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# **DETERMINANTS OF HEALTHY AGEING IN INTERNALLY DISPLACED COMMUNITIES IN NIGERIA**

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## ABSTRACT

The main objective of this research article, is to assess the effect of socioeconomic and environmental determinants on healthy ageing status amongst internally displaced migrants and non-migrants nestled within the environmentally stressed regions of Northeastern Nigeria. Methodologically the study utilized secondary data from the Nigerian IDP Survey 2018 (Location-Northeastern States;  $n=1293$  adults aged  $\geq 50$ ; male  $n=63.1\%$ , female  $n=36.9\%$ ) using a multi-stage stratified random sample. Varied statistical techniques such as cross-tabulation and binary logistic regression were used to analyze the dataset. Study result shows a high mean prevalence of old-age disability within the study area irrespective of migration status in Northeast Nigeria. Secondly, socioeconomic and environmental determinants were robust predictors of later-life health outcomes. In addition, the regression revealed that a concomitant of factors such as age, gender and sanitation have a negative effect on older adult wellness and wellbeing. Meanwhile, the migration status of IDP's, although in most cases forced, significantly improve the odds of ageing healthily. Conclusively, the quality of life of the older adults irrespective of migration status are poorly impacted by diminishing familial supports, social exclusion, non-existent social security programme and non-existence of healthcare infrastructure. Based on study result, we recommend that the proposed ECOWAS Sahelian "Green belt" afforestation project targeted specially to areas around the Chad basin be fully implemented, as this project will help mediate the perennial conflicts between the herdsman and farming communities. Furthermore, there is an urgent need to formulate an integration between migration and geriatrics which would be comprehensive, and evidence driven. Finally, the budgetary allocation for health should have a flooring capped at 20% of the National budget.

