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ASSESSING THE RELATIONSHIP BETWEEN ENVIRONMENTAL FACTORS AND HEALTH OUTCOMES OF INTERNALLY DISPLACED PERSONS (IDPs) IN MAKURDI, BENUE STATE

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ABSTRACT

This study aimed to assess the relationship between environmental factors and health outcomes among IDPs in Makurdi, Benue State, Nigeria. The study adopted quantitative analysis; a cross-sectional administration of structured questionnaire designed to obtain information regarding the socio-demographic characterization, environmental conditions, health condition and accessibility of health care facilities from the IDPs. Stratified Random Sampling Technique was used. 400 Internally Displaced Persons (IDPs) cut across three camps—Agan, Abagena, and Daudu—comprising mainly adults were considered for the study. Descriptive statistics summarized population profiles, prevalence of environmental hazards, and health conditions, while inferential analyses, including correlation, regression, and multivariate models, examined the influence of environmental factors on health outcomes. Findings indicate that the majority of respondents were young adults (31–40 years, 47.5%), predominantly female (62.5%), with low educational attainment (27.5% had no formal education). Environmental conditions were generally poor, with less than 50% reporting access to safe water, only 32.5% having adequate sanitation, and 25% living in adequate housing. Malaria (62.5%), diarrheal diseases (45%), respiratory infections (40%), skin diseases (27.5%), and malnutrition (35%) were the most prevalent health outcomes, with significant variations across camps linked to environmental deficits. Regression analysis identified poor sanitation ($p=0.002$), unsafe water ($p<0.001$), and inadequate waste management ($p=0.019$) as significant predictors, explaining 40% of the variance in health outcomes. Healthcare access was primarily through camp clinics and mobile medical teams, with significant barriers including distance, overcrowding, long waiting times, and limited drug availability. The study concludes that environmental deficits, including unsafe water, inadequate sanitation, and poor housing, constitute about 40% of the health outcomes among IDPs in Makurdi. Integrated interventions addressing water, sanitation, housing, and healthcare access are essential to reduce disease burden and improve overall well-being in displacement settings.

Keywords: Internally Displaced Persons, Environmental Factors, Health Outcomes, Makurdi, Benue State, Sanitation, Waterborne Diseases

Introduction

IDPs are individuals who have been forced to flee their homes but remain within their country's borders. The internally displaced population in Nigeria is diverse, comprising individuals from various ethnic, religious, and socio-economic backgrounds. A significant proportion of IDPs are women and children, who are particularly vulnerable to exploitation, violence, and health risks. The elderly and people with disabilities also face heightened challenges in displacement settings (Faronbi et al., 2019).

Globally, over 40 million people were displaced in 2015, while in 2020 over 70 million people were reported to be displaced (Behnke et al., 2020). In Africa, about 40.8 million persons are displaced; three-quarters of these IDPs reside in ten countries of the world, and five of these are located in Sub-Saharan Africa. The total number of people displaced by conflict in this region is above 12 million (Eme et al., 2016). Nigeria has been faced with the challenges of IDPs due to the high level of insurgent activities of Boko Haram in the North-eastern part of the country and the Lake Chad region, as well as inter-communal clashes resulting from ethno-religious disputes and tensions between Fulani herdsmen and farmers, which have resulted in over 700,000 people being displaced from the Middle Belt region of Nigeria (Eme et al., 2016). Benue State has been greatly affected, resulting in an unprecedented humanitarian crisis.

In camps, overcrowding, poor hygiene, lack of sanitation and low levels of immunization and immunity have compromised health outcomes of the Internally Displaced Persons (IOM, 2018). According to Ekezie et al. (2020), increased mortality and morbidity due to diarrhea, measles, acute respiratory infections, malaria, and other communicable diseases account for 60–95% of recorded deaths amongst IDPs due to obstacles in accessing health services.

