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Risk communication for disaster prevention and management in the rural communities of Mangu local government in Plateau state, Nigeria

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Abstract

Disasters are unpleasant experiences, but disasters are part of the reality of human existence. Human activities have increased the rate, intensity and sources of disasters. Several studies have determined the role of risk communication, an emerging area of communication, in preventing and managing disasters. This study aims to verify the robustness of the claim that risk communication can influence responses in unfavorable situations, thereby reducing the possible consequences of disasters or leading to immediate avoidance. The theoretical framework for this study is the protection motivation theory and the extended parallel process model. Both theories explain how individuals behave when exposed to disaster threats and how risk communication can influence responses in threatening situations. This qualitative research collected data using focus group discussions involving 20 speakers who were purposively selected based on their experience in dealing with disasters in Mangu Local Government Area, Plateau State, Nigeria. This research findings validate risk communication as a proactive approach to reducing the consequences of disasters. The study suggests that government and professional bodies involved in risk communication should invest in capacity building in various skills and needs to earn the trust of their stakeholders to enhance the perceived credibility of their messages.

Keywords: *disaster management, disaster prevention, risk communication, risk perception*

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Introduction

Everyday usage of the word disaster could imply sudden occurrence with fatal consequences. Such an occurrence may result from poorly managed risk or an unprevented crisis which is acute and widespread enough to qualify as a disaster. Due to its implications and consequences for quality of life and the environment, disasters have remained a subject of investigation among scholars of diverse biases. The outcome of these studies has expanded the understanding of disaster beyond the general perception of sudden incidents to include the manifestation of vulnerabilities that build up over time to ignite chain reactions, according to Wachtendorf (2022). In their study on the impact of flooding as the most common form of disaster in Africa, Umar and Gray (2023) submitted that 15 per cent of deaths on the continent are flood-related, and destruction to properties is estimated at $ 904.5 million or 21 per cent of such incidences between 2011 and 2020.

Further argument about disasters is that they are rooted in the social systems, which implies they could be natural or artificial. For instance, scholars like Aronsson-Storrier et al. (2022) have submitted that the probable sources of disaster are natural or artificial. Similarly, Mashi et al. (2019) contended that disasters are products of natural or artificial activities capable of distorting global sustainability. A joint survey by the Nigerian Bureau of Statistics and the United Nations Development Programme in 2023 reported that the 2022 flooding in Nigeria was the most devastating disaster in recent decades, with over 600 fatalities and 3.2 million people affected. The impact of the 2022 flooding was felt in 34 of the 36 states in Nigeria and the Federal Capital Territory. Due to its debilitating impact, disaster remains a concern for many disciplines and investigations. Nonetheless, like most other social phenomena, there is no generally accepted definition. Instead, scholars like Aronsson-Storrier (2022), Dahlberg (2022), and Sundar and Sezhiyan (2007) have identified certain traits of disaster as a situation of widespread damage that far exceeds resources and ability to recover. In their study on risk and disaster management in seven South American countries, Marcillo-Delgado et al. (2022) considered that continent the world's second most disaster-prone part. Further to their conclusion that communication's capability to influence risk perception among potential victims, the scholars asserted that risk communication should be part of risk and disaster management strategy.

Other than flooding, the social phenomenon of perennial rivalry between farmers and herders and its attendant displacement of communities, destruction of properties, and other economic impacts are emerging disasters across the West African sub-region of the African continent. A July 2024 edition of the SAIS Review of International Affairs, a John Hopkins University Alumni Publication on international affairs, attributed this emergent social phenomenon to resource competition between pastoralist herders and sedentary farmers. The publication of trending issues in foreign affairs explained the phenomenon as a complex web of social problems with ethnic implications and deep-rooted structural issues. The experience in Nigeria is somewhat exacerbated by the frequency of occurrence and broader coverage area, which, according to Okwulu et al. 2024, is constituting significant challenges to food security, household income and an increase in the population of vulnerable ones. While observations pointed to the high incidence in Nigeria's northern and middle belt geographical zones, available statistics show that no part of the country is spared from this social phenomenon.

Song et al. (2024), in a quantitative study, identified six African countries, Nigeria, Sudan, South Sudan, Chad, Kenya and the Democratic Republic of Congo, as areas prone to farmer-herder clashes, concluded that while pressure on land, water and other resources are the immediate cause of growing incidences of the rivalry, linguistic diversity is exacerbating the phenomenon. The study that collected data between 2010 and 2023 indicates that the fatalities of incidents of clashes correlate with linguistics diversities. The probability of rivalry diminishes, and the outcome of disagreements among pastoralists and sedentary farmers and fishermen is better managed, notwithstanding acute drought and water shortage in areas with linguistic uniformity. Additionally, study findings indicate that efforts at addressing the challenges by the various countries' governments are also hampered due to a lack of language inclusiveness.

In a qualitative study that used focus group discussion and structured interviews to obtain data, Dimelu et al. (2016) concluded that the socio-economic implication of the rivalry between farmers and herders could lead to loss of lives, damaged harvests and farmlands, and water pollution, among other losses. Nonetheless, the study examined the effectiveness of the management approach, such as village communities, traditional dialogue, and other corporate institutions, which it concluded were hampered by a lack of political will from the government and a lack of funding for the corporate institutions. Notwithstanding, this study examined the use of risk communication in addressing this social phenomenon. A similar conclusion was reached in another qualitative investigation in the western highland of Cameroun, where Feldt et al. (2020), using obtained data from 162 map-based interviews, examined the rising incidence of rivalry between the sedentary farmers and pastoralist herders. The study findings established that the growing tension between the two groups attributed the ugly development to rapid urbanisation population growth. The study, which extrapolated the world population to nudge 9.8 billion people by 2050, indicates this social phenomenon might intensify in that part of the world where there is no marked classification between these two categories of farmers. The identified marked intensity of clashes corresponds with the transitional period of dry and wet farming seasons. While Feldt et al. (2020) had established the rising incidence, this investigation examines the use of risk communication in managing the phenomenon.