**Keywords;** environmental stress, forced migration, population ageing, Nigeria, Sullivan method

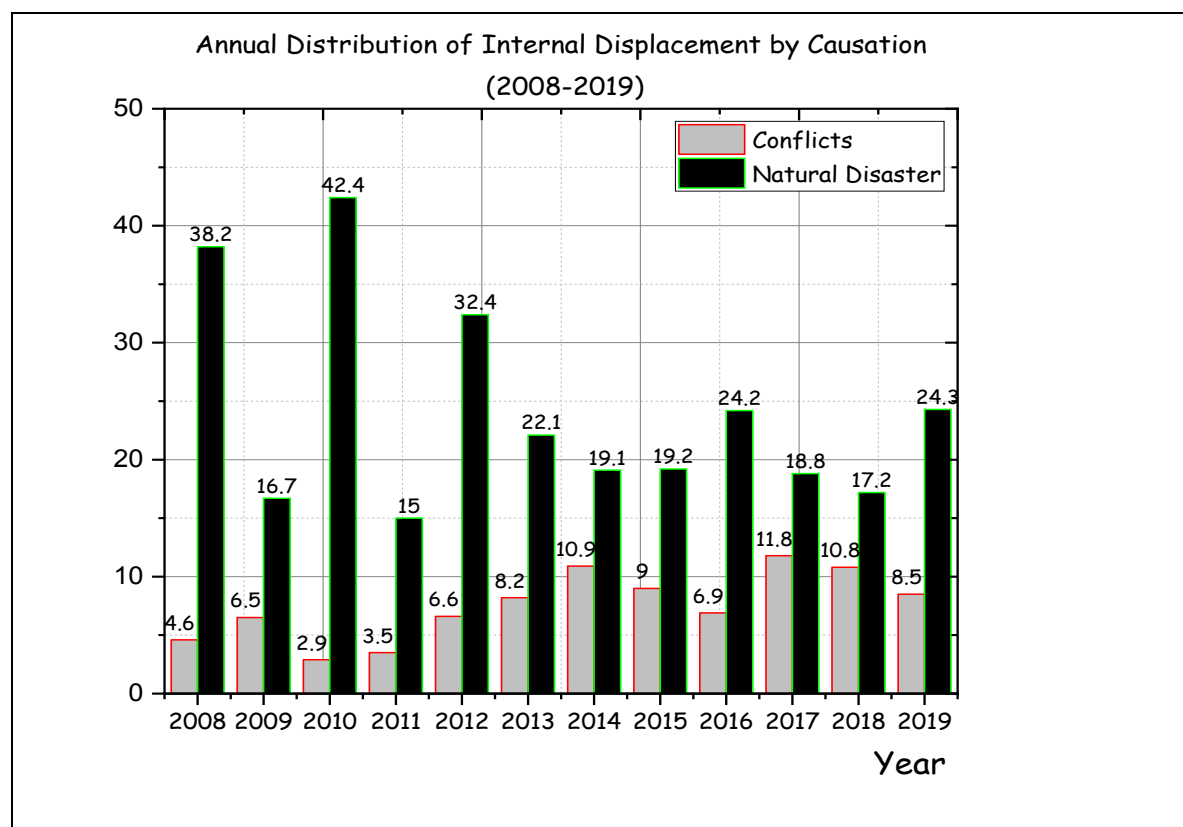
## INTRODUCTION

The Combined impacts of conflicts, environmental and climatic changes on socio-economic development as witnessed in the 21<sup>st</sup> century are complex (IDMC, 2019a; IOM, 2019; IDMC-GRID, 2020a). This trident portends short-long term challenges to policy audiences and nations worldwide, in most cases precariously altering the demographic structures alongside hindering the sustainable development drive of most countries. Increasingly more regions around the globe are experiencing unprecedented levels of habitat loss due to this factors such as climate change, change in land use/land cover, desertification, and water pollution with devastating effects on most vulnerable communities, particularly in Least Developed Countries (LDCs), Land Locked Developing Countries (LLDCs) and Small Island Developing States (SIDS) (Hartter, Ryan, MacKenzie, Goldman, Dowhaniuk *et al.*, 2015; Strandberg & Kjellström, 2018; IPCC, 2018).

In order to better comprehend the scale of this phenomenon, according to IDMC-GRID (2020b) 33.4 million people were recently internally displaced, making 2019 on record the year with the highest annual increase since 2012, 8.5 million of the internally displaced persons (IDPs) were driven by conflict and violence, while 24.9 million IDPs triggered by around 1,900 recorded disaster events across 145 countries and territories, 23.9 million of these IDPs among which were directly due to weather-related (See in Figure 1). 75.5% of global IDPs which is an estimated 34.5 million displaced persons are currently resident in just 10 countries. 18.3 million IDPs are under-15 children, while 3.7 million are aged 60 years and above (IOM, 2019; IDMC-GRID, 2020b).

Climate-induced displacement is fluid and widespread, constantly reshaping migration patterns across different regions and most especially in the LDCs, LLDCs and SIDS nations. According to the UNHCR (2018) an estimated 79.5 million people are currently displaced

worldwide, which constitutes about 1% of human population derived from a total of 28 million new humanitarian crises across 148 countries and territories. Thus the humanitarian crises abound and persist on (IDMC-GRID, 2020a). The global migration picture must, therefore, be seen as a sum of many parts and it is important to put recent developments in specific regions into global and historical contexts.



**Figure 1: Global cause of Internal Displacement**

Source: Authors Compilation (2020)

### *Sub-Saharan*

In Africa, inter-tribal conflicts are the leading source of <sup>1</sup>internal displacement alongside the effect from environmental change. The continent at present houses over one-third of the global

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<sup>1</sup> In this study the terms internal displacement and forced migration would be used interchangeably.

internally displaced population. In spite of the unanimous adoption by States of the African Union Convention for the Protection and Assistance of Internally Displaced Persons plan in 2012 (IDMC, 2019b). The Sub-Saharan region which comprises 47 nations is still home to an estimated 16.8 million IDPs, conflicts and violence within the sub-region contributed 4,590,000 new IDPs and 3,448,000 IDPs were displaced as a result of environmental stress. Evidenced by the temporal escalation of violence and an overall deterioration of security mostly within the Sahelian sub-regions, still ongoing in nations like Nigeria, Burkina Faso, Mali and Niger (World Bank, 2017).