Statement of the Problem

Nigeria faces a significant internal displacement crisis, driven by violent conflicts, natural disasters, and communal clashes. As a result, Internally Displaced Persons (IDPs) are often forced to live in camps or informal settlements under precarious conditions that can severely impact their health (Adedokun et al., 2016). In Nigeria, the number of internally displaced people is on the increase because of Boko Haram insurgency in the North-east and Fulani Herdsmen attack in North-central Nigeria (Uzobo and Akhuetie, 2018).

The living conditions in the IDP camps in Benue, Nigeria, pose significant environmental challenges that adversely affect the health outcomes of displaced persons. Despite the critical nature of these issues, there is insufficient comprehensive research examining the relationship between environmental factors (such as shelter quality, WASH facilities, food security, and climate conditions) and health outcomes (including physical and mental health) in these settings. This lack of data hinders the development of effective interventions and policies aimed at improving the health and well-being of IDPs (Ahmed et al., 2018).

The health outcomes of the IDPs are also concerning, with high incidences of infectious diseases, chronic illnesses, and mental health disorders. Women, children, the elderly, and individuals with disabilities are particularly vulnerable. However, there is a lack of comprehensive data on the specific health impacts of environmental conditions in IDP camps, which hampers the development of targeted health interventions and policies (Aliyu et al., 2019).

Aim and Objectives of the Study

To assess the relationship between environmental factors and health outcomes among IDPs in Makurdi, Benue State, Nigeria. The specific objectives of the study are:

1. To determine the accessibility to healthcare services among IDPs in Makurdi.

2. To determine the perceived quality of the available healthcare services among IDPs in Makurdi.
3. To identify the main environmental challenges faced by IDPs in Makurdi.
4. To identify the common communicable diseases among IDPs in Makurdi.
5. To determine the relationship between environmental factors and communicable diseases among IDPs in Makurdi.

Research Questions

1. What is the level of accessibility to healthcare services among IDPs in Makurdi?
2. What is the perceived quality of the available healthcare services among IDPs in Makurdi?
3. What are the main environmental challenges faced by IDPs in Makurdi?
4. What are the common communicable diseases among IDPs in Makurdi?
5. What is the relationship between environmental factors and communicable diseases among IDPs in Makurdi?

Literature Review

Internal displacement has become one of the most pressing humanitarian and public health challenges of the 21st century. According to the Internal Displacement Monitoring Centre (IDMC), over 55 million people were displaced globally by 2020, with armed conflict, communal violence, natural disasters, and human rights abuses serving as primary drivers (Uzobo & Akhuetie, 2018). Within this broader framework, the plight of internally displaced persons (IDPs) must be situated not merely as a humanitarian problem but also as an environmental health crisis, as displacement is strongly mediated by environmental determinants such as water, sanitation, air quality, pollutants, and housing.

Nigeria's history of internal displacement is deeply rooted in multiple crises spanning decades. The Boko Haram insurgency that escalated in 2009 marked the largest displacement in Nigeria's recent history, peaking around 2015–2016 with over 2 million people uprooted in the North-East (Okeke-Ihejirika et al., 2020). In 2017 alone, the IDMC reported that Nigeria recorded 1,707,000 displaced persons (Ilker and Ogunjesa, 2019). Makurdi, the capital of Benue State, exemplifies the challenges of displacement in Nigeria's Middle Belt. Armed conflicts between herders and farmers have forced thousands into camps in and around the city, where camps often lack adequate sanitation, safe water, and durable shelter (Okpan and Peter, 2020).

Environmental factors play a central role in shaping the health outcomes of IDPs. Water scarcity and poor sanitation are among the most pressing challenges. Several studies document how inadequate water supply in IDP camps leads to dependence on contaminated sources, thereby increasing the prevalence of diarrheal diseases, cholera, and typhoid (Owoaje et al., 2016). Overcrowded IDP camps often rely on open-fire cooking and kerosene stoves, which emit indoor pollutants that exacerbate respiratory illnesses. IDPs are frequently housed in makeshift shelters or dilapidated buildings, with overcrowding increasing the risk of respiratory infections, tuberculosis, and skin diseases (Ekezie, 2022).