While both studies are qualitative, as is the current investigation, they investigated the phenomenon from the social-economic implications and causal factors rather than the role of risk communication, which is the focus of this investigation.

A qualitative study on how shifting weather patterns exacerbate communal clashes and other forms of disaster by Petrova (2021) used data from an Afrobarometer from 2005 to 2018. They concluded that flooding induces communal rivalry and other forms of disaster due to scrambling for resources among herders and farmers. Further findings of the quantitative investigation concluded the relevance of trust in the state and local government institutions in resolving rivalry of this nature. One area of convergence between the study by Petrova (2021) and this investigation is the examination of the role of trust in media and professionals in the use of risk communication, nonetheless, the study on disaster management. Notwithstanding, this investigation is limited to Mangu Local Government Jos Plateau State, Nigeria, rather than the broader coverage of Sub-Saharan Africa.

Studies have also examined the effectiveness of policy options in addressing the social phenomenon of farmer-herder clashes. For instance, in a two-stage-predictor substitution quantitative, Nnaji et al. (2022) obtained data from 401 households in Nigeria. Studies indicated that most underdeveloped economies have less effective regulated land use legal and regulatory frameworks that could prevent or manage disasters like farmer-herder clashes. Policy interventions to address the phenomenon have also failed for the same reason. The report further establishes a correlation between the farmers-herders clash and Nigeria's rising trend of food insecurity. Study recommendations include a proactive approach to envisaging and managing disasters using risk communication.

A similarly brewing tension for resource control involves the Forestry Commission of Ghana and traditional institutions where the chiefs involved in charcoal commodity production claim the trees over public institutions. While the situation has not evolved to the level of farmer-herders rivalry, Agyei et al. (2019) emphasise the need for effective management of an emerging state of anarchy where a public

institution lacks the power to exercise mandate on account of deviant posture by traditional institutions for economic or resource control gain.

Notwithstanding, Hansen (2023) established a correlation between contention for resources, land-related issues, state fragility and the eruption and dynamics of violence. Similarly, a submission was made by Brown et al. (2022) on the challenges of resource management in the inner Niger Delta, located in the Sahelian zone of central Mali. He observed that land is never put to a single use as different economic groups and communities have different needs depending on the year's season. The unpredictability of water resources has made communities develop coping strategies that sometimes harm peaceful social cohesion among farmers. The report indicates that over-exploitation and resource degradation threaten livelihoods, causing tensions and conflicts within and between these communities.

Attributing the economic vulnerability as a significant inducement for farmer-herder clash, Efobi et al. (2025), in a survey study, consider Nigeria as an epicentre of this social-economic, which has affected west and central Africa in recent times. The quantitive study estimated a loss of 14 billion dollars and 3641 casualties between 2016 and 2018, examined policy options for addressing the phenomenon and concluded that the success of any approach would depend on the quality of information at the parties' disposal. The study observes the rising escalation of rivalry between pastoralist herders and sedentary farmers since the 2010s, and it needs a better appreciation of the parties' vulnerabilities due to the scarcity of resources.

Notwithstanding the nature of the disaster, Nigeria's first attempt at a coordinated approach to disaster management is enacting the National Emergency Relief Agency Act of 1976. In their review of the Act, scholars like Mashi, Oghenejabor, and Inkani (2019) submitted that the effort is reactive as it emphasizes crisis communication rather than risk communication. In line with its mandate, NEMA has acted more as a relief management agency than a disaster prevention agency. As such, scholars like Olorunfemi (2008) have made a case for a more holistic approach to disaster prevention and management, with greater attention paid to risk communication.

Relatedly, as part of the efforts at disaster management, Coombs et al. (2019) consider risk communication as an exchange of information to improve the capabilities of the potential risk bearer about the source of the risk. Risk communication is persistent and entails public education with scientific projections through advertisements, fliers, and pamphlets. Reckelhoff-Dangenl and Petersen (2007) submit that risk communication is usually interactive, elicits responses, or provides the audience with a clearer understanding of technical issues. Contrarily, crisis communication is an effort to manage a disaster's aftermath. Similarly, Manandhar et al. (2015), in their study of the 2019 flooding incident in Arkansas, US, consider risk communication as entailing informing the public on imminent threats, promoting protective actions, and facilitating disaster response and recovery activities. Therefore, Cheng and Cameron (2022) consider crisis communication rather reactive, emphasising actionable information required during or after an incident. The ability to manage disaster using risk communication as one of the instruments forms the subject matter of this study. Observations can, therefore, be made that the nature of the envisaged disaster would determine the content and nature of communication. In qualitative research on risk communication challenges, Fathollahzadeh et al. (2024) concluded that

effective risk communication is central to disaster management. Though a similarly qualitative study, the scholar explores the role of risk communication from the perspectives of risk managers and rescuers, using semi-structured interviews as the instrument of data collection, and concludes that distrust, ambiguous information, and inconsistent warning messages are significant hindrances to effective risk communication in disaster management.

A further justification for risk communication was made by Okocha, Faloseyi, and Onobe (2023) on the dimensions of its effectiveness in the prevention of disaster-associated challenges. Specifically, Landrigan et al. (2022) submitted that the negative impacts of disasters on children and women could be severe at child-bearing age, during pregnancies, and child labour as preventable with risk communication. While there are many studies on crisis communication and its impact on disaster management in Nigeria, barely a handful of studies have been conducted on risk communication and its implications for disaster prevention and management. Therefore, this study's main objectives are to investigate the level of exposure to risk communication among Nigerians, especially in a disaster-prone area such as the Mangu local government areas of Plateau State and examine how such exposure to risk communication has assisted with the practice of disaster prevention and management strategies among the people. These objectives are divided into several aspects as follows: first, to investigate the community's understanding of risk communication; second, to examine whether exposure to risk communication has helped the community understand disaster prevention strategies; third, to examine how risk communication has helped with disaster risk reduction strategies among the community; and fourth, to investigate the limitations that exist to the effectiveness of risk communication among the community.