### *Causes of IDP in Nigeria (stylized fact)*

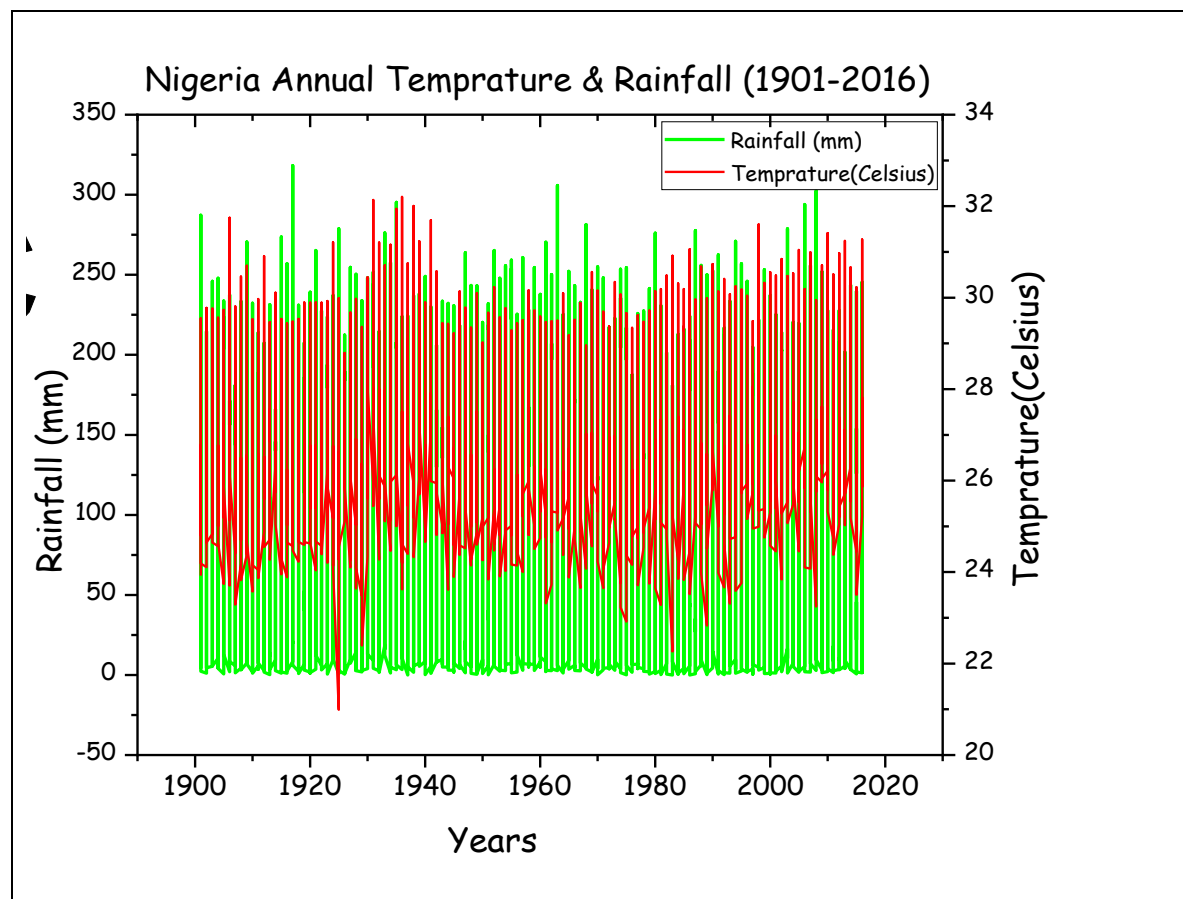
The problem of forced migration and internal displacement in Nigeria persisted post-independence, and this has so often been triggered by ethno-religious communal disputes, electoral violence, a civil war in 1967 and natural disasters such as flooding and desertification. The country is currently ranked as one the IDPs dense countries with one of the highest number of conflict induced IDPs (GTI, 2019; IOM, 2019). Since 2013, the country has experienced an unprecedented spike in internal displacement due to the insurgency in the Northern part of the country caused by <sup>2</sup>Boko-Haram (North-east) and <sup>3</sup>Fulani Herdsmen (North-west) together, they account for 78% of terror-related incidents and 86% of deaths from terrorism (Mohammed, 2017; GTI, 2019). The DTM Round 13 Report estimated 1,770, 444 IDPs in the northeast alone. Displacement is principally caused by conflict in the Northeast (1,770,444) attributed to the Boko-Haram Islamist coupled with the intensification of the conflict between pastoralists and the nomadic Fulani terrorist facilitated further displacements leading to a total stock of IDPs of 2,706,152 across 13 states in Nigeria (IOM, 2019).

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<sup>2</sup> Boko-Haram is known as The Islamic State in West Africa formerly known as Jama'at Ahl as-Sunnah Lid-Da'wahwa'l-Jihad (Founded in 2002).

<sup>3</sup> Fulani extremists are from the Fulani tribe in Northern Nigeria and from other neighboring countries in the Sahel, a tribe known for cattle herding.

Environment induced migration is occurring at an increasing rate in Northern Nigeria, considering that 613,000 persons were recently displaced as a direct impact of environmental stressors (IDMC, 2020). Studies have shown that the Sudano-Sahelian Ecological Zone (SSEZ) suffered from seasonal and inter-annual climatic variability as measured in most part of the country (See in Figure 2), leading to increased droughts and effectively the onset desertification processes, particularly since the 1960s decrease in rainfall in the range of about 3-4% per decade since the beginning of the 19th century (FRN, 2003; Abaje, Ati, & Iguisi., 2011). The Sahelian droughts of the 1970s and the 1980s ravaged this zone and left farmers impoverished (Ati *et al.*, 2007). This zone falls within the “Arc of Tension”. A region burdened by successive disasters in the shape of flash flooding, likewise is the slow onset of extreme drought and desertification (Abaje *et al.*, 2011; Abaje *et al.*, 2012a; Abaje *et al.*, 2012b).