The health consequences of displacement in Nigeria are severe. Outbreaks of cholera, measles, and malaria are common in IDP camps due to poor hygiene and inadequate healthcare services (Owoaje et al., 2016). Mental health issues, including depression, anxiety, and post-traumatic stress disorder (PTSD), are prevalent but often under-researched and under-treated (Okpan and Peter, 2020). Faronbi et al. (2019) reported that malaria (97.9%), diarrhoea (53.3%), and respiratory infections were the most common illnesses in IDP camps, attributed to poor water supply, inadequate handwashing practices, and overcrowded conditions. Women, children, the elderly, and persons with disabilities constitute the most vulnerable groups, with women facing

heightened risks of gender-based violence, unsafe childbirth, and inadequate reproductive healthcare.

Despite ongoing humanitarian efforts, significant gaps persist in research. Most studies adopt cross-sectional designs without capturing long-term consequences of displacement. Research tends to focus narrowly on infectious diseases, neglecting mental health, reproductive health, and intersectional vulnerabilities based on age, gender, and disability. Furthermore, the absence of a coherent national policy framework for IDPs has undermined consistency and accountability in humanitarian action (Gwadabe et al., 2018).

Theoretical Framework

This study is grounded in the environmental health determinants framework, which posits that health outcomes are significantly shaped by the physical and social environments in which individuals live. Within the context of internally displaced persons, this framework recognizes that displacement strips people of stable shelter, reliable water sources, and access to basic sanitation—conditions that are fundamental prerequisites for good health. Environmental deterioration within IDP camps is strongly correlated with adverse health outcomes; globally, at least 12.6 million deaths annually are attributed to unhealthy environments, accounting for 23% of all deaths (Okwute et al., 2020).

The framework integrates the social determinants of health model, which underscores that health is determined not merely by individual behaviors but by the conditions in which people live and work. For IDPs, structural vulnerabilities—including overcrowding, inadequate WASH infrastructure, food insecurity, and limited healthcare access—collectively shape disease burden and health-seeking behavior. This theoretical orientation guided the identification of key environmental variables (water access, sanitation, housing, air quality, waste management) and their hypothesized relationship with communicable disease outcomes among IDPs in Makurdi. The framework further recognizes intersectional vulnerabilities, acknowledging that health risks are not uniformly distributed but are compounded for women, children, the elderly, and persons with disabilities (Uzobo, 2018; Ilker & Ogunjesa, 2019).

Methodology

This study adopted a quantitative cross-sectional design, with structured questionnaires administered to 400 Internally Displaced Persons (IDPs) across three camps—Agan, Abagena, and Daudu—in Makurdi, Benue State, Nigeria, selected using a multi-stage stratified random sampling technique among camps where IDPs had resided for at least one year. The study population comprised adults aged 18 years and above currently residing in the camps who were able to provide informed consent; persons under 18, non-displaced residents, those with severe cognitive impairments, refugees from other regions, and participants in concurrent health studies were excluded. The sample size of 400 was calculated using the Cochran formula at a 95% confidence level ($Z=1.96$), a proportion of 0.5, and a margin of error of 5%, with a 5% non-response adjustment. Data collection combined structured questionnaires gathering socio-demographic and health information with physical observations of environmental conditions including air quality, water and sanitation facilities, and housing. Descriptive statistics (frequencies and percentages) summarized demographic profiles, prevalence of environmental hazards, and health conditions, while inferential statistics—including correlation, regression, and multivariate logistic regression analyses—assessed the relationships between environmental factors and health outcomes and controlled for confounding variables. Ethical approval was obtained from Bingham University Teaching Hospital, Jos, Plateau State, with written and/or verbal informed consent obtained from all participants, and all personal identifiable information anonymized and encrypted throughout.

Results

Results are presented according to the five research questions.

