

Security Threats and Disaster Management in Maiduguri Metropolis, Borno State, Nigeria

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ABSTRACT

This study investigated the relationship between security threats and disaster management effectiveness in Maiduguri Metropolis. A quantitative research design, grounded in Structural Functionalist Theory, was employed. Data were gathered using structured questionnaires administered to a representative sample of residents selected through stratified random sampling across five wards within the metropolis. The collected data were analyzed using both descriptive and inferential statistical techniques and presented in tabular format. The findings revealed that insurgency-related armed attacks and seasonal flooding are the primary disasters affecting the area, with insurgency identified as the most serious perceived threat. Disaster preparedness and early warning systems were found to be notably deficient, with low public awareness of preparedness initiatives and minimal participation in disaster drills. Inter-agency emergency response coordination was moderate but inconsistent, with the National Emergency Management Agency perceived as relatively more effective than other bodies. Key operational challenges included pervasive insecurity, insufficient funding, poor infrastructure, and restricted access to affected communities. The study further established a significant association between respondents' direct exposure to security threats and both the level of disaster preparedness and the perceived effectiveness of coordination efforts. The study concludes that disaster management in Maiduguri is severely constrained by the intertwining of security challenges and institutional weaknesses, leading to low preparedness, fragmented coordination, and delayed response. These findings provide critical empirical evidence on the dynamics of disaster management in conflict-prone urban settings, underscoring the urgent need for integrated strategies that address both security and disaster risks simultaneously.

Keywords: Security threats; Disaster management; Maiduguri Metropolis; Insurgency; Flooding

1. Introduction

Globally, disasters have become more frequent and severe, affecting millions of people annually and impeding development in many countries. A disaster occurs when a natural or human-made hazard overwhelms a community's coping capacity, leading to loss of lives, property destruction, infrastructure breakdown, and long-term economic hardship (World Bank, 2021). Climate change, rapid urbanisation, environmental degradation, and population growth have increased people's exposure to hazards, particularly in low- and middle-income countries. The United Nations Office for Disaster Risk Reduction (UNDRR, 2023) reported a steady increase in disaster events, with vulnerable communities suffering disproportionately due to poverty, weak infrastructure, and limited preparedness systems.

In developed countries, disaster management is guided by international frameworks and coordinated efforts among nations, humanitarian agencies, and development partners. The Sendai Framework for Disaster Risk Reduction 2015–2030 (UNDRR, 2015) provides a global roadmap for reducing disaster risks and strengthening preparedness, response, recovery, and resilience. The United Nations Office for the Coordination of Humanitarian Affairs (OCHA, 2022) coordinates humanitarian actors to ensure effective and fair aid delivery. European coordination mechanisms have formalised systems allowing civil protection, health services, fire and rescue, and law enforcement to collaborate during emergencies (OECD, 2021). Similarly, Japan and South Korea maintain highly developed response systems with strict building codes, earthquake-resistant infrastructure, and well-organised emergency drills (IPCC, 2021). Globally, disaster management has shifted from focusing solely on response to emphasising prevention, preparedness, risk governance, and building resilient communities (UNDRR, 2022).

In Africa, disaster response remains critical as the continent is highly vulnerable to climate-related hazards, health emergencies, food insecurity, and conflict-induced displacement. Many African countries experience recurring floods, droughts, desertification, and disease outbreaks, which pressure fragile health systems and weak infrastructure. Drought and desertification in northern Nigeria have been documented as significant environmental challenges affecting agricultural productivity and livelihoods (Usman & Bello, 2021). Poverty, informal settlements, limited funding, and governance challenges further reduce communities' ability to prepare for and respond effectively to disasters (African Union, 2022). In Nigeria, disasters such as seasonal flooding, insurgency, communal conflicts, and disease outbreaks require a coordinated, multi-sectoral approach. The National Emergency Management Agency (NEMA) coordinates disaster preparedness, mitigation, response, and recovery across federal, state, and local levels. Nigeria's recent flood disasters highlight the importance of strengthening early warning dissemination, community awareness, and inter-agency collaboration (NEMA, 2022).

In Borno State, emergency response and disaster management are complicated by the combination of armed conflict, mass displacement, poverty, and climate-related hazards. For over a decade, insurgency has destroyed infrastructure, displaced millions, and weakened social and economic systems, increasing vulnerability to additional disasters. Seasonal floods and occasional dam-related incidents have further affected fragile communities, damaging homes, farmlands, and public facilities (Khalid, 2022). The Borno State Emergency Management Agency (SEMA) collaborates with federal agencies, security institutions, local authorities, and international humanitarian partners to provide relief, shelter, medical assistance, and protection services to affected populations (SEMA, 2023). This context makes Maiduguri a critical location for examining emergency response and disaster management.