## Figure 2: Climatic Transition in Nigeria (1901-2016)

Source: Authors Compilation (2020)

Northeastern Nigeria is being structurally transformed and overburdened by force migration, triggered by conflicts and disasters resulting in clashes between host communities and the displaced population over scarce socioeconomic resources. This humanitarian situation in the Northeast is deteriorating, with almost 8 million people heavily dependent on humanitarian aid. An estimated 823,000 people are out of the reach of aid organizations, and little is known about their health needs. According to the UN, 5.4 million people are in need of healthcare (UN-OCHA, 2018).

There is a growing need to view the resultant problems associated with migration and non-migration within this region is far too complex to be characterized in just a binary perspective. In compositional terms, most people and households that face climate risks do not migrate especially particularly in LDCs, LLDCs and SIDS. On the other hand, forced migration is increasingly recognized as a leading source of global health crises. Evidence shows that conflict-driven displacement has profound impacts on both the physical and mental health of those displaced persons among which consist of older adults (Burns *et al.*, 2018).

Older adults irrespective of legal status are more susceptible to social and healthcare exclusion especially with the decline of the traditional familial support system, despite their increased health risks, a large number of older persons within this conflict stricken region lack access to adequate levels and quality of health care. Considering that older adults within host communities have to compete with Older IDPs for the limited healthcare services and aids provider by often over stretched local governments. This “double stress” puts additional strain on the scarce resources, further reducing their coping ability and weakening their resilience (Le Van *et al.*, 2018; UN OCHA, 2018; UNHCR, 2019).



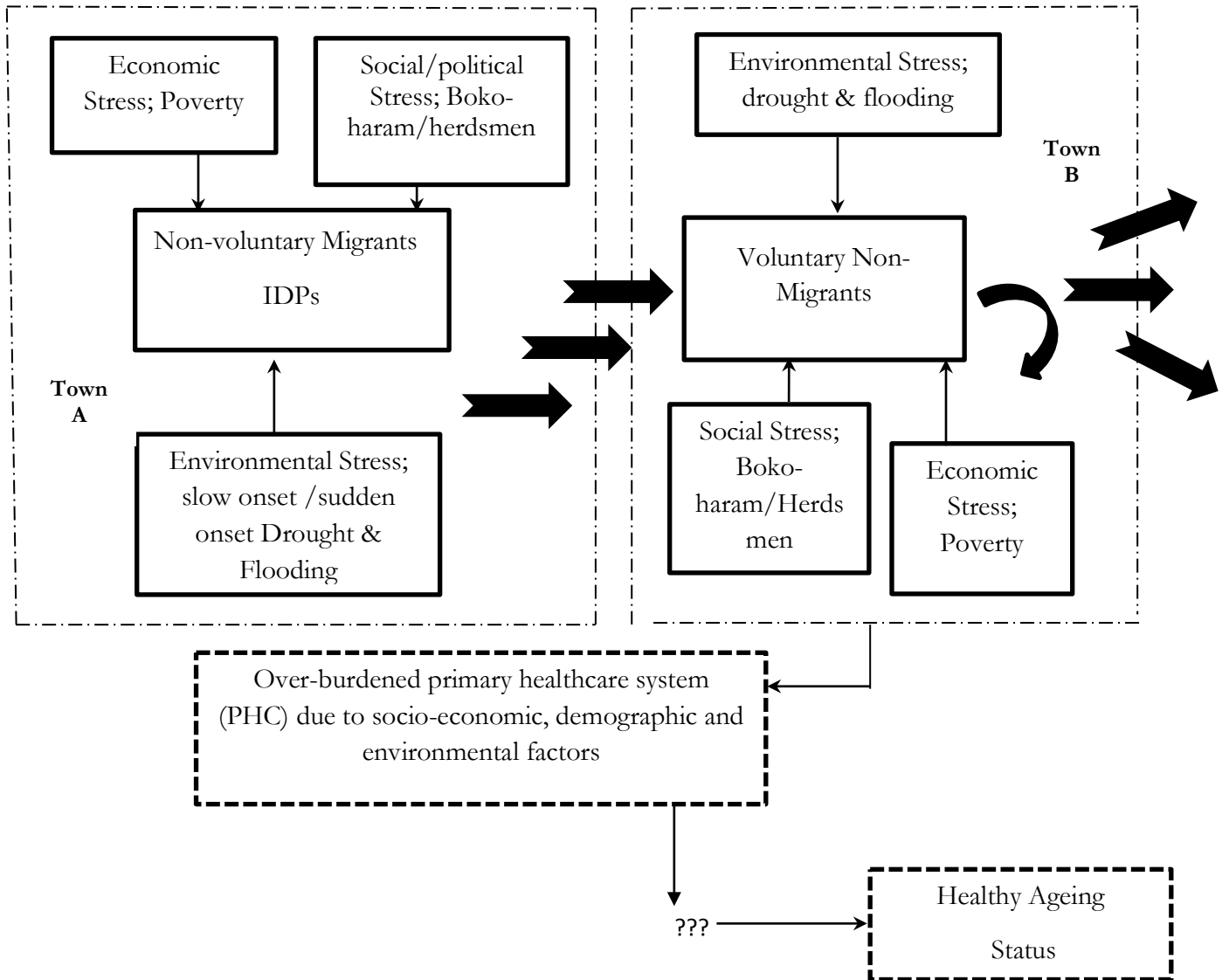


Figure 3: Conceptualizing the research problem

Although the adverse impacts of conflict-driven displacement on health outcomes are well-documented (Julca & Paddison, 2010; Heudtlass *et al.*, 2016). This paper argues that inasmuch as some people migrate willingly and voluntarily, there are other forms of migration that occur under

