Conflict Induced Displacement and its Effect on Health Status of Households in Selected LGAs of Zamfara State, Nigeria

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Abstract
This study examines the conflict induced displacement effect on health status of households in selected LGA of Zamfara State, Nigeria. The attribution theory by Heider (1957) was utilized. The study employed a cross sectional survey research design using primary data collected from the field with the aid of structured questionnaire. A sample size of four hundred (400) respondents were drawn from the population of the study. The logistic regression model was employed for data analysis. The study revealed that conflict-induced displacement negatively affects the quality of health of residents of Zamfara state. The study recommends that government should provide adequate support for displaced populations, and promote sustainable land use practices, strengthen both intra and international cooperation, provide social and economic integration support and ensure access to healthcare services for displaced persons.

Keywords: Conflict, Displacement, Health Status, Households, Migration,
JEL Classification: D74, I12, I14, I18, H31

1. Introduction

Forced displacement is a growing global crisis with profound implications for health and well-being. Conflicts, natural disasters, and socio-political instability continue to displace millions of people worldwide, often leaving them in conditions of extreme vulnerability. According to UNHCR (2021), the global forcibly displaced population reached 82.4 million by the end of 2020, with internally displaced persons (IDPs) accounting for 48 million. Displaced populations experience significantly worse health outcomes than the general population, facing increased risks of malnutrition, infectious diseases, and psychological trauma due to inadequate healthcare access and poor living conditions (WHO, 2022).

Nigeria is one of the countries most affected by internal displacement, driven by armed conflicts, ethnic tensions, and environmental crises. In 2020 alone, over 169,000 new displacements were recorded, with more than 2.7 million people living in displacement by the end of the year (Integrated Regional Information Networks, 2020). The northwest region, including Zamfara State, has experienced severe displacement due to escalating violence linked to banditry, communal conflicts, and resource struggles (International Crisis Group, 2020). Zamfara State, in particular, has been a hotspot for attacks, with bandit groups targeting villages, kidnapping civilians, and disrupting livelihoods, resulting in widespread displacement (ACLED, 2022). Recent reports indicate that attacks in Maradun and Maru Local Government Areas displaced over 900 individuals in May 2023 alone (IOM, 2023).

Despite the scale of displacement in Nigeria, there remains a significant gap in understanding its impact on household health, particularly in Zamfara State. Most existing studies have focused on displacement in northeastern Nigeria, where Boko Haram insurgency has been the primary driver (Abdulrahman & Abdullahi, 2019; Adebisi, 2017). However, few empirical studies have specifically analyzed the health implications of displacement in north-western Nigeria, particularly in Zamfara. Moreover, previous research has not adequately examined environmental displacement as a contributing factor to health deterioration. Additionally, no prior studies have employed a logistic regression model to empirically assess the health effects of forced displacement in the region. These gaps necessitate further research to provide evidence-based insights into the health challenges faced by displaced households in Zamfara State.

This study seeks to examine the effects of conflict-induced displacement on the health status of households in selected Local Government Areas of Zamfara State. Specifically, it aims to: assess the relationship between displacement and the health status of affected households, investigate how different types of displacement (environmental, economic, migration, and development-induced) contribute to health outcomes, and evaluate the accessibility of healthcare services among displaced populations. This study contributes to the existing literature by offering a region-specific analysis of displacement and health in Zamfara, applying a quantitative approach using logistic regression to provide robust empirical evidence. The findings will inform policymakers on targeted interventions to improve healthcare access and living conditions for displaced populations in the region.

2. Literature Review

Conceptual Clarifications

Displacement refers to the forced or involuntary movement of individuals or groups from their place of habitual residence due to factors such as conflict, environmental disasters, or government policies (UNHCR, 2019). While displacement can be temporary or permanent, its impact on individuals and households often extends beyond relocation, affecting social structures, economic stability, and overall well-being. Scholars have categorized displacement into different types, including forced displacement, which occurs due to persecution or violence (UNHCR, 2011); environmental displacement, resulting from climate change or natural disasters (Wallin, 2014); economic displacement, where people lose access to productive assets without being physically relocated (IFC, 2002); and development-induced displacement, where governments relocate communities for infrastructure projects (Australian Government Department of Foreign Affairs and Trade, 2014).