1 Socio-Demographic Characteristics of IDPs (Research Question Context)

The socio-demographic profile of respondents across the three IDP camps (Table 1) shows that the majority were young adults aged 31–40 years (47.5%), with a statistically significant difference in age distribution across camps (χ^2=10.82, p=0.029). Females (62.5%) outnumbered males (37.5%) in all camps; gender distribution did not differ significantly between camps (χ^2=3.14, p=0.208). Educational attainment was generally low: 27.5% had no formal education, while only 12.5% attained tertiary education, with significant differences between camps (χ^2=14.26, p=0.007). Marital status showed a majority of respondents were married (56.5%), with statistically significant variations across camps (χ^2=9.84, p=0.021). Most respondents were subsistence farmers before displacement (45.0%), followed by petty traders (25.0%), with significant differences in occupational distribution between camps (χ^2=11.72, p=0.018).

Variable	Category	Total (%)	χ^2	P-value
Age Group	18–30 years	80 (20.0)	10.82	0.029
	31–40 years	190 (47.5)		
	41–50 years	90 (22.5)		
	>50 years	40 (10.0)		
Gender	Male	150 (37.5)	3.14	0.208
	Female	250 (62.5)		
Education	No formal education	110 (27.5)	14.26	0.007
	Primary	140 (35.0)		
	Secondary	100 (25.0)		
	Tertiary	50 (12.5)		
Marital Status	Married	226 (56.5)	9.84	0.021
	Single	92 (23.0)		
	Widowed	50 (12.5)		
	Separated/Divorced	32 (8.0)		
Occupation	Farmer	180 (45.0)	11.72	0.018
	Trader	100 (25.0)		
	Artisan	60 (15.0)		
	Formal Employment	40 (10.0)		
	Unemployed	20 (5.0)		

Table 1: Socio-Demographic Characteristics of IDPs by Camp (N=400)

2 Main Environmental Challenges Faced by IDPs in Makurdi

Environmental conditions varied across camps but remained generally poor (Table 2). Access to clean water was below 50% in all camps (40.0% overall), with significant differences between camps (χ^2=9.46, p=0.024). Adequate sanitation facilities were reported by only 32.5% overall, with significant variation across camps (χ^2=11.83, p=0.019). Housing adequacy was reported by only 25% overall, with significant differences (χ^2=8.91, p=0.031). Good air quality was reported by 35.0%, while low pollutant exposure was reported by 30.0% of respondents (χ^2=10.46, p=0.034).

Environmental Factor	Agan (n=130)	Abagena (n=140)	Daudu (n=130)	Total (%)	χ^2	P-value
Access to Clean Water	54 (41.5%)	52 (37.1%)	54 (41.5%)	160 (40.0)	9.46	0.024
Adequate Sanitation	38 (29.2%)	46 (32.9%)	46 (35.4%)	130 (32.5)	11.83	0.019
Good Housing	32 (24.6%)	30 (21.4%)	38 (29.2%)	100 (25.0)	8.91	0.031
Good Air Quality	48 (36.9%)	46 (32.9%)	46 (35.4%)	140 (35.0)	4.17	0.124
Low Pollutant Exposure	38 (29.2%)	42 (30.0%)	40 (30.8%)	120 (30.0)	10.46	0.034

Table 2: Environmental Conditions in IDP Camps

Common Communicable Diseases among IDPs in Makurdi

Malaria was the most prevalent health outcome, affecting 62.5% of respondents, with statistically significant variation across camps (χ^2=10.27, p=0.016). Diarrheal diseases were reported by 45% of respondents, with significant variation between camps (χ^2=12.41, p=0.012). Respiratory infections affected 40% overall, though their distribution across camps was not statistically significant (χ^2=3.84, p=0.147). Skin diseases were reported by 27.5% (χ^2=8.56, p=0.036), malnutrition was observed in 35% of respondents, and hypertension and other chronic conditions were less common (15%).