Scholars' interest in disasters could be argued to be due to their multi-dimensional impacts, and they have subsequently remained a subject of investigation by many disciplines. Many definitions have been advanced. For instance, Durga and Swetha (2015) consider disaster as the outcome of environmental activities, which could be natural, artificial, or armed conflict producing stress, injury, and damage of great magnitude or consequences. In its evaluation of disaster prevention and management in the European Union between 1980 and 2020, the International Bank for Reconstruction and Development and the World Bank, in its 2021 report, observed that the impact of disaster in the Union could be estimated at 12 billion Euro per annum and that this figure could progressively increase on account of phenomenon such as climate change.

The United Nations Development Programme (2010) defines disaster prevention as an outright avoidance of adverse impacts of hazards and related disasters. Similarly, Tulane University, School of Public Health and Tropical Medicine (2021) consider disaster prevention as an effort to reduce potential damage and suffering that disasters can cause.

Notwithstanding, disaster prevention could be argued as protective and preventive actions taken before a disaster. They are usually directed towards reducing risk and hazardous consequences, such as harmful effects on communities and critical installations. In its justification for disaster prevention, the IBRD/World Bank 2021 report submits that the cost-benefits of investing in preventative measures two (2) to ten (10) times outweigh the consequences of disaster impact.

It is observable that many phenomena around us could be unexpected. Yet these incidents have a profound impact and could qualify as disasters, especially when the effect becomes fatal and overwhelming on the workforce, finance, technology, and economic resources. In some extreme instances, Jared, Louis, and Danielle (2020) graded some disasters as hypercomplex emergencies. That is when the required response overwhelms the social system and exposes the vulnerability of the immediate environment.

Similarly, Srivastava (2010) considers disaster catastrophic when the impact is beyond the immediate environment and significantly damages life and properties. Tulane University's School of Public Health and Tropical Medicine (2021) considers disaster management as preparing and responding to disaster. In its national policy (2009), the Kenya Government conceptualised disaster management as a systematic approach to deploying administrative directives for organisations to implement strategies and policies to reduce the impacts of hazards and the possibility of disaster. Yet another perspective on disaster management was provided by Okocha, Agbele, and Kente (2023), who summed it up as the process involved in preparing for and responding to disasters. The scholars elaborated that it is systematic and encompasses a series of actions to reduce the effect of disasters. Therefore, this study attempts to help indigenes of Mangu Local Governments understand risk communication and how it has impacted their handling of disasters.

For instance, preparation, planning, mitigation, and recovery are management principles for crises or emergencies. However, the flexibility of these elements is upscaled when an event's occurrence approaches the disaster threshold, according to Jared, Louis, and Danielle (2020). Through a 2017 report tagged Disaster Risk Reduction Plan for Resilience, the United Nations encapsulated the approach for preparation and mobilisation against disasters worldwide. Some scholars have since then argued the need for disaster management to go beyond the four stages of planning, mitigation, response, and recovery to adopt a more contemporary approach for a better result. Specifically, Sawalha (2020) canvases incorporating contemporary management concepts into disaster management. Notwithstanding the proposal for incorporating modern management and the four-stage emergency management approach, the argument is posited that communication remains a crucial aspect of disaster prevention and management.

Earliest efforts at examining the role of communication in disaster management include Paul Slovic, a psychologist, who is credited with first mooting risk communication as an approach to understanding the mental shortcuts and biases individuals create to understand risks. Arguments could be advanced that those biases and heuristics assist an individual's perception of risks and how best to handle them. The Campbell Institute of Risk, United States, in a 2024 study, submits risk perception as the ability of an individual to discern or tolerate a certain amount of risk. The tolerance level was further conceptualised as the capacity to accept a specific level of risk. This study attempts to investigate how risk communication has assisted Nigerians in understanding disasters and their handling of them.

Further efforts on risk communication were undertaken by Paek and Hove (2017) and Savadori and Lauriola (2022), who consider the effect of heuristics as one of the ways to assess individuals' acceptance of risk levels. It entails the intuitive, emotional, and gut feelings in individuals around a disaster or risk, which could be argued as the main predictor of risk. Contrarily, risk analysis relies on systematic, serial, slow, and conscious processes to judge or predict the individual's nature, severity, and

ability to cope with or withstand a risk or an impending danger (Fischoff & Kadvany, 2011; Balog-Wey, McComas & Besley (2020) submitted). Risk analysis relies on logic and statistical reasoning to arrive at a decision. Arguments have been posited that the risk analysis is time-consuming, effortful, and often less efficient in steering complex situations than the risk feelings. However, it could be more efficient in those scenarios where risk feelings may not carry individuals through. Relatedly, King and Blickensderfer (2023) and Savadori and Lauriola (2022), in their study on the application of risk communication, concluded that 'analytical thinking controls and corrects affect-laden judgments provided the decision-maker has sufficient time, information, and cognitive resources.

As earlier suggested, disaster occurrences are primarily unexpected and unannounced. Yet, investigations and capacity developments around them have made preparation and preventive measures possible and better than a few years ago. Risk communication, which could be considered messages around known probabilities of disaster occurrence, could be argued as one such effort. It is different from crisis messaging, which could be argued as situation centred. Instead, risk communication could be considered scientific and, often, a projection based on what is known or could be scientifically proven. According to Okocha, Faloseyi and Onobe, 2023, risk communication is persuasive messaging eliciting a response to mitigate the consequences of a portentous situation. Meanwhile, Agrawal, Ambury, Parida, and Joshi (2022) comment on risk communication as an emerging field that focuses on risk-reduction and resilience-building strategies to deal with future risks and mitigate the impact of an impending disaster. One primary objective of risk communication is to elicit disaster reduction responses from potential disaster victims and to lower victims or outright occurrence of unwholesome incidents (Hendricks, 2023).