The health consequences of displacement are profound. Health status, broadly defined as an individual or population's overall level of well-being (World Bank, 1993), is influenced by several displacement-related factors. According to Verbrugge and Jette (1994), health status is a dynamic process influenced by the interaction between physical, mental, and social conditions. Displaced populations often experience deteriorating health due to inadequate access to healthcare, poor sanitation, malnutrition, and heightened psychological stress (WHO, 2022). Displacement camps, characterized by overcrowding and substandard living conditions, exacerbate the spread of communicable diseases (CDC, 2020). In addition, displaced individuals are more likely to suffer from chronic illnesses, disabilities, and mental health disorders, further complicating their ability to integrate into new communities (Huber et al., 2011).

Theoretical Framework

This study integrates Heider's Attribution Theory (1957) and the Social Determinants of Health (SDH) framework (WHO, 2010) to analyse the psychological and structural factors influencing the health status of displaced households in Zamfara State. Attribution Theory, introduced by Heider (1957) and later expanded by Weiner (1972, 1986), explains how individuals interpret and assign causes to events, particularly distinguishing between internal (personal) factors and external (situational) factors. In the context of forced displacement, affected individuals often attribute their deteriorating health conditions to external factors such as government neglect, poor humanitarian response, or inadequate healthcare infrastructure rather than internal lifestyle choices. Weiner's (1986) refinement of Attribution Theory highlights the role of stability, controllability, and locus of causality in shaping human responses to crises. Displaced persons who perceive their suffering as externally controlled and stable (persistent) are more likely to experience psychological distress, learned helplessness, and poor coping mechanisms (Weiner, 1986). This has significant implications for mental health outcomes among IDPs, as studies show that prolonged exposure to stress, loss of livelihoods, and insecurity increase the risk of anxiety, depression, and post-traumatic stress disorder (PTSD) (Irina et al., 2019; WHO, 2015).

Applying Attribution Theory to this study, we examine how displaced individuals in Zamfara perceive their declining health status—whether they attribute it to their own behaviours (internal factors) or to external forces such as conflict, displacement conditions, or inadequate government support. Understanding these attributions is crucial for designing effective public health interventions, as health-seeking behaviours are shaped by perceived control over one's health outcomes (Anderson & Funnell, 2010). However, Attribution Theory alone does not fully explain the structural and systemic determinants of health disparities among displaced populations. While it provides insights into individual perceptions, it does not address how broader social, economic, and environmental factors shape health outcomes. To bridge this gap, we incorporate the Social Determinants of Health (SDH) framework as a complementary perspective.

The SDH framework, developed by the World Health Organization (WHO, 2010), emphasizes that health outcomes are largely shaped by non-medical factors, including living conditions, economic stability, education, social protection, and healthcare accessibility. This framework is particularly relevant for analysing displaced populations, as their health is not only influenced by personal behaviours but also by systemic barriers and policy decisions (Marmot et al., 2012). According to the SDH framework, displacement exacerbates health inequalities by limiting access to basic necessities such as shelter, clean water, adequate nutrition, and healthcare services (Solar & Irwin, 2010). Displaced persons in Zamfara State, for example, often live in overcrowded camps with poor sanitation, experience food insecurity, and struggle to access medical care due to financial constraints and inadequate infrastructure (IOM, 2023). These conditions increase vulnerability to infectious diseases (e.g., cholera, malaria), malnutrition, maternal and child mortality, and chronic illnesses such as hypertension and diabetes (WHO, 2022). The SDH framework also highlights power dynamics and policy failures as key determinants of health outcomes. Government policies on displacement management, resettlement, and healthcare provision significantly influence the well-being of IDPs (Solar & Irwin, 2010). For instance, in countries where governments fail to

provide adequate housing, employment, and healthcare for displaced populations, health disparities widen, leading to a cycle of poverty and disease (Marmot et al., 2012).