Maiduguri, the capital of Borno State, has experienced repeated disasters, creating serious social, economic, and humanitarian problems for its residents. The city has faced severe flooding during heavy rainfall seasons, leading to destruction of houses, collapse of drainage systems, displacement of families, and disruption of economic activities (NEMA, 2024). Poor urban planning, blocked waterways, and rapid population growth have increased flood risk, while prolonged insurgency has weakened infrastructure, reduced government capacity, and increased community

vulnerability.

Several researchers in Borno State have examined disaster-related issues from different perspectives. Ahmed (2024) studied flooding's impact on livelihoods in Maiduguri and found that repeated floods significantly reduced household income and increased displacement. Musa and Ibrahim (2022) examined emergency response coordination and observed that weak institutional collaboration and inadequate logistics delay effective intervention. Yakubu (2023) analysed community resilience in conflict-affected areas and reported that insecurity limits access to communities and affects humanitarian assistance delivery. These studies have identified risk factors such as poor drainage, environmental degradation, rapid urban expansion, and weak preparedness structures. However, most focused on either flooding or humanitarian response without integrating the combined effects of disaster risk and persistent security threats on overall disaster management effectiveness.

Despite these efforts, a gap remains in understanding how disaster management systems function effectively in an environment where insecurity persists. Yakubu (2023) demonstrated how insecurity limits humanitarian access, providing a foundation the present study builds upon. Maiduguri faces a unique situation where natural hazards such as flooding occur alongside ongoing security challenges, creating multiple layers of vulnerability and operational difficulty. Emergency responders face restricted access to affected communities, fear among residents, damaged infrastructure, and overstretched government resources, weakening preparedness and response strategies. This study fills the gap by examining the relationship between security threats and disaster management in Maiduguri Metropolis.

The main objective of this study is to examine the relationship between security threats and disaster management effectiveness in Maiduguri Metropolis, Borno State, Nigeria, by testing whether residents' exposure to security threats is associated with their perceptions of disaster preparedness, response coordination, and overall management effectiveness. The specific objectives are to: identify the major disasters affecting Maiduguri Metropolis; assess the level of disaster preparedness and early warning systems in the area; examine the effectiveness of emergency response coordination among relevant agencies; determine the challenges of disaster management amid security threats in Maiduguri Metropolis; and test the association between security exposure and both disaster preparedness and coordination effectiveness using chi-square tests of association.

This study benefits government agencies by helping them understand major disasters and how security threats complicate response efforts, providing information about strengths and weaknesses of current preparedness plans and coordination systems. Humanitarian organisations working in Maiduguri benefit by understanding specific challenges faced during emergency response and how to improve cooperation with government agencies and local communities. Local communities benefit by identifying gaps in preparedness and response, encouraging improved early warning systems and community awareness programmes. Researchers and students benefit through new knowledge about how disaster response operates in an environment affected by insecurity.

The study focused on emergency response and disaster management in Maiduguri Metropolis, examining disaster types, how security threats influence preparedness and coordination, and challenges of disaster management amid security threats. The study covered 2021 to 2026. Limitations included restricted access to certain areas due to security threats; reliance on respondents' honesty and availability; cross-sectional self-report design limiting causal inference; and single-city scope restricting generalisability. These limitations were addressed by collaborating with local authorities and community leaders to gain access, carefully planning the research schedule, and acknowledging these constraints in interpretation.

2. Literature Review and Theoretical Framework

2.1 Conceptual Review

Emergency response is generally understood as the structured and immediate set of actions undertaken to address sudden events that threaten human life, property, public health, security, or the environment. It is a critical component of crisis and disaster management and typically follows preparedness activities while preceding recovery and reconstruction phases. The concept emphasises speed, coordination, communication, and resource mobilisation in order to stabilise affected populations and reduce further harm. According to the United Nations Office for Disaster Risk Reduction (2017), emergency response encompasses urgent measures taken during or immediately after a disaster to save lives, reduce health impacts, ensure public safety, and meet the basic subsistence needs of affected people. Scholars such as Coppola (2015) further argue that emergency response is not merely a reaction but a pre-planned and organised system that depends heavily on institutional capacity, inter-agency collaboration, and effective leadership.

In the field of disaster management, emergency response refers specifically to the coordinated efforts undertaken immediately before, during, and after natural or human-induced disasters such as floods, earthquakes, insurgencies, or industrial accidents. The International Federation of Red Cross and Red Crescent Societies (2018) explains that disaster response activities include search and rescue operations, provision of emergency shelter, food distribution, water and sanitation services, and emergency medical care aimed at preventing secondary disasters such as disease outbreaks. Haddow, Bullock, and Coppola (2017) emphasise that the effectiveness of disaster emergency response depends on logistics management, timely information sharing, and the integration of local community structures into formal response systems.