Similarly, in their consideration of the effectiveness of risk communication as a disaster reduction strategy or management, Sjoraida and Anwar (2018) opined that the effectiveness of risk communication depends on the synergy among various communication methods, including traditional, modern or digital communication. Nonetheless, Fathollahzadeh et al. (2023) submitted that the critical success factor of risk communication is effective coordination among relevant organisations and stakeholders. Risk communication as a two-way communication should assist potential victims in making informed decisions in the face of disaster risk assessment to mitigate the losses or avert a disaster.

Considering that risk communication is still an emerging aspect of mass communication, scholars are still grappling with its full import and relevance to disaster reduction approaches. Notwithstanding, Balog-Wey, McComas, and Besley (2020) submitted that there cannot be a generic version of risk communication. Instead, scholars were encouraged to explore its multiple forms and interdisciplinary nature open-mindedly. For instance, Dickman and Strahwald (2022), in their investigation of the relevance of risk communication to public health emergencies, observed its capability to stem outbreaks in the public health system. An argument could be made that risk communication is an attempt to encourage the audience to create adaptive behaviour, obtain information about impending risk and achieve behavioural change in mitigating the consequences of disasters.

Observably, some scholars considered the goal of risk communication as the total avoidance or mitigation of the possible impact of disaster. In this category, Okocha, Faloseyi and Onobe (2023) contended that risk communication should be designed to support and empower the audience in such a way as to avert disaster.

Further observations were made by Agrawal, Ambury Parida and Josih (2022) on certain critical factors such as risk perception, risk framing by multiple stakeholders, and information deficits. Arguments were made that risk communication is a two-way exchange of information and sharing of meaning to empower potential disaster victims to adequately evaluate the impending scenario and make well-informed decisions that would avert the impending danger or mitigate consequences. In their review of the effectiveness of risk communication, Bradley, McFarland, and Clarke (2014) concluded that several studies confirmed a correlation between the level of exposure to disaster-related knowledge and behaviours and the ability to take pre-emptive measures. Wood and Miller (2021) evaluated critical factors that could limit the effectiveness of risk communication and identified reactions elicited from the audience as the ultimate measure of success for risk communication.

Nonetheless, da Cunha and de Andrade (2016) observed that most situations of danger would envisage better response from risk communication in situations with prior preparation of this response. Notwithstanding the centrality of these factors in mitigating or averting risk, an argument could be made on the importance of professionalism and trust of the risk communicator.

Notwithstanding the argument on what constitutes successful risk communication, this assertion has remained a subject of several debates, especially regarding assessing its success. To provide possible indicators, the United States Environmental Protection Agency in 1988 developed the seven cardinal rules of risk communication (EPA, 2000). The seven items listed by EPA include the acceptance and involvement of the public, listening to the audience, being honest, frank, and open, coordinating and collaborating with other credible sources, meeting the needs of the media as agenda setters and having the capacity to enlighten the audience. Other factors include breaking down technical jargon to the audience's understanding and being compassionate with your messaging; lastly, carefully evaluate the communication outcome and review the communication plan (Kikwasi, 2018). Arguments could be submitted that the cardinal point to successful risk communication could be explained in this context. Contrarily, Boholm (2019) submitted six factors that apply to public information management: strategic planning and decision-making, intergovernmental collaboration, assigning responsibilities among agencies and stakeholders, and scientific knowledge and understanding of risk issues. Other factors include interaction with the media, risk management alignment, and the message's formulation and dissemination. Similarly, da Cunha and de Andrade (2016) submit the discipline to listen to the side of the audience and readiness to understand and learn from the side risk communicators. The audience must be brought to realise the potency of a disaster or danger.

Examining the subject matter from the theoretical perspective, the protection motivation theory, with its origin in psychological research, was based on the original work of Richard Lazarus, whose plan was to explain the appeal of fear and how people cope with stress and fearful situations. Subsequently, R W Rogers 1975 came up with the protection-motivation theory to understand fear appeals, health attitudes and behaviours of people. The theory was initially applied to know how people react in disaster situations, especially when there has been a recommended response. Further works by Rogers, in 1983, identify three processes of information gathering, cognitive mediation and coping during disaster or stressful situations as integral parts of the theory.

Subsequent analysis by Marikyan et al. (2023) elucidates that the protection motivation theory emphasises cognitive mechanisms and how they guide individuals in applying recommended behaviour in stressful situations. He identifies stages such as the information gathering stage, which entails the amount of information at an individual's disposal through interpersonal relationships and media reportage of the impending danger and the extent to which the audience understands a stressful or disastrous situation. There is also the cognitive mediation stage, which entails the application of information gathered to assess the severity of a disaster. In contrast, the coping process explains the individual's eventual reaction, which could be an adaptive or maladaptive reaction based on the individual's cost-benefit analysis of the situation and the envisaged reaction.

According to Weber et al. (2019), protection motivation theory envisages individuals protecting themselves based on threat and coping appraisals. The two appraisals would be guided or influenced by the three processes mentioned earlier as the component of the theory. Further work on the theory by scholars like Floyd et al. (2000) identifies the mediatory role of factors such as socio-economic status, demographic characteristics, trust, and reliance on public institutions charged with managing emergency or disaster situations on the three processes of information, cognitive and coping strategies. However, Weber et al. (2019), in their further report on applying the theory, said some scholars have found no correlation between people's understanding of impending situations flooding their worry, awareness, and preparedness. The studies, however, indicate that the protective motivation theory confirmed a complex relationship between communication and protective behaviours. A further critique of the theory by Rogers (1975), the original promoter, and other scholars is that protection motivation theory is not comprehensive of all environmental situations, cognitive processes and moderators that might shape motivation or reaction in the face of stress or disaster. Notwithstanding, the theory applies to this study to the extent that it explains the impact of persuasive and informative messages on disaster reduction and the eventual attitude of the people under stress or in the face of disaster.