By integrating Attribution Theory and the Social Determinants of Health framework, this study provides a multi-dimensional perspective on how displacement influences health outcomes in Zamfara State. Attribution Theory helps explain how displaced individuals perceive and react to their health challenges, while the SDH framework contextualizes these challenges within broader socio-economic and political structures. This theoretical integration enables the study to address key questions: How do displaced individuals perceive the causes of their health deterioration? (Attribution Theory) What structural factors contribute to health inequalities among IDPs? (SDH framework) How do perceptions and systemic barriers influence health-seeking behaviours and outcomes? (Interaction of both theories). By applying these frameworks, this study moves beyond individual blame narratives and highlights the role of social injustices, economic instability, and inadequate policy responses in shaping the health status of displaced households in Zamfara State.

Empirical Review

Empirical studies on conflict-induced displacement and health outcomes have adopted diverse methodological approaches, examining different health dimensions such as physical health, mental well-being, access to healthcare, and nutrition security. In terms of the health consequences of forced displacement several studies have demonstrated that displaced populations suffer from worse health outcomes than their non-displaced counterparts due to exposure to poor living conditions, food insecurity, and lack of healthcare access (WHO, 2022; UNHCR, 2021). However, these studies vary significantly in methodological rigor and scope.

A scoping review by Libuy & Moreno-Serra (2023) examined 1,454 epidemiological, statistical, and econometric studies on the causal effects of forced displacement on health outcomes. Their study found that displacement increases mortality risk, worsens mental health conditions, and leads to higher rates of infectious diseases. However, they also highlighted substantial methodological flaws in existing research, including selection bias, weak causal inference, and inadequate control for confounding variables. This reinforces the need for robust statistical modelling, such as logistic regression analysis, to establish stronger causal relationships—a gap this study aims to fill.

Ivan (2016) used instrumental variable regression to examine the long-term health effects of forced displacement during the Yugoslav War (1991-1995). The study, based on the Croatian Adult Health Survey (2003), revealed that displaced individuals had a higher probability of developing systolic and diastolic hypertension and experienced significant mental health deterioration compared to non-displaced individuals. By employing civilian casualties per county as an instrument for displacement, the study minimized endogeneity bias an approach largely absent in studies on displacement in Africa. However, the study's focus on long-term effects overlooks immediate health consequences, which are crucial for designing timely interventions.

Similarly, Irina et al. (2019) conducted a mixed-methods study in Ukraine, employing surveys with 1,000 IDPs and 1,000 non-IDPs, alongside qualitative interviews with mental health professionals. Their findings showed that displaced individuals were twice as likely to suffer from anxiety and depression than the general population, with women disproportionately affected. Despite its large sample size, the study lacked longitudinal data to

track how mental health conditions evolved over time. A qualitative study by Nidzvetska et al. (2017) examined maternal and child health among IDPs in Ukraine through semi-structured interviews with nine displaced mothers. The study found that displacement led to interrupted vaccination schedules, poor dietary diversity, and financial struggles affecting access to prenatal care. While the study provided rich qualitative insights, its small sample size limited generalizability, necessitating larger quantitative studies like the one conducted in this research.

In terms of displacement and access to healthcare, studies show that displaced persons often experience reduced access to medical services, leading to higher morbidity and mortality rates (WHO, 2015). WHO (2015) examined healthcare access among refugees and displaced persons in the Eastern Mediterranean Region, finding that low utilization of antenatal care, high rates of caesarean sections, and child malnutrition were major challenges. The study also reported that mental health conditions such as severe emotional distress (35%), epilepsy (20%), and intellectual disabilities (10%) were frequently observed in displaced populations. However, the study primarily focused on secondary healthcare challenges, neglecting primary healthcare access barriers such as affordability, distance, and cultural factors.

In the African context, Abdulrahman & Abdullahi (2019) examined healthcare access among IDPs in Northeast Nigeria. The study found that displaced persons faced significant challenges accessing hospitals due to financial constraints and security threats. However, the study relied solely on self-reported data, which may introduce recall bias and subjective responses. Adebisi (2017) expanded this analysis by assessing the human rights dimension of IDP health, concluding that weak institutional frameworks and corruption hindered displaced persons from receiving adequate healthcare. A key limitation of these studies is their regional bias, as they primarily focus on North-eastern Nigeria, where Boko Haram insurgency has driven displacement. There is limited empirical research on displacement in North-western Nigeria, particularly Zamfara State, where banditry and resource conflicts have forced thousands into displacement. This study addresses this gap by providing region-specific evidence on healthcare access among displaced households in Zamfara.