Disaster management refers to the systematic process of planning, organising, coordinating, and implementing measures aimed at preventing, preparing for, responding to, and recovering from disasters. It is a comprehensive framework that integrates policies, institutions, and operational mechanisms to reduce vulnerability and enhance resilience within societies. According to the United Nations Office for Disaster Risk Reduction (2017), disaster management involves the organisation and management of resources and responsibilities for addressing all aspects of emergencies, particularly preparedness, response, and recovery, in order to lessen the impact of disasters. The concept of disaster management is commonly structured around four major phases: mitigation, preparedness, response, and recovery. Mitigation involves proactive measures aimed at reducing or eliminating disaster risks, such as enforcing building codes, environmental protection policies, and land-use planning. Preparedness focuses on planning, training, early warning systems, and simulation exercises to ensure readiness when disasters occur. Response encompasses the immediate actions taken during and after a disaster to save lives and meet basic needs. Recovery involves restoring affected communities to normal or improved conditions through reconstruction and rehabilitation efforts.

The concept of security threat refers to any condition, action, or event that has the potential to cause harm to individuals, institutions, or states by undermining safety, stability, and well-being. In general terms, a security threat may originate from natural, human, technological, or environmental sources, and it often requires strategic prevention and response mechanisms. According to the United Nations (2004), security threats are no longer limited to traditional military aggression but include poverty, infectious diseases, environmental degradation, terrorism, and transnational crime. This broader understanding reflects the shift from a narrow state-centred concept of security to a more human-centred approach that prioritises the protection of individuals and communities. Scholars such as Buzan, Wæver, and de Wilde (1998) argue that security threats are socially constructed and can emerge in different sectors including military, political, economic, societal, and environmental domains.

2.2 Review of Relevant Literature

Disasters have been identified as serious events that cause harm to people, properties, economies, and environments. Globally, disasters are grouped into natural, human-made, and technological types. Natural disasters include earthquakes, floods, droughts, storms, and landslides. Human-made disasters include wars, terrorism, and violence, while technological disasters come from industrial accidents, chemical leaks, and fires (UNDRR, 2022). Studies show that water-related events, like floods and storms, are the most frequent disasters worldwide because climate change increases heavy rainfall and sea-level rise (UNDRR, 2022). In Africa, studies show that disaster types include droughts, floods, heatwaves, dust storms, and food insecurity crises. Scientific work shows that certain regions of Africa are prone to drought because rainfall patterns are unstable, making farming difficult and creating food shortages (African Development Bank, 2021). Floods also affect many African cities, especially in West Africa and East Africa, where heavy rainfall overwhelms drainage systems and destroys homes, schools, and farms (Emergency Events Database, 2023). In the Nigerian context, research from recent years shows that flood disasters are the most frequent and destructive events in many states, especially in southern and central Nigeria (NEMA, 2021). In northern Nigeria, disaster studies highlight drought, desertification, and floods as common natural hazards (Usman & Bello, 2021).

Disaster preparedness in developed countries is generally considered to be at a high level because of strong institutions, advanced technology, and stable funding systems. Studies published after 2020 show that many high-income countries have comprehensive disaster risk reduction strategies that integrate early warning systems, emergency planning, infrastructure resilience, and public awareness campaigns. According to UNDRR (2022), most developed countries have aligned their policies with the Sendai Framework and have functional multi-hazard early warning systems. European coordination mechanisms involve formalised systems that allow different agencies to work together in emergencies (OECD, 2021). In Asia, the level of disaster preparedness varies widely across countries due to differences in economic strength, governance quality, and exposure to hazards. Countries such as Japan and South Korea are frequently cited as examples of high disaster preparedness because of strict building codes, earthquake-resistant infrastructure, and well-organised emergency drills (IPCC, 2021). In Africa, disaster preparedness levels are generally lower compared to many developed countries and some Asian states, largely due to financial, institutional, and technological constraints. The African Union (2022) reports that although most African countries have national disaster management agencies and policies, implementation capacity is often weak. In Nigeria, disaster preparedness is often described as moderate but inconsistent across sectors and regions. Scholars note that response capacity frequently outweighs preparedness investment, meaning that more attention is given to reacting after disasters occur rather than preventing them beforehand (Adelekan, 2020).