At another breadth, one may examine an individual's risk handling from the extended parallel process. It is a communication theory that explains how individuals react when threatened or the consequences of certain situations. The theory explains how individuals can take necessary action they believe is effective in mitigating threats. The model envisages four possible behaviour outcomes using the matrix of feelings of danger, susceptibility to danger, efficacy of the protective action and efficacy level of their response.

The model has been used to explain protective actions by people during disasters and challenging situations. A recent application of the theory is by Yoon, You and Shon (2022) in their investigation of people's protective behaviour against COVID-19 in South Korea. The model envisages that danger and fear control are mutually exclusive responses based on an individual's threat and efficacy appraisal. Fear control is considered the rational instinct to reduce fear in an individual, and it appears as defensive avoidance, message derogation and perceived manipulation. The model has two central concepts: perceived susceptibility to a threat and perceived efficacy. The perceived threat entails an individual's assessment of the danger or disaster's severity and susceptibility estimation. On the other hand, perceived efficacy includes self-efficacy and response efficacy, which implies their mastery of the application of the available preventive action and belief in its efficacy. Perceived efficacy relates to

assessing a recommended preventive action, while response efficacy is an individual's belief in following the recommended preventive action.

The summation of the EPPM is that when individuals envisage threat and efficacy are high, they resort to protective behaviour by acting according to the media/message recommendations. On the contrary, when the perceived threat is high, but efficacy is low, the fear appeal will instigate a defensive response to the message, or risk communication will be rejected. The theory is relevant to this study in examining the effectiveness of risk communication in assisting people's choice of preventive approach in the face of risk or disaster.

Contextual, the choice of Mangu as the study population stemmed from the findings of three of the reviewed studies, specifically, Efobi et al. (2025), Nnaji (2022) and Dimelu (2016) asserted that the sub-Saharan Africans are identified with the nature of artificial disaster as farmer-herder clashes. The studies also identified Nigeria as the epicentre of such social phenomenon, perhaps due to her population size and landmass, which precipitate acute shortage of pressure on available resources. Besides, the middlebelt region of Nigeria, at which centre is the Plateau state, has witnessed a sizeable number of such disasters lately. With 442,000 population by 2022 projection, Mangu Local Government has been in the eye of the storm of such a disaster and is a viable location for a study of this nature. Besides, the Mangu Local Government is also easily accessible, hence its choice for this investigation.

Research Method

This study was based on a qualitative research method using focus group discussion to source primary data. The focus group discussion is appropriate for getting live experience in rural settings such as the Mangu Local Government Area of Plateau State, Nigeria. The choice of focus group discussion was informed by its significant advantage in providing diverse perspectives from study discussants. Additionally, FGD encourages interactions, ensuring rich data collection while allowing the researchers to take note of non-verbal communication as part of the gathered data. Consequently, the study benefitted from the knowledge of the local subject to one form of risk or disaster lately (Bryman, 2012). Mangu was considered for ease of access for gathering primary data better than other locations in the country susceptible to perennial disasters. A focus group guide with fourteen open-ended questions was used to elicit responses from 20 purposively selected discussants at four focus group discussion sessions held between 5 February and 10 February 2024. Each of the four sessions had five discussants selected based on their experience and exposure to risky communication. Discussants were residents of various communities in the Mangu Local Government Area of Plateau State. The choice of the local government was informed by the residents' recent experience with one form of disaster or another and to find out how risk communication assisted them in those instances with their expertise. While deciding to participate in the focus group discussion was voluntary, participants were assured that whatever information they provided was strictly for academic exercise and would not be used for any other purpose. Participants were identified in the data analysis through allocation numbers, P1 to P20 to protect their identities in line with the assurance of the confidence information they provided (Hansen et al. 2013). The data obtained through recording were repeatedly read to understand better and identify patterns, which were analyzed thematically. Identified patterns and subsequent themes were subsequently coded in line with the study objectives.

Results and Discussion

Disasters in Nigeria have become an increasingly complex and urgent issue to address, with flooding being one of the biggest threats facing the country. Flooding in Nigeria has experienced significant fluctuations in recent years, with certain periods recording the most severe impacts on communities, infrastructure and the economy. This phenomenon does not happen by chance, but is influenced by various interrelated factors.