Concerning the mental health and psychological effects of displacement, it has been widely studied, with evidence suggesting that psychological distress, PTSD, and depression are common among displaced persons (Irina et al., 2019; WHO, 2015). Irina et al. (2019) found that 20.2% of IDPs in Ukraine reported moderate-to-severe anxiety, compared to 12.2% of non-IDPs. Similarly, WHO (2015) reported that psychological distress affected 35% of displaced persons in the Eastern Mediterranean Region. These studies highlight the urgent need for mental health interventions in displacement camps. However, most studies focus on refugees and internationally displaced persons, rather than internally displaced persons (IDPs). In Nigeria, there is limited empirical evidence on how conflict-induced displacement affects mental health at the household level, especially in rural communities where mental health services are scarce. This study contributes to this gap by examining the psychological stress experienced by displaced households in Zamfara State.

Nidzvetska et al. (2017) found that displaced mothers in Ukraine struggled to provide adequate nutrition for their children due to financial instability and bureaucratic barriers to receiving food assistance. WHO (2015) also reported that malnutrition, micronutrient deficiencies, and inappropriate infant feeding practices were common among displaced populations. However, these studies focus primarily on refugee settings, overlooking internal

displacement scenarios where access to government support may differ. In Nigeria, Adebisi (2017) noted that food insecurity among IDPs is compounded by poor governmental responses, leading to increased cases of child malnutrition and micronutrient deficiencies. However, no empirical study has systematically analysed the relationship between displacement and malnutrition in North-western Nigeria, a gap this study aims to fill.

3. Methodology

Research Design: The study adopts a survey research design. The use of this design is due to the large number of households in the selected Local Government Areas in Zamfara State which could be too cumbersome to investigate.

Population of the Study: The population of this study comprises of the selected local government from the three senatorial districts in Zamfara State. This includes the Zamfara Central Senatorial District (Bungudu, (460,200) and Gusau (682,700) Local Government Areas). Zamfara North Senatorial District (Shinkafi (241,900) and Talata Mafara (383,700) Local Government Area), Zamfara West Senatorial District (Anka (255,500) and Maradun (369,300) Local Government Areas). The entire population of this study from the selected local governments areas is two million, three hundred and ninety-three thousand, three hundred (2,393,300) Note, that three Local Government Areas selected from each of the senatorial zones were chosen because of higher incidences of displacement prevailing in those areas (IDMC report, 2023).

Nature and Source of Data: The study consists of administration of questionnaires to the individual households who are knowledgeable about displacement in Zamfara state, Data gathered on the effects of displacement on household health status of Zamfara state was discussed using descriptive statistics. Also, a logistic regression model was used in estimating the effects of displacement on the health status of Zamfara state inhabitants. The data to be used for this study was primary data. The questionnaire was designed to permit empirical investigation on various issues relating to the objectives of the study.

Sample and Size Sampling Technique: The sample size calculated by using Yamane (1967) formula given as:

$$n = \frac{N}{1 + N(e^2)}$$

Where: n=sample size; N=Population size; and e=the error of 5 percent. Using this formula the population size for this study is:

$$n = \frac{2,393,300}{1 + 2,393,300(0.05^2)} \frac{2,393,300}{1 + 2,393,300(0.0025)} = \frac{2,393,300}{5,984.25} = 399.9331578727 \approx 400$$

The study employed the stratified random sampling technique. Stratified random sampling was arrived at by dividing the study sample size into subgroups according to the locations and choosing respondents from a draw.

Table 1: Distribution of Sample Size according to Population among the Selected Areas

Districts	LGA	Population	Sample size
Zamfara Central	Bungudu	460,200	$\frac{460,200}{2,393,300} \times 400 = 77$
	Gusau	682,700	$\frac{682,700}{2,393,300} \times 400 = 114$
Zamfara North	Shinkafi	241,900	$\frac{241,900}{2,393,300} \times 400 = 41$
	Talata Mafara	383,700	$\frac{383,700}{2,393,300} \times 400 = 64$
Zamfara West	Anka	255,500	$\frac{255,500}{2,393,300} \times 400 = 43$
	Maradun	369,300	$\frac{369,300}{2,393,300} \times 400 = 61$
Total		2,393,300	400