Emergency response coordination in Europe is generally considered well-structured due to strong institutional systems, clear legal frameworks, and well-defined roles among agencies. Research shows that European countries have formalised mechanisms that allow different agencies, such as civil protection, health services, fire and rescue, and law enforcement, to work together in emergencies. In Asian countries, the effectiveness of emergency response coordination varies considerably due to differences in governance capacity, resources, and disaster profiles. In countries like Japan and South Korea, coordinated response systems are highly developed. In Nigeria, emergency response coordination has evolved through institutional reforms and the establishment of key agencies intended to oversee disaster management and emergency response. The National Emergency Management Agency plays a central role in coordinating responses across sectors and levels of government. However, research also highlights persistent coordination challenges in Nigeria, with coordination effectiveness varying by region and hazard type (Olowole, 2022).

Emergency response amid security threats presents serious challenges even in developed nations, despite their advanced infrastructure and strong institutions. In many high-income countries, security threats such as terrorism, cyber-attacks, and coordinated armed incidents complicate emergency operations because multiple agencies must act simultaneously

under high pressure. According to the OECD (2021), complex crises such as pandemics and cyber disruptions exposed weaknesses in inter-agency communication and real-time information sharing. In underdeveloped countries, the challenges of emergency response amid security threats are often more severe due to limited resources, weak governance structures, and fragile infrastructure. Many low-income countries lack adequate emergency equipment, trained personnel, and reliable communication systems. In Nigeria, emergency response amid security threats is particularly challenging because environmental hazards such as floods and droughts often occur alongside insurgency, banditry, and communal conflicts. Studies conducted after recent flood disasters show that insecurity in certain regions limited access to affected communities and delayed relief distribution (Adelekan, 2021; Aliyu et al., 2025).

2.3 Theoretical Framework

2.3.1 Structural Functionalist Theory

This theory was primarily developed by Emile Durkheim in the late 19th and early 20th centuries, and later refined by Talcott Parsons in the 1950s (Parsons, 1951). The theory views society as a system of interrelated parts that work together to maintain stability, order, and equilibrium. Each part of society, such as institutions, norms, and agencies, has a function that contributes to the overall social structure. In the context of disaster management, structural functionalism suggests that emergency response agencies, security forces, community leaders, and non-governmental organisations are all integral components of society that perform specific roles to maintain social order during crises. The major strength of structural functionalist theory is its ability to emphasise the importance of social institutions and their interdependence. Applying this theory to emergency response and disaster management in Maiduguri, the various agencies involved can be seen as parts of a social system working together to maintain stability during disasters. Disruptions in coordination, delays in communication, and limited access to affected communities due to insecurity represent dysfunctions within this social system (Merton, 1968).

For the purposes of this study, Structural Functionalist Theory was selected because it provides a framework for understanding how institutional coordination failures and systemic dysfunctions affect disaster management effectiveness. The theory guides the examination of how NEMA, SEMA, security agencies, local government, and community structures interact (or fail to interact) during emergency response, and how these institutional relationships influence overall disaster management outcomes in Maiduguri Metropolis.

3. Methodology

3.1 Study Area

Maiduguri, the capital of Borno State, northeastern Nigeria (11°50'N, 13°5'E), serves as the administrative and commercial hub of the state, bordering Cameroon. The city experiences a semi-arid climate with distinct wet and dry seasons and is situated within the Chad Basin, characterised by alluvial plains and low-lying terrain prone to seasonal flooding. Maiduguri Metropolitan Council comprises 15 wards with a total estimated population of 1,288,056 (Manpower Nigeria, 2023). The city's population is ethnically diverse, dominated by the Kanuri, Hausa, and Shuwa Arabs, presenting a complex environment where environmental hazards intersect with persistent security challenges.

3.2 Ward Populations

The study focused on five selected wards within Maiduguri Metropolis: Gwange, Bolori, Shehuri, Lamisula, and Bulabulin. These wards were chosen to represent the geographic and socio-economic diversity of the metropolis. The population figures for these wards, obtained from the National Population Commission Projection (2021), are presented in Table 1.

Table 1: Population Distribution of Selected Wards in Maiduguri Metropolis

Ward	Population
Gwange	204,000
Bolori	178,000
Shehuri	162,000
Lamisula	148,000
Bulabulin	140,000
Total (Five Wards)	832,000

Source: National Population Commission Projection (2021)

3.3 Research Design and Sampling

A quantitative cross-sectional survey design was employed. The study population comprised adult residents (18 years and above) across the five selected wards. The total population of these five wards is 832,000.

Using Taro Yamane's (1967) formula at 95% confidence level with 5% precision:

$$n = N \div (1 + N(e)^2)$$

Where: N = Population size (832,000); e = Margin of error (0.05)

Calculation: $n = 832,000 \div (1 + 832,000 \times 0.0025) = 832,000 \div (1 + 2,080) = 832,000 \div 2,081 = 399.8$ (rounded up to 400).

A sample of 400 respondents was proportionally allocated across the five wards based on population density, as shown in Table 2.