Health Outcome	Agan (n=130)	Abagena (n=140)	Daudu (n=130)	Total (%)	χ^2	P-value
Malaria	83 (63.8%)	87 (62.1%)	80 (61.5%)	250 (62.5)	10.27	0.016
Diarrheal Diseases	58 (44.6%)	64 (45.7%)	58 (44.6%)	180 (45.0)	12.41	0.012
Respiratory Infections	54 (41.5%)	55 (39.3%)	51 (39.2%)	160 (40.0)	3.84	0.147
Skin Diseases	34 (26.2%)	39 (27.9%)	37 (28.5%)	110 (27.5)	8.56	0.036
Malnutrition	46 (35.4%)	48 (34.3%)	46 (35.4%)	140 (35.0)	5.42	0.067
Hypertension	20 (15.4%)	22 (15.7%)	18 (13.8%)	60 (15.0)	2.97	0.227

Table 3: Prevalence of Health Outcomes among IDPs

Relationship Between Environmental Factors and Communicable Diseases

Regression analysis (Table 4) revealed that poor sanitation significantly increased the odds of malaria infection (OR=2.23, p=0.002), while stagnant polluted water was also a strong predictor (OR=1.91, p=0.006). Unsafe water sources were the most significant predictor of diarrheal diseases (OR=2.83, p<0.001). Inadequate sanitation predicted skin diseases (OR=2.05, p=0.019). Overcrowded housing (p=0.164) and poor air quality (p=0.352) were not significant predictors. The model explained 40% of the variance in health outcomes across the three camps (Nagelkerke R^2=0.40).

Health Outcome	Environmental Predictor	Odds Ratio (OR)	95% CI	p-value
Malaria	Poor Sanitation	2.23	1.40–3.52	0.002
	Stagnant Polluted Water	1.91	1.18–3.05	0.006
Diarrheal Diseases	Unsafe Water Source	2.83	1.71–4.71	<0.001
Respiratory Infections	Overcrowded Housing	1.33	0.87–2.01	0.164
Skin Diseases	Inadequate Sanitation	2.05	1.11–3.77	0.019
Malnutrition	Poor Air Quality	1.23	0.77–1.97	0.352

Model Summary (Nagelkerke R^2): 0.40

Table 4: Multivariate Logistic Regression of Environmental Predictors of Health Outcomes

Accessibility and Perceived Quality of Healthcare Services

The majority of IDPs across the three camps primarily accessed healthcare through camp clinics or mobile medical teams (59.8%), with consistent proportions across camps (χ^2=0.03, p=0.986). A significant difference was found in the average distance to the nearest functional healthcare facility (χ^2=11.42, p=0.022): approximately 25.0% lived within 1 km, while 33.0% traveled more than 3 km. Waiting times exceeded one hour for 52.0% of respondents, with significant variation across camps (χ^2=7.98, p=0.046). The perceived quality of healthcare was similar across camps: approximately 13.5% rated services as good, 41.8% as fair, and 44.8% as poor, with no significant differences (χ^2=2.18, p=0.702). Availability of essential drugs was consistently limited, with 43.3% of respondents indicating drugs were rarely available and 40.5% sometimes available (χ^2=4.39, p=0.359). Self-reported health status over the past month revealed significant differences among camps (χ^2=8.95, p=0.030): about 17.0% reported improvement, 47.3% experienced no change, and 35.8% reported worsening health.

Discussion of Findings

Environmental conditions in the camps were generally poor, with less than half of respondents reporting access to clean water, and only 32.5% having adequate sanitation. These findings strongly correlate with those of Faronbi et al. (2019), who found that malaria, diarrhoea, and respiratory infections were prevalent among Nigerian IDPs due to poor water, sanitation, and overcrowding. Significant differences in water and sanitation access between camps reveal uneven infrastructural investment and resource distribution, suggesting that humanitarian responses are not uniformly effective across camps. One of the most pressing issues identified is the lack of access to consistently safe drinking water; a significant proportion of respondents depended on surface water (28.4%) and rainwater harvesting (15.1%), both prone to contamination and associated with increased risk of diarrheal and other waterborne diseases. Open dumping (48.2%) predominated as the waste disposal method, creating breeding grounds for disease vectors, while the dominance of firewood (60.5%) and charcoal (22.3%) as cooking fuels points to high reliance on biomass fuels producing indoor air pollutants linked to respiratory infections (Ilker and Ogunjesa, 2019).