forced or coerced conditions as far as Nigeria is concerned. Some scholars refer to the voluntary–forced migration nexus as continuum (Koppenberg, 2012; Ouchou, 2009). This work does not delve into the voluntary and involuntary migration nexus; rather, it focuses on internal displacement as a form of forced migration (Mooney, 2005; Terminski, 2013). In addition, less is known about the nexus between migration status and determinants of healthy ageing in Nigeria. The main objective of this article is to assess the effect of socioeconomic and environment determinants on healthy ageing status among displaced migrants and non-migrants nested within the environmentally stressed region of Northeastern Nigeria. The article also seeks to contribute to the emerging body of literature on global population aging studies as impacted by migration, while also contributing to the discussion on the dynamics of internal displacement in Nigeria.

## **LITERATURE REVIEW**

In the past few decades less attention paid on the subject forced migration in migration literature although this sub-field in migration has its roots in the early writings of contemporary migration studies. Ernst Georg Ravenstein (1834–1913) propounded in the Laws of Migration (1885, 1889) that “bad or oppressive laws, heavy taxation and unattractive climate, uncongenial social surroundings, and even compulsion (slave trade, transportation) produce flows of migrants, but none of these flows can be compared in volume with that which arises from the desire inherent in the most men to ‘better’ themselves in material aspects”.

The voluntary form of migration enthused by economic causes propagated by Ravenstein has dominated and influenced major migration theories (see: mobility transition by Zelinsky, 1971; dual economy model, 1950/1960) throughout the twentieth century till now. The reduction of human mobility due to economic pull factors alone overlooks certain important immeasurable social factors in contemporary times such as environmental and climatic stressors (Terminski, 2013).

## *Healthy Ageing*

Today more than 11.6% of global populations are persons aged 60+ years (About 901 million) and this number is projected to rise to about 1.4 billion people by 2050 (UN, 2015). Similarly, Eastern and South-eastern Asia sub-regions are predictable to experience the largest (312 million) demographic transition, while Sub-Saharan Africa is projected to experience the largest increase (11.4 years) in life expectancy gain, rising from 49.1 years (1990-1995) to 60.5 years (2015-2020), and a further gain of 7.6 years is anticipated between 2015-2050 (UNDP, 2018; UNDESA, 2020).

The global advancement in healthcare and living standard has translated into prolonging life expectancy of people worldwide. Thus a person who is turning 60 years old could expect to live an additional 17 years in 2015-2020, and this number could rise to 19 years in 2045-2050. And those living in Sub-Saharan Africa are projected to live only an additional 14.2 years in 2045-2050 (Higo & Khan, 2014; UN-DESA, 2020). However, more emphases should be paid to the quality of life and rather than longevity alone, optimizing opportunities for health, participation and security in order to enhance the quality of life of older adults in the society. The WHO defines Healthy ageing;

“Healthy ageing is the process of developing and maintaining the functional ability that enables well-being in older age” (World Health Organization, 2015).

The problem of optimizing health opportunities, social inclusion and security for older adults IDPs in to promote healthy ageing. Elder *et al.* (1994) showed the adverse effect of conflicts and war on the adverse physical health persons older than 30 years. In addition, Kuh *et al.* (2002),