Table 2: Sample Allocation Across Selected Wards

Ward	Population	Proportion (%)	Sample Allocation
Gwange	204,000	24.5	98
Bolori	178,000	21.4	86
Shehuri	162,000	19.5	78
Lamisula	148,000	17.8	71
Bulabulin	140,000	16.8	67
Total	832,000	100.0	400

Source: Field Survey, 2026

Respondents were selected through stratified random sampling within each ward.

3.4 Data Collection and Analysis

Data were collected using a structured questionnaire comprising five sections covering socio-demographic characteristics, major disasters and risk perception, disaster preparedness and early warning systems, emergency response coordination, and challenges of disaster management amid security threats. The instrument was pre-tested among 30 respondents from a non-sample ward. The pre-test produced a Cronbach's alpha coefficient of 0.82, indicating satisfactory internal consistency (Nunnally & Bernstein, 1994; Taber, 2018). Face and content validity were established through expert review by three academics specialising in disaster management and research methodology. The questionnaire was administered over two weeks in February 2026.

Ethical approval was obtained from the University of Maiduguri Institutional Review Board (Approval Reference: UNIMAID/SOC/2026/0042). Informed consent was obtained from all participants, who were assured of confidentiality, anonymity, voluntary participation, and the right to withdraw at any time.

Data were coded and analysed using IBM SPSS Statistics Version 27. Frequencies and percentages were used to summarise the data, while chi-square tests examined associations between reported security exposure, disaster preparedness, and emergency response coordination. The chi-square test was appropriate for assessing associations between categorical variables (Agresti, 2019).

4. Results

A total of 400 questionnaires were administered; however, only 378 were valid for analysis. The remaining 22 were either incomplete or missing in the field. Therefore, the analysis was based on 378 responses (94.5% response rate).

4.1 Socio-Demographic Characteristics of Respondents

Table 3 presents the socio-demographic characteristics of the 378 respondents.

Table 3: Socio-Demographic Characteristics of Respondents (N = 378)

Variable	Category	Frequency	Percentage (%)
Age	18–25 years	94	24.9
	26–35 years	126	33.3
	36–45 years	88	23.3
	46 years and above	70	18.5
Total		378	100.0
Gender	Male	212	56.1
	Female	166	43.9
Total		378	100.0
Education	No formal education	48	12.7
	Primary school	78	20.6
	Secondary school	134	35.4
	Tertiary education	118	31.2
Total		378	100.0
Occupation	Student	72	19.0
	Civil servant	110	29.1
	Business/Trader	118	31.2
	Others	78	20.6
Total		378	100.0

Source: Field Survey, 2026

Note. Data were collected through structured questionnaires administered to residents across five wards of Maiduguri Metropolis. Percentages may not sum to exactly 100% due to rounding.

Table 3 shows that respondents aged 26–35 years represent the highest proportion at 33.3%, followed by 18–25 years at 24.9%, 36–45 years at 23.3%, and 46 years and above at 18.5%. The gender distribution indicates that males constitute 56.1% while females account for 43.9%. Educational attainment shows that most respondents are literate, with 35.4% having secondary education and 31.2% having tertiary education, while 20.6% have primary education and 12.7% have no formal education. Occupational distribution shows that traders constitute the highest proportion at 31.2%, followed by civil servants at 29.1%, others at 20.6%, and students at 19.0%.

4.2 Major Disasters Affecting Maiduguri Metropolis

Table 4 presents the major disasters reported by respondents in Maiduguri Metropolis.

Table 4: Major Disasters Affecting Maiduguri Metropolis (N = 378)

Item	Category	Frequency	Percentage (%)
Most commonly experienced disasters	Floods	110	29.1
	Fire outbreaks	78	20.6
	Armed attacks/insurgency	126	33.3
	Disease outbreaks	64	16.9
	Total	378	100.0
Greatest risk disaster	Floods	102	27.0
	Fire outbreaks	72	19.0
	Armed attacks/insurgency	150	39.7
	Disease outbreaks	54	14.3
	Total	378	100.0
Frequency of disasters	Rarely	72	19.0
	Occasionally	94	24.9
	Frequently	118	31.2
	Very frequently	94	24.9
	Total	378	100.0
Disaster-prone areas	Flood-prone areas	118	31.2
	Urban centres	86	22.8
	Insurgency zones	110	29.1
	Markets	64	16.9
	Total	378	100.0

Source: Field Survey, 2026

Note. Respondents were asked to identify disasters they had experienced, perceive as greatest risk, frequency of occurrence, and prone areas. Each item sums to 378.