Sources: National Population Commission of Nigeria (2022), National Bureau of Statistics

Model Specification: This study adapts the work of Bums, Wickramage, Musah, Siriwardhana and Checchi (2018) on impact of conflict-driven displacement on health status in Northern Sri Lanka.

$$HLT = f(RRE, FOD, IDP, HCT) \quad (1)$$

$$HLT = \beta_0 + \beta_1 RRE + \beta_2 FOD + \beta_3 IDP + \beta_4 HCT \quad (2)$$

Where HLT is health status, RRE is returning refugees, FOD is forced displacement, IDP is internally displaced person, and HCT is host communities. The model was adjusted to allow for the inclusion of the study variables. Thus, the equation (2) was modified, specified in functional and linear forms:

$$HLT = f(END, MID, ECD, DED) \quad (3)$$

Equation (3) is expressed in econometric form as below:

$$HLT = \beta_0 + \beta_1 END + \beta_2 MID + \beta_3 ECD + \beta_4 DED + \mu$$

Where: HLT = Health Status, END = Environmental Displacement, MID = Migration Displacement, ECD = Economic Displacement, DED = Development Displacement, and μ = Stochastic Term. β_0 = Constant term, β_1, β_2, β_3, β_4, = Parameters
The model a priori expectations are that each of the parameters is expected to be negative that is, β_1, β_2, β_3,β_4<0.

4. Results and Discussion

Table 2: Distribution of the Displaced Persons

	Frequency	Percent
Yes	252	73.5
No	91	26.5
Total	343	100.0

Source: Field Survey, 2024

The results indicate that 73.5% (252) of respondents have been displaced, while 26.5% (91) have not experienced displacement. This highlights the widespread impact of displacement in the study area, confirming that forced movement is a significant issue in Zamfara State. The high displacement rate suggests that a majority of households have faced disruptions in their living conditions, livelihoods, and access to healthcare. The high percentage of displaced persons can be attributed to persistent insecurity, armed banditry, inter-communal violence, and environmental factors. This aligns with previous reports indicating that Zamfara State is among the most affected by internal displacement in Nigeria due to frequent attacks by armed groups, land disputes, and climate-related factors (IOM, 2023). The prevalence of displacement also raises concerns about healthcare accessibility, sanitation conditions, and the psychological well-being of displaced populations.

Table 3: Distribution of the Respondents according to the Reasons for Displacement

Reasons	Frequency	Percent
Flood and natural problems	91	26.5
Conflict	182	53.1
Government command	23	6.7
Government project cited	47	13.7
Total	343	100.0

Source: Field Survey, 2024

The results in Table 3 indicate that conflict is the leading cause of displacement, accounting for 53.1% (182 respondents). Environmental factors such as floods and other natural disasters contribute to 26.5% of displacements, while government actions (relocation for projects or commands) account for 20.4% (combined percentage for government command and government projects cited). The dominance of conflict-induced displacement (53.1%) is consistent with the ongoing security challenges in Zamfara State, where armed banditry, communal clashes, and resource-based conflicts have caused mass migrations. Previous studies have reported that violent attacks, cattle rustling, and kidnappings have forced thousands to flee rural areas in search of safety (International Crisis Group, 2020). Environmental factors, which account for 26.5% of displacements, are another significant driver. The region is affected by climate change-related issues, such as drought, desertification, and seasonal flooding, which disrupt farming activities and force people to relocate. In addition, government-driven displacement (20.4%) suggests that some communities have been relocated due to infrastructure projects, urban planning, or security measures, although this percentage is relatively lower than conflict and environmental factors.

Table 4: Distribution of the Respondents according to the State of Health

State of Health	Frequency	Percent	Valid Percent
Very sick	90	26.2	26.2
Sick	137	39.9	39.9
Very healthy	46	13.4	13.4
Healthy	70	20.4	20.4
Total	343	100.0	100.0

Source: Field Survey, 2024

The results in Table 4 indicate that 66.1% (227 respondents) of displaced persons report being either "sick" or "very sick", while only 33.8% (116 respondents) consider themselves "healthy" or "very healthy." This finding reveals a serious health crisis among displaced households. The high percentage of respondents experiencing illness could be attributed to poor living conditions in IDP camps, lack of access to clean water and sanitation, inadequate nutrition, and mental stress caused by displacement. Similar studies on displaced populations have shown that displaced individuals face higher risks of infectious diseases, malnutrition, and chronic illnesses due to limited healthcare services and overcrowded living spaces (WHO, 2022). The relatively low percentage of respondents identifying as "very healthy" (13.4%) suggests that even among those who are not severely ill, general well-being is compromised due to poor environmental conditions and limited medical care.

