preparedness. The findings reveal that individuals who receive accurate and timely messages are more likely to understand and respond appropriately to flood risks, while emotional and socioeconomic factors can either hinder or support this responsiveness. Furthermore, trust in the source of information and culturally appropriate messaging significantly influence public engagement and preparedness levels. These insights underscore the need for a comprehensive, inclusive, and context-sensitive approach to flood risk communication that not only informs but also empowers communities to take proactive steps toward safety and resilience.

Recommendations

1. It is recommended that emergency agencies and stakeholders prioritize the dissemination of accurate and timely flood safety information through social media and other accessible digital platforms to enhance public awareness.
2. Disaster communication strategies should be tailored to reflect local cultural contexts, socioeconomic realities, and incorporate visual tools like maps and infographics to improve public attitudes and understanding of flood preparedness messages.
3. Authorities should invest in building public trust and promoting positive attitudes toward safety messages through consistent, transparent communication to boost responsiveness and readiness during flood emergencies.

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