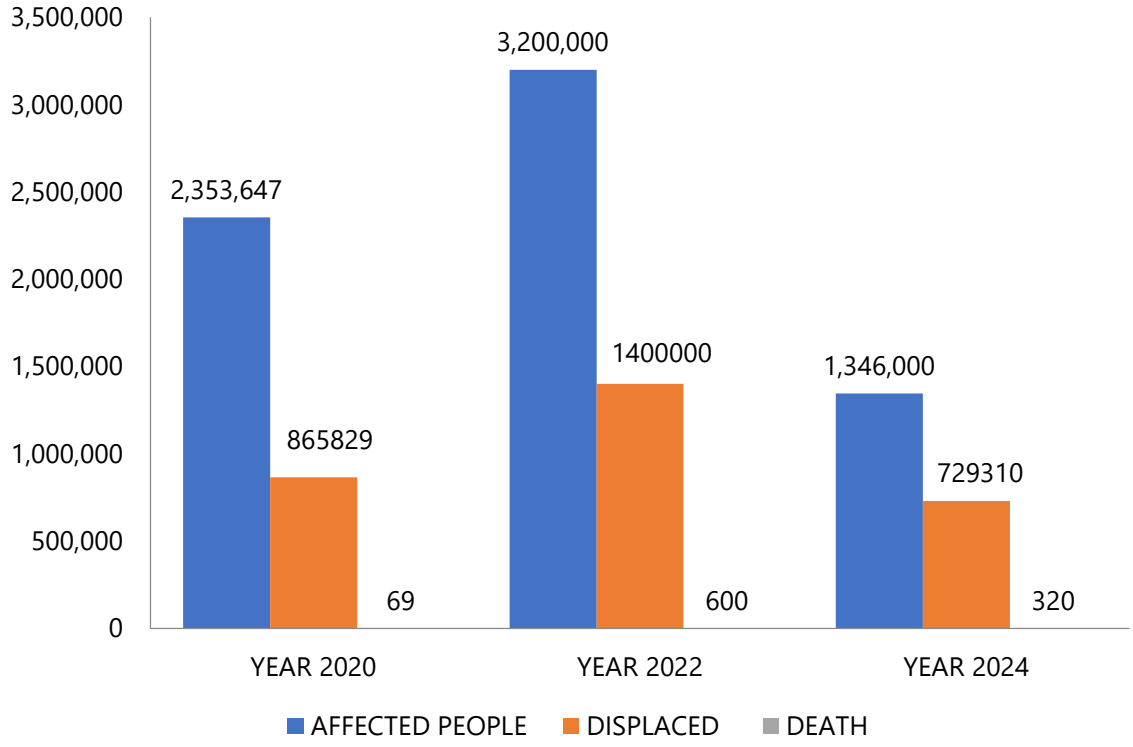

Figure 1. Impact of Flood Disaster In Selected Years In Nigeria
Source: Nigeria Emergency Management Agency – 2022/2023

One of the major factors contributing to the increasing intensity of flooding is global climate change, which has led to an increase in the frequency and volume of rainfall in different parts of Nigeria. In addition, the country's geography, with many low-lying areas and inadequate drainage systems, makes some areas more vulnerable to widespread inundation. Other contributing factors include human activities, such as deforestation that reduces soil absorption, rapid urbanization without adequate spatial planning, and blockage of waterways due to uncontrolled waste disposal.

Flooding in Nigeria not only causes economic losses, such as damage to infrastructure, loss of agricultural land and disruption of trade, but also significant social impacts, such as population displacement, spread of diseases and pressure on healthcare and education resources. Therefore, understanding and implementing disaster risk communication is an important element in efforts to reduce the negative impacts of flooding. Effective disaster risk communication in Nigeria is crucial in helping communities understand flood risks, raise awareness, and take necessary precautions to mitigate potential impacts.

The responses from the participants were collated, analyzed and presented below:

Table 1. Demographic Distribution of discussants

Gender	**Frequency**	**%**
Males	13	65
Females	7	35
Total	**20**	**100**
Age Range		
25-34	6	30
35-44	14	70
45-55	NIL	0
56 and above	NIL	0
Total	**20**	**100**
Indigenous Village of Ancestry in Mangu Local Government Area		
Kumbun	2	10
Bwai	3	15
Chakfen	4	20
Pushit	1	5
Kinat	5	25
Mairana	3	15
Kwahaslalek	2	10
Total	**20**	**100**
Professions		
University Students	4	20
Farmers	9	45
Businesspeople	2	10
Civil servants	5	25
Total	**20**	**100**

Source: field survey, 2023

As shown in Table 1 above, the analysis of study discussants indicates that the majority (65 per cent) of the participants are males, while 35 per cent are females. The discussants are drawn from seven of the most significant communities within the Mangu Local Government Area for the study to take advantage of diverse experience with disaster prevention and management. The age distribution of discussants indicates the preponderance of the active population within the age range of 25 to 45. Four primary professions were represented among the discussants. Most of the discussants, or 45 per cent, are farmers. Other professionals among the discussants are civil servants, who are 5 of 25 per cent; two (2) business people, or 10 per cent of the participants; and four (4) students, amounting to 20 per cent.

Understanding of risk communication

Commenting on their understanding of risk communication, eight (8) of the discussants indicated that information from the media was quite understandable to them. In contrast, twelve (12) others clarified that they had trust issues with the information from the media as some of it was understood but unreliable.

According to P10, "information from the press on preventive measures is clear and well understood by me. Still, I consider it a half-truth because each time we call the telephone number we are provided, the lines rarely go through any time we learn of an

approaching rampage or attack". He further commented on the irregularity in the timing of the information from the media.

There is an equal distribution of Commenting on their understanding of risk communication, eight (8) of the participants indicated that information from the media was quite understandable to them. In contrast, twelve (12) others clarified that they had trust issues with the information from the media as some of it was understood but unreliable. According to P10, information from the press on preventive measures is clear and well understood by me. Still, I consider it a half-truth because each time we call the telephone number we are provided; the lines rarely go through any time we learn of an approaching rampage or attack. He further commented on the irregularity in the timing of the information from the media.

There is an equal distribution of discussants who depend on traditional and social media on the one hand and those who rely on interpersonal communication on the other hand. Nonetheless, more than half of the discussants, including those dependent on the media, expressed their reservations over trust in the media information.

Furthermore, the discussants were asked to state the frequency of disasters in the form of life-threatening crises. Five (5) discussants revealed that man-made disasters resulting from attacks by bandits in their locality of Kumbun and Mairana villages in the Mangu Local Government area occur at least twice a month. In contrast, eight (8) discussants from Bwai and Kinat villages said it happens at least once a week, while four (4) discussants from Chakfen village indicated it occurs weekly. In contrast, three (3) discussants who hail from Pushit and Kwahaslalek villages revealed that it happens at least once in two months.