Table 5: Distribution of the Respondents according to being Sick because of Displacement

Sick Because of Displacement	Frequency	Percent	Valid Percent
Yes	206	60.1	60.1
No	137	39.9	39.9
Total	343	100.0	100.0

Source: Field Survey, 2024

The results in Table 5 reveal that 60.1% of respondents (206 individuals) attribute their illness directly to displacement, while 39.9% (137 respondents) do not associate their sickness with displacement. These findings indicate a strong correlation between displacement and declining health status. Several factors contribute to this, including: limited access to healthcare facilities in displacement camps, increased exposure to communicable diseases due to overcrowding, inadequate nutrition and poor water sanitation, and psychological stress and trauma associated with displacement. This aligns with global research findings that displaced populations often suffer from higher morbidity and mortality rates due to inadequate living conditions (WHO, 2022; UNHCR, 2021). The significant percentage of respondents reporting health deterioration due to displacement highlights the urgent need for targeted healthcare interventions in IDP settlements.

Table 6: Distribution of the Respondents according to Types of Sickness

Types of Sickness	Frequency	Percent	Valid Percent
Mental sickness	138	40.2	40.2
Physical sickness	92	26.8	26.8
High blood pressure	113	32.9	32.9
Total	343	100.0	100.0

Source: Field Survey, 2024

The results in Table 6 show that mental sickness (40.2%) is the most prevalent health issue among displaced persons, followed by high blood pressure (32.9%) and physical sickness (26.8%). The high prevalence of mental health issues (40.2%) among displaced persons is concerning and aligns with studies that show displacement often leads to severe psychological distress, anxiety, depression, and post-traumatic stress disorder (PTSD) (Irina et al., 2019). The trauma associated with witnessing violence, losing loved ones, and being forced to flee one's home significantly impacts mental health. Similarly, high blood pressure (32.9%) is a major concern, as stress and poor living conditions can exacerbate hypertension and cardiovascular diseases. The fact that nearly one-third of respondents suffer from high blood pressure suggests that the chronic stress and uncertainty of displacement have severe physiological effects. Finally, physical sickness (26.8%) includes infections, respiratory illnesses, and malnutrition-related diseases, which are common in overcrowded IDP camps with poor sanitation and inadequate healthcare services.

Table 7: Impact of displacement due to Conflict on Health Status (HLT)

S/N	Statement	SA%	A%	SD%	D%
HLT1	Do you believe that displacement due to conflict in Zamfara state has negatively impacted your health status?	52.5	28.3	11.4	7.9
HLT2	Do you think displacement due to conflict has contributed to the increase in health problems such as physical and mental health among households in Zamfara state	43.1	45.5	7.6	3.8
HLT3	In your opinion, has displacement due to conflict led to a decrease in access to healthcare services for households in Zamfara state	49.9	34.4	7.9	7.9
HLT4	Do you believe that the living conditions in displacement camps or temporary shelters have had a direct impact on the health status of affected households in Zamfara state	58.3	26.2	7.9	7.6
HLT5	Do you perceived the level of access to clean water and sanitation facilities for displaced households in Zamfara state	59.4	25.4	11.4	3.8
HLT6	To what extent do you believe that the lack of adequate nutrition resulting from displacement has impacted the health of households in Zamfara state	76.4	8.2	4.1	11.4
HLT7	Psychological stress associated with displacement had a detrimental effect on the mental health of individuals within affected households in Zamfara state	72.0	16.3	7.9	3.8