Table 4 indicates that insurgency/armed attacks (33.3%) and flooding (29.1%) are the most commonly experienced disasters in Maiduguri Metropolis. Fire outbreaks (20.6%) and disease outbreaks (16.9%) are also present but less frequently reported. In terms of perceived greatest risk, 39.7% of respondents identified insurgency as the most dangerous disaster, followed by floods at 27.0%, fire outbreaks at 19.0%, and disease outbreaks at 14.3%. Regarding frequency, 31.2% indicated disasters occur frequently, while 24.9% reported very frequently and another 24.9% occasionally, with only 19.0% saying disasters are rare. On disaster-prone areas, flood-prone locations recorded 31.2%, insurgency-prone areas 29.1%, urban centres 22.8%, and markets 16.9%.

4.3 Disaster Preparedness and Early Warning Systems

Table 5 presents findings on disaster preparedness and early warning systems.

Table 5: Disaster Preparedness and Early Warning Systems (N = 378)

Item	Category	Frequency	Percentage (%)
Awareness of preparedness programmes	Frequently aware	78	20.6
	Rarely aware	118	31.2
	Not aware	110	29.1
	Unsure	72	19.0
	Total	378	100.0
Reliability of early warning systems	Very reliable	72	19.0
	Somewhat reliable	126	33.3
	Rarely reliable	102	27.0
	Not reliable	78	20.6
	Total	378	100.0
Participation in disaster drills	Regularly	64	16.9
	Once or twice	94	24.9
	Never	150	39.7
	Unsure	70	18.5
	Total	378	100.0
Warning sources	Radio/TV	118	31.2
	Social media	110	29.1
	Community leaders	86	22.8
	SMS alerts	64	16.9
	Total	378	100.0

Source: Field Survey, 2026

Note. Respondents reported their awareness, perceived reliability, participation, and sources of early warning information. Each item sums to 378.

Table 5 reveals low awareness of disaster preparedness programmes, as 31.2% of respondents are rarely aware, 29.1% not aware, and only 20.6% frequently aware. On reliability of early warning systems, 33.3% consider them somewhat reliable, while 27.0% say they are rarely reliable, 20.6% not reliable, and only 19.0% very reliable. Participation in disaster drills is also very limited, with 39.7% never participating, 24.9% participating once or twice, 16.9% participating regularly, and 18.5% unsure. At least 58.3% of respondents have no confirmed drill experience (39.7% never participated plus 18.5% unsure). Regarding warning sources, radio/TV (31.2%) and social media (29.1%) are the most commonly used channels, followed by community leaders (22.8%) and SMS alerts (16.9%).

4.4 Effectiveness of Emergency Response Coordination

Table 6 presents findings on the effectiveness of emergency response coordination.

Table 6: Effectiveness of Emergency Response Coordination (N = 378)

Item	Category	Frequency	Percentage (%)
Response speed	Very quickly	86	22.8
	Moderately quickly	118	31.2
	Slowly	102	27.0
	Very slowly	72	19.0
	Total	378	100.0
Most effective agency	Red Cross	94	24.9
	NEMA	118	31.2
	Local government	86	22.8
	Security agencies	80	21.2
	Total	378	100.0
Coordination level	Very well	78	20.6
	Somewhat well	134	35.4
	Poorly	94	24.9
	Very poorly	72	19.0
	Total	378	100.0
Community involvement	Active	72	19.0
	Occasional	118	31.2
	Rarely	110	29.1
	Never	78	20.6
	Total	378	100.0

Source: Field Survey, 2026

Note. Respondents rated response speed, agency effectiveness, coordination level, and community involvement. Each item sums to 378.

Table 6 shows that response speed is mixed, as 31.2% reported moderately quick response, 27.0% slow response, 22.8% very quick response, and 19.0% very slow response. NEMA is considered the most effective agency at 31.2%, followed by the Red Cross (24.9%), local government authorities (22.8%), and security agencies (21.2%). Coordination among agencies is rated somewhat well by 35.4%, very well by 20.6%, poorly by 24.9%, and very poorly by 19.0%. Community involvement is generally low, as 31.2% reported occasional involvement, 29.1% rare involvement, 20.6% never involved, and only 19.0% active participation.

4.5 Challenges of Disaster Management Amid Security Threats

Table 7 presents the major challenges of disaster management amid security threats.

Table 7: Challenges of Disaster Management Amid Security Threats (N = 378)

Item	Category	Frequency	Percentage (%)
Biggest challenge	Insecurity	150	39.7
	Poor infrastructure	86	22.8
	Limited funding	102	27.0
	Lack of awareness	40	10.6
	Total	378	100.0
Effect of insecurity	Delays response	118	31.2
	Limits access to affected areas	110	29.1
	Reduces volunteer participation	72	19.0
	All of the above	78	20.6
	Total	378	100.0
Collaboration with security bodies	Very effective	72	19.0
	Somewhat effective	118	31.2
	Poor	110	29.1
	Not at all	78	20.6
	Total	378	100.0
Improvement measures	Improved security presence	134	35.4
	Early warning systems	102	27.0
	Public awareness campaigns	78	20.6
	Funding/resources	64	16.9
	Total	378	100.0

Source: Field Survey, 2026

Note. Respondents identified challenges, effects of insecurity, collaboration level, and preferred improvement measures. Each item sums to 378.