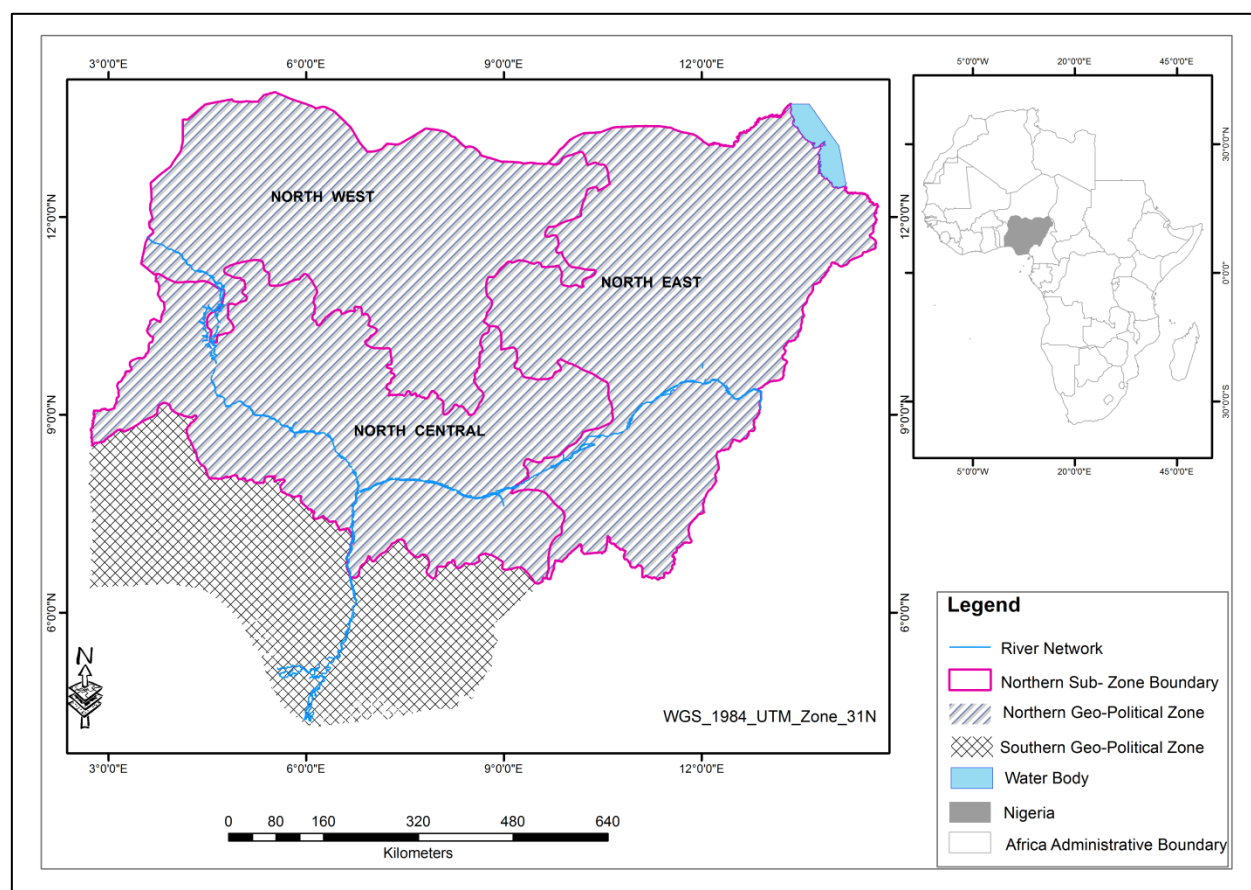
Shaw & Krause (2002), Krause *et al.* (2004) all revealed early life events are adversely related to health outcomes in middle and older age. WHO (2016) report, stated that healthy ageing status was significantly influenced by social determinants of health, for instance persons classified as socioeconomically disadvantaged such as in the case of most IDPs markedly experience poorer health in older age.

Furthermore, review of some studies revealed problems of inequality in health status and well-being among older people, indicates that different factors such as socioeconomic status (Lindström *et al.*, 2017). Age (Aboderin, 2011; 2012), Nationality (Axén *et al.*, 2002), Educational status (Ibáñez & Moya, 2006), Marital status and economic status (Kirchhoff & Ibáñez, 2001), Emotional support (Ahs *et al.*, 2006) and the transformation of familial support (Higo & Khan, 2014; Khan *et al.*, 2017; Khan, 2018) and not having a partner present were associated with poorer health and well-being, and in general lower quality of life (Gómez-Olivé *et al.*, 2010; Phaswana-Mafuya *et al.*, 2013).

## ***METHODS AND DATA***

The study data utilized the Nigerian IDP Survey (2018), a household survey with a multi-stage stratified random sample. Six Northeastern States were surveyed namely: Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe (See in Figure 4). A region already characterized by harsh climatic conditions, poor infrastructure, poor service delivery and frequent epidemic outbreaks. The sampling frame consisted of a list of wards with IDP household counts in the six states, provided by the International Organization for Migration (IOM) Displacement Tracking Matrix (DTM) 2017. The survey is representative for IDPs and host communities, defining host communities as the non-displaced population living in the Enumeration Areas(EAs) with displaced populations. All the households in the selected EAs were first listed and 12 IDP households and 12 (or multiples of it)

host community households were randomly selected and surveyed per EA, to reach the designated sample size.



**Figure 4: Nigeria showing its North-Eastern Geo-Political Zones**

Source: Authors Compilation, 2020

Northeast Nigeria “The total population was projected at 23.6 million in 2012, which represents about 14 per cent of the national population. The majority of the people of the northeast

region are peasant farmers, with a large number also engaged in livestock rearing and fishing. It occupies slightly less than one-third of Nigeria's total area and had a projected population for 2011 of 23,558,674 or 13.5% of the country's population (IOM, 2019). To date it's estimated that a total of 1,918,508 individuals are displaced in Northeast which constitutes about 70.9% from the total stock of IDPs in Nigeria (2,706,152).