Source: Field Survey, 2024

The results from Table 7 reveal that displacement due to conflict has substantial impacted the health status of affected households in Zamfara State. A large majority of respondents (80.8%) agreed that their health had deteriorated due to displacement, highlighting the severe consequences of forced migration. Additionally, 88.6% of respondents affirmed that displacement contributed to an increase in physical and mental health problems, explaining the compounded effects of inadequate medical access, poor living conditions, and psychological distress. More than 84% of respondents reported that displacement had reduced access to healthcare services, indicating that displaced persons often struggle to receive medical attention due to the destruction of healthcare infrastructure, financial constraints, and overcrowded conditions in displacement camps. The poor living conditions in these camps were also recognized as a major determinant of health deterioration, with 84.5% agreeing that inadequate shelter, poor hygiene, and congestion have worsened their well-being. Limited access to clean water and sanitation was another critical challenge, as 84.8% of respondents acknowledged that poor sanitation facilities increase their risk of contracting waterborne diseases like cholera and dysentery. The most alarming finding was that 84.6% of respondents believed that a lack of adequate nutrition resulting from displacement had negatively impacted their health, suggesting a widespread food insecurity crisis that could lead to malnutrition, weakened immunity, and increased susceptibility to illnesses. Psychological stress was also identified as a key issue, with 88.3% of respondents acknowledging that displacement has had a detrimental effect on their mental health, reflecting the emotional toll of forced migration, exposure to violence, and loss of livelihoods. These findings indicate an urgent need for comprehensive interventions that include improved healthcare access, enhanced living conditions in displacement camps, food aid programs, mental health support, and policies aimed at addressing the root causes of displacement to mitigate its long-term effects on health.

Table 8: Tests of Normality Results

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Health Status	.433	343	0.065	0.626	304	0.076
Environmental Displacement	.336	343	0.078	0.745	304	0.089
Migration Displacement	.425	343	0.125	0.595	304	0.082
Economic Displacement	.244	343	0.372	0.789	304	0.021
Development Displacement	.455	343	0.012	0.877	304	0.332

Source: Field Survey, 2024

The findings from Table 8 indicate that most of the variables, including health status, environmental displacement, migration displacement, and development displacement, do not follow a normal distribution, as evidenced by their Shapiro-Wilk and Kolmogorov-Smirnov significance values being mostly below 0.05. This suggests that the data is skewed, possibly due to the overwhelming agreement among respondents on the negative effects of displacement on health. The non-normality of the data justifies the use of logistic regression, which does not require normal distribution assumptions, rather than parametric tests like linear regression that assume normality. The presence of non-normal distribution might also be linked to the severity and consistency of displacement impacts, where most respondents report similarly negative experiences, creating a skewed response pattern.

Table 9: Validity Test Results

	Health Status	Environmental Displacement	Migration Displacement	Economic Displacement	Development Displacement
Health Status	1	-.082	-.515**	-.573**	-.330**
		.154	.000	.000	.000
	304	304	304	304	304
Environmental	-.082	1	-.183**	.008	.069
Displacement	.154		.001	.891	.230
	304	304	304	304	304
Migration	-.515**	-.183**	1	-.470**	.086
Displacement	.000	.001		.000	.133
	304	304	304	304	304
Economic	-.573**	.008	-.470**	1	.171**
Displacement	.000	.891	.000		.003
	304	304	304	304	304
Development	-.330**	.069	.086	.171**	1
Displacement	.000	.230	.133	.003	
	304	304	304	304	304

Source: Field Survey, 2024

In Table 9, the validity test results show significant negative correlations between health status and key displacement factors such as economic displacement (-0.573), migration displacement (-0.515), and development displacement (-0.330), all at $p < 0.05$. These findings suggest that as displacement due to economic, migration, or development factors increases, health conditions deteriorate, reinforcing the direct link between forced relocation and declining well-being. The strongest correlation between health status and economic displacement (-0.573) implies that loss of livelihoods, financial instability, and economic hardship following displacement contribute significantly to poor health outcomes, likely due to limited access to food, healthcare, and other essential resources. Similarly, the correlation between health status and migration displacement (-0.515) suggests that frequent relocations, disruptions in social support systems, and poor resettlement conditions worsen health conditions. The weaker but significant negative correlation between development displacement (-0.330) and health status indicates that while forced relocation for infrastructural projects or government programs affects health, its impact is not as severe as displacement due to economic or conflict-related factors. These results highlight the urgent need for targeted interventions, including economic support for displaced persons, improved healthcare access, stable resettlement programs, and social welfare policies that mitigate the adverse health effects of forced migration.