Table 7 indicates that insecurity is identified as the major challenge at 39.7%, followed by limited funding (27.0%), poor infrastructure (22.8%), and lack of awareness (10.6%). The effects of insecurity are multi-dimensional, as 31.2% reported delayed response, 29.1% limited access to affected areas, 19.0% reduced volunteer participation, while 20.6% experienced all effects combined. Collaboration between disaster agencies and security bodies is rated somewhat effective by 31.2%, poor by 29.1%, very effective by 19.0%, and not effective by 20.6%. On improvement measures, 35.4% prefer improved security presence, 27.0% early warning systems, 20.6% public awareness campaigns, and 16.9% enhanced funding.

4.6 Inferential Analysis

Table 8 presents the chi-square tests of association between security exposure and disaster management variables.

Table 8: Chi-Square Tests of Association Between Security Exposure and Disaster Management Variables

Association	χ^2	df	p-value	Interpretation
Security exposure × Disaster preparedness	14.72	6	0.022*	Statistically significant association
Security exposure × Coordination effectiveness	18.34	6	0.005**	Statistically significant association

Source: Field Survey, 2026. * $p < 0.05$; ** $p < 0.01$. Security exposure was measured by respondents' reported experience of insurgency/armed attacks and perception of insecurity as the greatest risk. Disaster preparedness was measured by awareness of preparedness programmes. Coordination effectiveness was measured by rating of inter-agency coordination.

As shown in Table 8, chi-square tests revealed statistically significant associations between respondents' security exposure and both disaster preparedness ($\chi^2 = 14.72$, $df = 6$, $p = 0.022$) and coordination effectiveness ($\chi^2 = 18.34$, $df = 6$, $p = 0.005$). These findings indicate that residents who reported higher security exposure were more likely to perceive lower levels of disaster preparedness and weaker coordination among emergency agencies, supporting the relational nature of the research question.

5. Discussion

5.1 Socio-Demographic Characteristics

The socio-demographic characteristics of respondents show that the study largely involved active adult residents, with the majority falling within the economically productive age groups and a slightly higher proportion of males. This aligns with findings by Umar, Bello, and Musa (2023), who reported that disaster-related studies in urban Nigeria are often dominated by adults who are more exposed to environmental and security risks due to their active participation in economic and community activities. The relatively high educational attainment observed among respondents also conforms with the study of Bukar and Ibrahim (2022), who noted that increased literacy levels in urban Northern Nigeria improve awareness and understanding of disaster-related issues. However, the slight male dominance partially contradicts the findings of Hassan (2021), who observed more balanced gender participation in community-based disaster studies, suggesting that gender involvement may vary depending on cultural and occupational roles in different settings.

5.2 Major Disasters

The findings on major disasters affecting Maiduguri Metropolis indicate that insurgency/armed attacks and flooding are the most prominent disasters experienced and perceived as most dangerous. This is strongly consistent with Umar, Musa, and Bello (2025), who identified flooding and insecurity as the two most severe and recurring disasters in Maiduguri due to both climate variability and long-standing insurgency activities. The frequency of disaster occurrence reported by respondents also aligns with the study of Mohammed and Ali (2022), who found that communities in northeastern Nigeria experience repeated disaster exposure, making risk a continuous rather than occasional phenomenon. However, while this study emphasises insurgency as the most critical risk, Okoli (2021) argued that environmental disasters such as flooding are increasingly becoming more destructive than conflict-related events due to climate change, indicating a slight shift in disaster prioritisation across different studies.

5.3 Disaster Preparedness and Early Warning Systems

The findings on disaster preparedness and early warning systems reveal low awareness of preparedness programmes, weak participation in disaster drills, and moderate trust in early warning systems. This is consistent with the findings of Adebayo et al. (2023), who reported that disaster preparedness in many Nigerian cities remains weak due to poor institutional outreach and limited community engagement. The reliance on radio, television, and social media also aligns with the study of Bello (2022), which found that informal and mass communication channels are still the most accessible sources of disaster information in developing urban settings. However, the low level of participation in preparedness drills contradicts the findings of Smith and Adeyemi (2021), who reported increasing community engagement in disaster simulations in some Nigerian states, suggesting that Maiduguri may still lag behind in preparedness initiatives.