### *Variable Measurement*

WHO (2016) described healthy ageing is significantly influenced by social determinants of health, meaning people from socioeconomically disadvantaged groups experiencing markedly poorer health in older age and shorter life expectancy. Social determinants of health (SDOH) encompass the social economic and environmental factors that can affect an individual's health and quality of life. For older adults in particular, SDOH-related factors can have significant implications for their ability to live independently in advanced age.

We selected physical disability (B\_3\_3\_disal\_3) as a proxy of healthy ageing status for the outcome. The study justification for this decision of selecting sensory impairment as a health status metric is based on the fact that it is a prevalent cause of unhealthy ageing in low and lower middle income countries like Nigeria. Environmental Factors: includes the type of household's toilet (C\_1\_21\_toilet), source of household drinking water (C\_1\_11\_water\_home) and type of waste disposal (C\_2\_21\_waste\_disposal). Economic Factors: consist of consumption quintile (Quintile\_tc) and Labor participation status (Status) and household density (HH\_sleep). Social Factors: includes age (Age\_cat\_g), migration status (Migr\_idp), educational status (edu\_level\_g\_c) and household dependency status (Depend\_share).

For the purpose of this study we selected person aged 50 and above, 50 years was selected rather than the general utilized age of 65years because of two main reasons; firstly, because life expectancy age of the average Nigeria is marginally greater than 50years ( $E_x=54.49$ year; Male=53.79/Female=55.62) and secondly the Northeastern region is considered the poorest in Nigeria, socioeconomically disadvantaged groups experiencing markedly poorer health in older age and shorter life expectancy.

In Nigeria ethnicity and religious identities are often intertwined, forming part of a complex pattern of social exclusion. Religious minorities experience social, political and economic exclusion, as a result of these differences (UNECA, 1991; Le Van *et al.*, 2018; Idris, 2018; World Bank, 2018). Interestingly, majority of IDPs in Northeast Nigeria relocate to places where they host communities with shared ethnicity and religious beliefs.

### ***Data Analysis***

We utilized the descriptive statistics, alongside the disability free life expectancy (DFLE) calculation, a health concept centered on the health expectancies proposed by Sullivan in 1971, The Sullivan health expectancy reflects the current health of a real population adjusted for mortality levels and independent of age structure (Bone *et al.*,1995). The Sullivan health expectancy provides a means of comparing the health states of an entire population at two time points or of two different populations at the same time point, this stated merit help advance scholarship in migrant studies as in the case of this study, because it affords us the opportunity to health disparities between persons internally displaced communities and persons in their host communities.

The Binary logistic regression technique was also utilized in order to actualize the aim of the study. This technique is one of the often used machine learning algorithms for binary classification that utilizes performance baseline (Hosmer, Lemeshow & Sturdivant, 2013). These technique was

utilized determine the binary healthy ageing outcome between the host and migrant's communities predicted by an assemblage of varied factors, going forward this technique has significant importance in the measuring of migrant's health outcomes. The binary logistic regression model is given below,

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_q X_q \dots \dots \dots (1)$$

$$Logit(\pi) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p \dots \dots \dots (2)$$

$$Logit(p(\pi)) = \log\left(\frac{p(x)}{1-p(x)}\right) = \pi + \beta_x \dots \dots \dots (3)$$

(Then for  $x=0$  (Healthy ageing),  $x=1$  (Unhealthy ageing))

Where;  $\beta_1 \rightarrow \beta_q$  = coefficient for  $q$

$\beta_1, \beta_q$  are regression parameters;  $X_1, X_2, \dots, X_q$  are explanatory variables, and  $\pi$  is the probability of success.  $\beta$  = Regression coefficient;  $\pi$  = Constant.

$$\ln\left[\frac{p}{1-p}\right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_q X_q \dots \dots \dots (4)$$

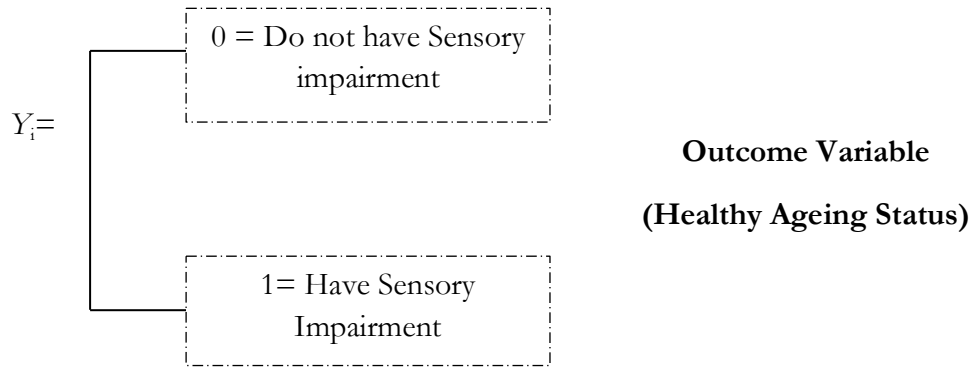
Since the study was assessed at an individual level, the probability of an individual ageing in a healthy manner is needed, the binary logistic regression;