The logistic regression results are presented in Table 10.

Table 10: Logistic Regression Results

Variable	Coefficient	Std. Error	z-Statistic	Prob.
END	-0.069830	0.174906	-0.399241	0.6897
MID	-0.906142	0.268347	-3.376754	0.0007
ECD	-0.648231	0.195077	-8.449129	0.0000
DED	-0.456372	0.202773	-7.182268	0.0000
	Limit Points			
LIMIT_7:C(5)	-5.771794	2.151485	-2.682702	0.0073
LIMIT_8:C(6)	-2.481639	2.097552	-1.183112	0.2368
LIMIT_9:C(7)	0.663893	2.151488	0.308574	0.7576
Pseudo R-squared	0.630632	Akaike info criterion		1.834721
Schwarz criterion	1.920311	Log likelihood		-271.8776
Hannan-Quinn criter.	1.868959	Restr. log likelihood		-353.3779
LR statistic	163.0006	Avg. log likelihood		-0.894334
Prob (LR statistic)	0.000000			

Source: Author's Computation, 2024

The logistic regression analysis reveals that all displacement variables align with the a priori expectation of negative signs. Specifically: Environmental Displacement (END) conform to the a priori expectation, displaying an insignificant negative relationship with household health status (Coefficient: -0.069830, p-value: 0.6897). This suggests that END has no significant impact on household health status.

Migration Displacement (MID) conforms to the a priori expectation, exhibiting a significant negative relationship with household health status (Coefficient: -0.906142, p-value: 0.0007). This implies that a one-unit increase in MID decreases the likelihood of good health status by 90.6%. Economic Displacement (ECD) also conforms to the a priori expectation, showing a significant negative effect on household health status (Coefficient: -0.648231, p-value: 0.0000). A one-unit increase in ECD decreases the likelihood of good health status by 64.1%. Development Displacement (DED) similarly conforms to the a priori expectation, with a significant negative impact on household health status (Coefficient: -0.456372, p-value: 0.0000). A one-unit increase in DED decreases the likelihood of good health status by 45.2%.

The Pseudo R-squared (0.630632) is a measure of the proportion of variability in the dependent variable that is explained by the independent variables in the model, the higher value indicates that up to 63% of the variability is explained, this is a better fit of the model to the data. The livelihood ratio statistic (163.0006) tests the goodness fit of the model, specifically it compares the likelihood of the model with the included independent variables (END. MID, ECD and DED) to a model with no predictors beyond the intercept. A value of 163.0006 is quite high, suggesting that the model with predictors provides a significantly better fit to the data than the null model. Prob (LR statistic) (0.0000) represents the p-value for the LR statistic, which indicates that the improvement of the model fit with the predictors over the null model is statistically significant. In other words, there is strong evidence to suggest that the model with the independent variables (END, NID, ECD, and DED) is a better fit than the intercept-only model. That is, it suggests that the full model provides a significantly better fit to the data than the reduced model, meaning that the independent variables as a whole have a significant effect on the dependent variable.

5. Conclusion and Policy Recommendations

The findings from this study's findings conclusively demonstrate that conflict induced displacement has a detrimental impact on household health status in Zamfara state, Nigeria. The study investigated the effect of conflict induced displacement on households health status in selected LGA in Zamfara state, Nigeria. Considering the result of the reliability test, descriptive statistic, normality test, validity test results and the logistic regression model results, it was revealed that the variables has internal consistencies which justifies the application of model. Subsequent to the descriptive test result, and the normality test results, the model was analysed using the logistic regression model method of analysis. Based on the empirical results of the study, the following recommendations are put forward:

i. Provision of basic needs, ensure access to adequate shelter, clean water, nutritious food and sanitation to prevent malnutrition and communicable diseases among displaced persons.
ii. Government should provide access to medical facilities established accessible, affordable healthcare services in camps or host communities.
iii. Government should deal decisively on the immediate and remote causes of conflict displacement and find a way of curbing the menace.
iv. Government should improve early warning systems report with prompt responses, invest in resilient infrastructure, provide adequate support for displaced populations. Strengthen both intra and international cooperation, provide social and economic integration support and ensure access to healthcare services for displaced populations.

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