The findings reveal a heavy burden of preventable communicable diseases alongside nutrition-related health problems. Malaria (62.5%), diarrheal diseases (45%), respiratory infections (40%), skin diseases (27.5%), and malnutrition (35%) were the most prevalent health outcomes. These findings are consistent with those of Faronbi et al. (2019), who documented high prevalence of malaria, diarrhoea, and respiratory infections among Nigerian IDPs, attributing them

to overcrowding, poor water supply, and inadequate sanitation. The statistically significant variations in malaria and diarrheal disease prevalence across camps may be linked to camp-specific environmental risk factors such as stagnant water and water source quality. The vulnerability of specific populations, especially women and children, emerges consistently; Uzobo (2018) noted that women and children constitute over half of Nigeria's displaced population and face acute challenges related to food security and health provision. Beyond physical health, displacement has profound effects on mental well-being, with the trauma of losing homes, livelihoods, and social networks frequently manifesting in depression, anxiety, and post-traumatic stress disorder, yet mental health services in camps are almost nonexistent (Okpan and Peter, 2020).

The regression analysis confirmed that environmental deficits are significant predictors of health outcomes among IDPs. Poor sanitation significantly increased the odds of malaria infection (OR=2.23, p=0.002), while unsafe water sources were the most significant predictor of diarrheal diseases (OR=2.83, p<0.001). The model explained 40% of the variance in health outcomes, confirming the central role of environmental conditions in shaping IDP health. These findings align with Ekezie (2022), who identified overcrowding, outdoor defecation, and poor sanitation as significant predictors of illness among IDPs in northern Nigeria. Overcrowded housing (p=0.164) and poor air quality (p=0.352) were not significant predictors for respiratory infections and malnutrition respectively, suggesting that other unmeasured factors such as cooking fuels or nutritional access may be more influential. Sanitation practices compound risks, as poor waste management contributes significantly to the spread of communicable diseases. In most camps, open dumping and outdoor defecation remain common, creating unhygienic conditions and providing breeding grounds for disease vectors, mirroring findings by Ekezie (2022) and Okpan and Peter (2020).

The findings highlight the profound challenges faced by IDPs with respect to healthcare access. Across the three camps, the majority of respondents depended primarily on camp clinics and mobile medical teams for healthcare, with limited reliance on public hospitals, private clinics, or traditional healers. This reliance underscores the centrality of humanitarian medical interventions in displacement contexts, where state facilities often remain out of reach due to cost, distance, or capacity, consistent with Ekezie (2022), who reported that over 20% of IDPs were unable to obtain any formal medical treatment despite high rates of illness. Physical access remains a major determinant of healthcare utilization: with a substantial proportion of IDPs living more than 3 km from functional services, geographic barriers are particularly problematic in camp settings where mobility is constrained and often compounded by insecurity and lack of transportation (Okpan and Peter, 2020). Congestion and long waiting times—with more than half of respondents reporting waiting for over an hour—further complicate healthcare access, reflecting overstretched services and inadequate staffing relative to demand (Amoo et al., 2018).