On the issue of the recency of disaster in their villages, two (2) of the discussants from Kumbun village recalled that the community was attacked last on 5 January 2024, where about fifteen (15) people lost their lives, while three (3) of the discussants from Bwai village recalled that the life-threatening disaster last occurred on 21 January 2024 which resulted in the loss of twelve (12) people in the town. Four (4) of the discussants from Chakfen village revealed that the disaster incidence in their community last occurred on 28 January 2024, where six (6) people lost their lives, while one (1) of the discussants from Pushit village indicated that the latest incident happened on 14 January 2024 where eight (8) people lost their lives. Ten (10) of the discussants who hailed from Kwahaslalek, Mairana and Kinat villages said the last disaster incidence occurred on 24 January, with over 20 people losing their lives.

Giving a vivid account of the incident in his village, P4 said, "The assailants came on motorbikes and were over forty (40) in number with AK 47 rifles." That account was corroborated by P11, who added that "the assailants could easily be mistaken for soldiers as they were kitted in fatigue uniforms." Discussants tended to see disaster from the perspective of farmer-herders' attacks, and they even downplayed other occurrences, such as flooding and extreme weather conditions.

However, the discussants were required to reveal their sources of information about the disaster-handling strategies in their areas. Four (4) discussants indicated that they got their information through social media. In contrast, five (5) discussants revealed that they received their information through extended family members and relations, while one (1) of the discussants admitted that she got her information through community youth meetings. Specifically, P7 said, "I normally depend on social media to get information, especially about pending crises". Ten (10) discussants stated that they regularly listen to or read the media daily for information on disaster

mitigation due to the fear of the unknown and the frequency of attacks in their villages. They revealed they had to depend solely on the media to feed them with disaster mitigation information. This finding implies that a significant number of the study discussants, about 30 per cent, still rely on interpersonal communication rather than mass media for information.

Risk communication and disaster prevention practice among the people

Discussants were required to state whether the information they got on disaster risk reduction was helpful during the last disaster in their villages. Eleven (11) of the discussants indicated that they found the risk communication provided by the media shortly before the previous incident somewhat helpful. On the contrary, some discussants found the phone numbers provided by the media to be of no assistance during the last disaster. The discussants indicated that most did not go through the disaster incident, which was useless to them in their communities. In contrast, four (4) discussants revealed that they had trust issues with the information provided by the media from the last disaster occurrence. In contrast, five (5) discussants revealed that information from the media was of little help to their communities from the last disaster since help came very late at the end of the day.

In the words of P7, "most times, the information we get on how to overcome trouble from attacks turn out not to be trustworthy because even the soldiers that are sent to our communities to assist us normally turn their back against us when trouble arises". P15 added that "most of the soldiers sent to protect us often claim that they were not given clearance to retaliate on the assailants when they attack our communities".

Information provided by the media is rarely useful, according to five (5) respondents who alleged there was bias from the security agencies. Contrarily, seven (7) participants agreed that they found the information practicable, even though there could be other challenges from network service providers. As such, eight (8) other participants recommended improvements in the information from the media before and during disaster occurrences as it could assist with prompt response from security agencies. According to P12, who found some of the media information helpful but noted, "the security people hardly respond in good time. They often come after the attackers have left, making most of us believe that they work hand in hand with them".

P14 said, "There are times security agents arrive and give the excuse of not having enough fuel in their vehicle to go after the attackers. Such developments make media information impracticable because the media tells us to rely on and trust the security people during an attack."

The challenge with trust comes to the fore here as participants expressed reluctance to rely on the media information.

Risk communication and disaster risk reduction

The participants were required to indicate whether media recommendations on risk aversion were applicable among residents. Eight (8) of the discussants revealed that information from the media on recommendations on risk aversion was appropriate. In contrast, six (6) discussants indicated that most of the available press had yet to grasp the disaster's nature fully. Thus, most of the information from the media did not apply to their predicaments.

The discussants were expected to reveal whether the media information made their communities imbibe a specific disaster awareness culture. Six (6) discussants

asserted that information from the media had enabled them to livestream some of the attacks from a safe distance and upload accurate time information on social media during disaster occurrences in their communities. At the same time, seven (7) discussants revealed that information from the media has enabled them to identify the actual security personnel from impostors who disguise themselves to launch attacks on their communities. The rest of the seven (7) discussants also agreed that information from the media gives them enablement but emphasized that the media needs to be more thorough in their investigative reports.

According to P8, "We generally believe that the security personnel are not concerned about our predicament. Besides, information from the media further made us realise that we are on our own in times of attack". Notwithstanding, P13 said that the media had taught the locals how to post information updates on their social media handles during attacks to call for public attention instead of relying on security personnel.

It could be deduced that the trust challenge may come from the security personnel's reliability and response rate. Still, discussants cannot separate the media from this blame since it is the purveyor of the information. There is also the need for the press to develop a certain level of competencies in risk communication. Notwithstanding, people have developed competencies around media technologies and social media, especially in sharing information through media information.

Limitations to the effectiveness of risk communication

Seven (7) of the discussants, in their response to the questions on the limitation of risk communication, explained that the information they got from the media was valuable and applicable to their situations. Nonetheless, the challenge around trust, according to five (5), has remained a significant limitation to risk communication. Besides, the discussants want risk communication produced in their indigenous languages. Eight (8) of the discussants revealed that the information from the media was not satisfactory. For instance, P12 observed that 'we understand the information we find on the news media, but the limitation has been the trust element, especially when the information is from the government'. P19 said, "It is not a matter of understanding but trust. I find it difficult to trust the media and the government on security issues in my community". Further observations were made by P10, who complained about the regularity of risk communication and subsequently called for improvement.