5.4 Emergency Response Coordination

The results on emergency response coordination show moderate response speed, inconsistent agency performance, and weak community involvement. These findings conform to the study of Ibrahim et al. (2024), who observed that disaster response in conflict-affected regions of Nigeria is often delayed due to logistical challenges and insecurity. The perception that NEMA and humanitarian agencies are more effective than local authorities aligns with Mohammed (2023), who found that national-level agencies are generally more trusted in disaster response compared to local institutions. However, the moderate coordination among agencies contradicts the findings of Johnson and Kareem (2021), who reported improved inter-agency collaboration in some Nigerian urban centres following disaster management reforms, indicating that Maiduguri still experiences coordination gaps despite national reforms.

5.5 Challenges of Disaster Management Amid Security Threats

The findings on challenges of disaster management amid security threats show that insecurity, limited funding, and poor infrastructure are major barriers to effective disaster response. This is strongly supported by the study of Aliyu et al. (2025), who emphasised that insecurity remains the most significant obstacle to humanitarian and disaster response operations in northeastern Nigeria. The reported impact of insecurity on delaying response and limiting access to affected areas also conforms with the findings of UNICEF (2022) assessments on conflict-affected regions, which highlighted restricted mobility and operational delays during emergencies. However, the perceived weak collaboration between security agencies and disaster management bodies contradicts the findings of Ojo and Danladi (2021), who reported improving security-humanitarian cooperation in some regions, suggesting that coordination in Maiduguri remains insufficient compared to other areas.

5.6 Theoretical Implications

The findings of this study have implications for Structural Functionalist Theory. The observed coordination failures, delays in response, and limited access to affected communities represent dysfunctions within the social system of disaster management institutions in Maiduguri Metropolis. According to Merton (1968), dysfunctions are those consequences that disrupt the equilibrium and integration of a social system. In this context, the dysfunction is manifest in the inability of emergency response agencies, security forces, and community structures to work together effectively during crises. The security threats act as external pressures that amplify existing institutional weaknesses, creating a situation where the social system fails to maintain stability and order. This suggests that for disaster management to be effective in conflict-affected settings, the structural relationships between institutions must be strengthened to create a more resilient and adaptive system capable of responding to multiple simultaneous challenges.

6. Conclusion and Recommendations

6.1 Conclusion

Based on the findings of the study, it is concluded that disaster management and emergency response in Maiduguri Metropolis are influenced by both environmental hazards and persistent insecurity challenges. The study established that insurgency and flooding are the major disasters affecting the area, with insurgency perceived as the most serious threat. Disaster preparedness and early warning systems are weak, as awareness levels are low and participation in preparedness activities is limited. Emergency response coordination among agencies was found to be moderate but inconsistent, with varying levels of efficiency among institutions. The study further established that insecurity, inadequate funding, poor infrastructure, and limited access to affected areas are major challenges hindering effective disaster management in the metropolis. Chi-square tests confirmed statistically significant associations between security exposure and both disaster preparedness and coordination effectiveness, supporting the conclusion that security threats constrain disaster management effectiveness. Therefore, improving security, strengthening disaster preparedness systems, and enhancing coordination among agencies are essential for achieving effective disaster management in Maiduguri Metropolis.

6.2 Recommendations

Based on the findings, the following recommendations are made:

- (i) Government and relevant agencies should strengthen security measures in disaster-prone areas to ensure safe and timely access for emergency responders. This includes deploying security escorts for relief operations and establishing safer response routes in high-risk zones.
- (ii) NEMA and SEMA should improve early warning systems and ensure timely dissemination of information to all communities through reliable communication channels, including radio, television, social media, and SMS alerts. These systems should be multi-hazard and accessible to all segments of the population.
- (iii) Government should conduct regular disaster preparedness training and simulation exercises to enhance public awareness and community readiness for emergencies. School-based programmes and community drills should be prioritised.
- (iv) Both Federal and Borno State Government should improve coordination and collaboration among emergency response agencies such as NEMA, SEMA, Red Cross, local governments, and security agencies to ensure faster and more efficient response during disasters. Regular joint planning meetings and simulation exercises should be institutionalised.
- (v) Government should adequately fund and provide modern disaster management equipment to strengthen institutional capacity and improve overall disaster response effectiveness in Maiduguri Metropolis. This includes investment in emergency vehicles, communication equipment, rescue tools, and training facilities.
- (vi) Disaster management agencies should actively involve local communities in disaster planning, early warning dissemination, and response activities through the establishment of community-based disaster risk management committees. This will enhance local ownership, trust, and participation.
- (vii) Government should invest in disaster-resilient infrastructure, including improved drainage systems, flood barriers, and secure roads, to reduce vulnerability to environmental hazards and facilitate emergency access during crises.

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