5 Perceived Quality of Healthcare Services

The perceived quality of healthcare across camps was generally poor, with nearly half of respondents rating services as inadequate, and most reporting that essential medicines were rarely or only sometimes accessible. This finding resonates with Ilker and Ogunjesa (2019), who emphasized that forced displacement in Nigeria has severely weakened the country's health indicators due to shortages in critical supplies and breakdowns in service provision. The lack of consistent drug supply not only undermines trust in health systems but also discourages timely healthcare-seeking behavior, pushing many IDPs toward self-medication or traditional alternatives. Self-reported health status revealed that over one-third of respondents reported worsening health in the past month. Poor self-rated health outcomes are not merely reflections of

physical morbidity but also indicators of mental health challenges, which remain under-addressed in displacement health interventions (Okpan and Peter, 2020). Uzobo (2018) particularly emphasized that women and children, who constitute the majority in many IDP camps, experience the greatest health risks, especially in relation to food insecurity and malnutrition, which amplifies the burden of disease and poor recovery.

Conclusion

The present study highlights the complex interplay between environmental conditions and health outcomes among internally displaced persons (IDPs) in Makurdi, Benue State, Nigeria. The findings reveal that overcrowding, inadequate sanitation, poor waste management, unsafe water sources, and substandard shelter significantly contribute to the prevalence of communicable diseases such as malaria, diarrheal infections, and respiratory illnesses. These environmental deficits, combined with exposure to disease vectors and poor hygiene practices, exacerbate the vulnerability of displaced populations. Healthcare access emerges as a critical concern: while services are available through mobile clinics, camp health posts, and intermittent medical outreach, the limited availability of essential drugs, insufficient health personnel, and long distances to functional facilities constrain effective treatment. Overcrowding at health facilities, long waiting times, and inconsistent service provision further impede timely care, contributing to worsening health outcomes. Mental health challenges, including stress, anxiety, and post-traumatic disorders, are also prominent, reflecting the psychosocial impact of displacement alongside physical health risks. Overall, the health status of IDPs in Makurdi is closely linked to both environmental and systemic factors, with environmental deficits constituting about 40% of health outcomes. The convergence of poor sanitation, unsafe water, inadequate housing, and limited healthcare access creates conditions that sustain high disease burdens and impede recovery, underscoring the urgent need for integrated interventions that address environmental health, strengthen healthcare provision, and promote resilience among displaced populations.

Recommendations

1. The Government should improve water supply and sanitation infrastructure. There is a critical need to ensure consistent access to safe drinking water and improved sanitation facilities within IDP camps. Installing additional boreholes, protected wells, and functioning latrines, coupled with proper waste management systems, would reduce the prevalence of waterborne and communicable diseases among displaced populations.
2. The Government should enhance housing and reduce overcrowding. Adequate shelter and reduced population density within camps are essential to mitigate health risks associated with overcrowding.
3. The Government should strengthen access to quality healthcare services. Expanding the availability and reach of medical services is imperative. This includes increasing the number of camp clinics, mobile medical teams, and ensuring sufficient healthcare personnel and essential drugs.
4. NGOs should integrate mental health and psychosocial support. Given the prevalence of stress, anxiety, and post-traumatic disorders among IDPs, it is important to incorporate mental health services into healthcare delivery.
5. NGOs should promote sustainable livelihood and health education programs. Interventions should combine environmental health improvements with empowerment initiatives such as skill acquisition, literacy programs, and hygiene education.

References

Adedokun, A., Ogundiran, A., Ojo, O., & Ojo, J. (2016). Water and sanitation conditions and their impact on health outcomes in internally displaced persons camps in Nigeria. *African Journal of Environmental Science and Technology*, 10(8), 263–271.

Adekola, P. O., Allen, A. A., & Tinuola, F. R. (2017). Socio-economic and health implications of urban renewal on internally displaced persons in Ogun State, Southwestern Nigeria. *Journal of Internal Displacement*, 7(1), 14–30.

Ahmed, Z., Bello, M., & Idris, M. (2018). Climatic conditions and health impacts in internally displaced persons camps in Nigeria. *Climate and Health Journal*, 12(3), 234–245.

Aliyu, O., Yusuf, O., & Bello, T. (2019). Healthcare accessibility and quality in internally displaced persons camps in Nigeria. *Nigerian Journal of Clinical Practice*, 22(4), 567–575.