As this investigation has abundantly demonstrated, the media's ability to earn the audience's trust is critical for risk communication to achieve the desired outcomes. A media channel can earn its audience's trust by disseminating media information that the receivers, over time, deem reliable for their use.

Discussion of Findings

One of the objectives of this study is to investigate the extent to which people understand risk communication. Three relevant questions were asked of the discussants on the sources of their information, their experiences with disaster, and how often they received advisory notes or risk communication on disaster prevention and management through their news sources. Discussants' responses to these questions assisted with assessing their understanding of risk communication. Most discussants affirmed that they understood risk communication and regularly listened to the media, particularly the radio, for risk communication. A sizeable number of discussants, thirty (30%) per

cent, rely on interpersonal or community meetings for their sources of information. This study indicates a firm reliance on interpersonal communication, even in the 21st century, marked by dependence on information and communication technology. This finding could be attributable to the theoretical implication of the role of opinion leadership. Nonetheless, some discussants expressed their reservations about the quality of risk communication they received.

Those discussants who depended on the media for risk communication further indicated the regularity of the advisories they received. P10 commented on the regularity of risk communication, saying it comes at irregular intervals, such as public announcements, advertisements, and jingles. One of the features of risk communication that distinguishes it from crisis communication is the higher frequency of the broadcast. This finding implies that irregular dissemination of risk communication could cast clouds of doubt on its authenticity and level of reliance by the audience. Additionally, the discussants interest in relying on risk communication from the media aligns with the explanation of the information-gathering aspect of the risk motivation theory as enunciated by Agrawal, Ambury, Parida, and Joshi (2022).

Theoretical implications from the standpoint of either the protective motivation theory or expanded parallel motivation model are that the ability of the audience to arrive at the right decision is significantly hampered, especially when risk communication is at irregular intervals and unreliable. The role of the mass media in enhancing risk communication is further restricted when a significant member of the media audience would instead rely on interpersonal communication. Notwithstanding, the capacity of the opinion and community leaders could be improved through deliberate capacity building by relevant public institutions, such as the National Orientation Agency in the Nigerian example, on risk assessment and perception, having released that a considerable amount of the community members relies on them as sources of information.

The second objective of this study is to find out the usefulness of risk communication in instilling disaster prevention attitudes in people. Much like the findings of previous studies that established a linkage between risk communication and the development of disaster prevention attitudes, some discussants said they learnt how to live stream instances of attack. However, most of the discussants still expressed reservations about trust elements as they received some of the media information with some doubt in their minds. They claim that some media information lacks credibility as it has not stopped attacks on their settlements. For instance, P10 said that information from the media on what to do before any attack is well understood. However, information from the press is mainly half-true, and notably, the telephone numbers provided rarely function when we want to alert security agencies. Notwithstanding, the study findings indicate that the majority (65 per cent) of the media audience still relies on the media for risky communication.

The finding on high reliance on the media for risk communication indicates that exposure to media information would influence risk protective attitude, risk aversion or mitigation among the people. Additionally, some participants said they learned how to livestream incidents of attacks from a safe distance, thereby creating awareness in the neighbourhood and public awareness about impending danger. Such a development assists the neighbourhood in escaping attacks and could also make the attackers uncomfortable. This finding also establishes the aspect of the extended parallel process model on the correlation between the feeling of threat and the motivation to handle a disaster avoidance or mitigation of threat.

Further discussion from the above finding from a theoretical perspective is that the media's role in risk communication as an instrument of disaster prevention and management remains largely a matter of academic exercise or, at best, speculative. The media, therefore, need to earn the trust or confidence of the audience. The reliance on media information and learning a new skill on live streaming validate the role of risk communication in assisting the media audience in imbibing a protective attitude and improving the quality of their decision-making in averting or mitigating risk.

The study's findings confirmed that a reasonable number of discussants could imbibe one form of disaster management strategy. For instance, some discussants revealed that they know how to identify the actual security personnel from impostors who disguise themselves to launch attacks on their communities, among other capabilities that assist them in management. Other capabilities include capacities in social media. This finding validates the submission by Okocha, Faloseyi and Onobe (2023) that risk communication should be designed to support and empower the audience in such a way as to avert disaster and mitigate strategy. The findings also validate that individuals would imbibe a confident attitude depending on their estimation of the threat or the danger. They would resort to certain protective behaviours by acting according to the media/message recommendations.

The challenge of trust between the audience and the mass media remains the most significant limitation, and it behooves the media owners, professionals, and the government to address the challenge by being more professional and developing capacity in the specific areas of risk communication. This finding corroborates Agrawal, Ambury, Parida, & Joshi's (2022) submission on the effectiveness of risk communication as it largely depends on critical factors such as risk framing by multiple stakeholders and information deficits.

Conclusion

Risk communication is crucial to the prevention and management of disasters. Notwithstanding, there is the need to build media capacity, especially around earning their audience's trust. The government also needs to spend more on public enlightenment, awareness about risk reduction attitudes, and developing capacity in risk communication. The study findings validate the previous findings around developing competencies in risk reduction capabilities among media audiences. This assertion was attested to by the locals who have acquired capabilities to livestream attacks on their communities, which they circulate in the neighbourhood to put others on the alert. Nonetheless, this practice may inadvertently provoke retaliatory actions. The findings underscore the importance of risk communication while acknowledging the necessity of addressing its challenges to improve disaster management effectiveness.

Despite its contributions, the study is limited by its small sample size and narrow geographic focus, which restrict generalizability in a diverse country like Nigeria. Future research should adopt mixed methods to provide more comprehensive insights into risk communication for disaster management. Additionally, studies should explore the economic impacts of disasters and integrate risk communication into disaster prevention frameworks. Practical recommendations include prioritizing indigenous languages in messaging, ensuring media professionalism, increasing government funding for public awareness, and investing in capacity-building efforts by communication experts and agencies involved in disaster management.

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