Amoo, O. S., Smith, S. I., Ujah, I. A. O., Oladele, D., David, N., Oyedeji, K. S., et al. (2018). Socio economic and health challenges of internally-displaced persons as a result of 2012 flooding in Nigeria. *Ceylon Journal of Science*, 47(3), 229–234.

Ekezie, W. (2022). Resilience actions of Internally Displaced Persons (IDPs) living in camp-like settings: A Northern Nigeria case study. *Journal of Migration and Health*, 6, 1–9.

Ekezie, W., Myles, P., Murray, R. L., Bains, M., Timmons, S., & Pritchard, C. (n.d.). Self-reported diseases and their associated risk factors among camp-dwelling conflict-affected internally displaced populations in Nigeria. Division of Epidemiology and Public Health, University of Nottingham.

Ekezie, W., Siebert, P., Timmons, S., Murray, R. L., & Bains, M. (2022). Exploring the influence of health management processes on health outcomes among internally displaced persons (IDPs). *Journal of Migration and Health*, 6, 1–9.

Faronbi, J. O., Akinyoola, O. D., Faronbi, G. O., Adegbola, G. A., & Bello, C. B. (2019). Health needs and health seeking behaviour of Internally Displaced Persons in Dalori camp, Maiduguri, Borno State, Nigeria. *Research Journal of Health Sciences*, 246–255.

Gwadabe, N. M., Salleh, M. A., Ahmad, A. A., & Jamil, S. (2018). Forced displacement and the plight of internally displaced persons in Northeast Nigeria. *Humanities and Social Science Research*, 1(1), 1–7.

Ilker, E., & Ogunjesa, B. (2019). Health and social assessment of internally displaced people (IDP) in Nigeria. *Annals of Biostatistics & Biometric Applications*, 2(3), 1–5.

Makanju, A. O. M., & Khan, H. T. A. (2020). Determinants of healthy aging in internally displaced communities in Nigeria. *AHMR African Human Mobility Review*, 6(3), 1–25.

Okeke-Ihejirika, P., Oriola, T. B., Salami, B., Obiefune, M., Ejike, N., Olutola, A., & Irinoye, O. (2020). Beyond poverty fixation: Interrogating the experiences of internally displaced persons in Nigeria. *Third World Quarterly*, 1–23.

Okon, E. O. (2018). Internally displaced persons in Nigeria: Review of empirical studies. *American International Journal of Social Science Research*, 2(1), 1–11.

Okpan, S., & Peter, C. E. (2020). Socio-economic status and health shocks; Analysis of coping strategies among internally displaced persons (IDPs) households in Abuja Nigeria. *Research Square*, 1–15.

Okwute, E. S., Okwute, A. O., & Ibrahim, J. D. (2020). Environmental health problems in displacement: A case study of internally displaced persons (IDPs) in Maiduguri camps Borno State, Nigeria. *Asian Journal of Advanced Research and Reports*, 13(3), 37–49.

Onifade, V., & Osinowo, R. (n.d.). Living conditions of internally displaced persons (IDPs) in Northern Nigeria. *Urbanism and Crisis Management*, 369–388.

Owoaje, E. T., Uchendu, O. C., Ajayi, T. O., & Cadmus, E. O. (2016). A review of the health problems of the internally displaced persons in Africa. *Nigerian Postgraduate Medical Journal*, 23, 161–171.

Samuel, O. O., et al. (2022). Exploring the health and well-being issues of internally displaced persons living in informal urban settlements. *Journal of Migration and Health*.

Usman, Y., Abdullahi, M., & Suleiman, A. (2017). Nutritional status and health outcomes among internally displaced persons in Nigeria. *Journal of Nutrition and Health*, 6(2), 112–120.

Uzobo, E., & Akhuetie, R. E. (2018). Food security and health challenges among internally displaced persons in Nigeria. *The Nigerian Journal of Sociology and Anthropology*, 16(1), 47–71.