$$P = \frac{\exp(\beta_0 + \beta_1 X_1 + \dots + \beta_q X_q)}{1 + \exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_q X_q)} \dots \dots \dots (5)$$

Overview characteristics of the sample and to identify factors associated with healthy ageing status  $p$ . The binary logistic regression analysis can be used to determine the relationship between a binary response and continuous or categorical explanatory variables (Vittinghoff *et al.*, 2012; Long &



Freese, 2014). In addition, Logistic regression gives you a discrete outcome unlike other analytical techniques such as linear regression gives a continuous outcome.



$$Logit \text{ (Health Status)} = \beta_0 + \text{Social factor} + \text{Economic factors} + \text{Environmental factors} + X_n \dots\dots$$

(6) Predictor variables utilized:  $X_1$ -Age,  $X_2$ -migration status,  $X_3$ -educational status,  $X_4$ -gender,  $X_5$ -Labour market participation,  $X_6$ -household dependency status,  $X_7$ -consumption quintile,  $X_8$ =communal participation,  $X_9$ - Type of waste disposal,  $X_{10}$ -type of toilet,  $X_{11}$ -source of drinking water and  $X_{12}$ -household density.

## RESULT AND DISCUSSION

**Table 1:** Basic Demographic Background of the Ageing

Variable	Variable Host(N=692)	IDP(N=601)	Combined(N=1293)
<b>Age</b>			
50-59years	362(28%)	326(25.3%)	688(53.2%)
60-69Years	316(14.4%)	165(12.7%)	351(27.1%)
70-79years	105(8.2%)	80(6.1%)	185(14.3%)
>80years	39(2.6%)	30(2.3%)	69(5.3%)
<b>Gender</b>			
Male	420(32.5%)	396(30.6%)	816(63.1%)

Female	272(21.0%)	205(15.9%)	477(36.9%)
<b>Gender of household head</b>			
Men	449(34.7%)	396(30.6%)	816(63.1%)
Women	243(18.8%)	205(15.9%)	477(36.9%)
<b>Religious Affiliations</b>			
Christianity	58(6.4%)	23(2.5%)	81(8.9%)
Islam	414(45.5%)	413(45.4%)	827(91.0%)
Traditional	1(0.1%)	0(0%)	1(0.1%)
<b>Literacy</b>			
Yes	358(27.8%)	262(20.3%)	620(48.1%)
No	331(25.7%)	337(26.2%)	668(51.9%)
<b>Highest Educational Attainment</b>			
No education	299(23.3%)	306(23.9%)	605(47.2%)
Primary &Intermediate	36(2.8%)	306(23.9%)	66(5.1%)
Secondary/vocational	97(7.5%)	36(2.8%)	150(11.7%)
University	33(2.6%)	47(3.7%)	45(3.5%)
Religious	174(13.6%)	170(13.3%)	344(26.8%)
Others	47(3.7%)	25(2.0%)	72(5.6%)

Note: Mean age= 56±9, Standard deviation= 1.737

Source: Computed by authors from NGA-IDP data (2018).

Table 1 gives the descriptive statistics of the socio-economic status of the respondents. Based on the study age distribution, majority of the respondents were aged 50-54 (35.3%) followed those aged 60-64 (24.4%), aged 55-59 (17.9%) and persons aged 75 and above (10.1%) had the

lowest representation. Adult mortality: The adult mortality rate is 3.18 deaths per 1,000 populations among women and 3.25 deaths per 1,000 populations among men (NDHS, 2019).

Delineation by gender revealed that the population of male (63.1%) respondent nearly double that of their female (36.9%) counterparts, this gender disparity can augur to be a direct effect of cultural and religious norms, situation where women are barred by their husbands/guardian to attend to male visitors. 63.1% headed households were by men compared to the 36.9% households headed by households. Observers of the Islamic faith constituted 91.0% of the respondents followed by Christian's (8.9%) and African traditionalist (0.1%) respectively. Furthermore, based on the ability to read in any language, 48.1% of the respondents were literate compared to (51.9%) was non-literate. 47.2% of had no form of formal education, 26.8% had Islamic education (known as Karatu Islamiyah) and 26% had western form of education (See in table 1).

**Table 2:** Result of the Binary Logistic Regression Model (IDP & Host Population)

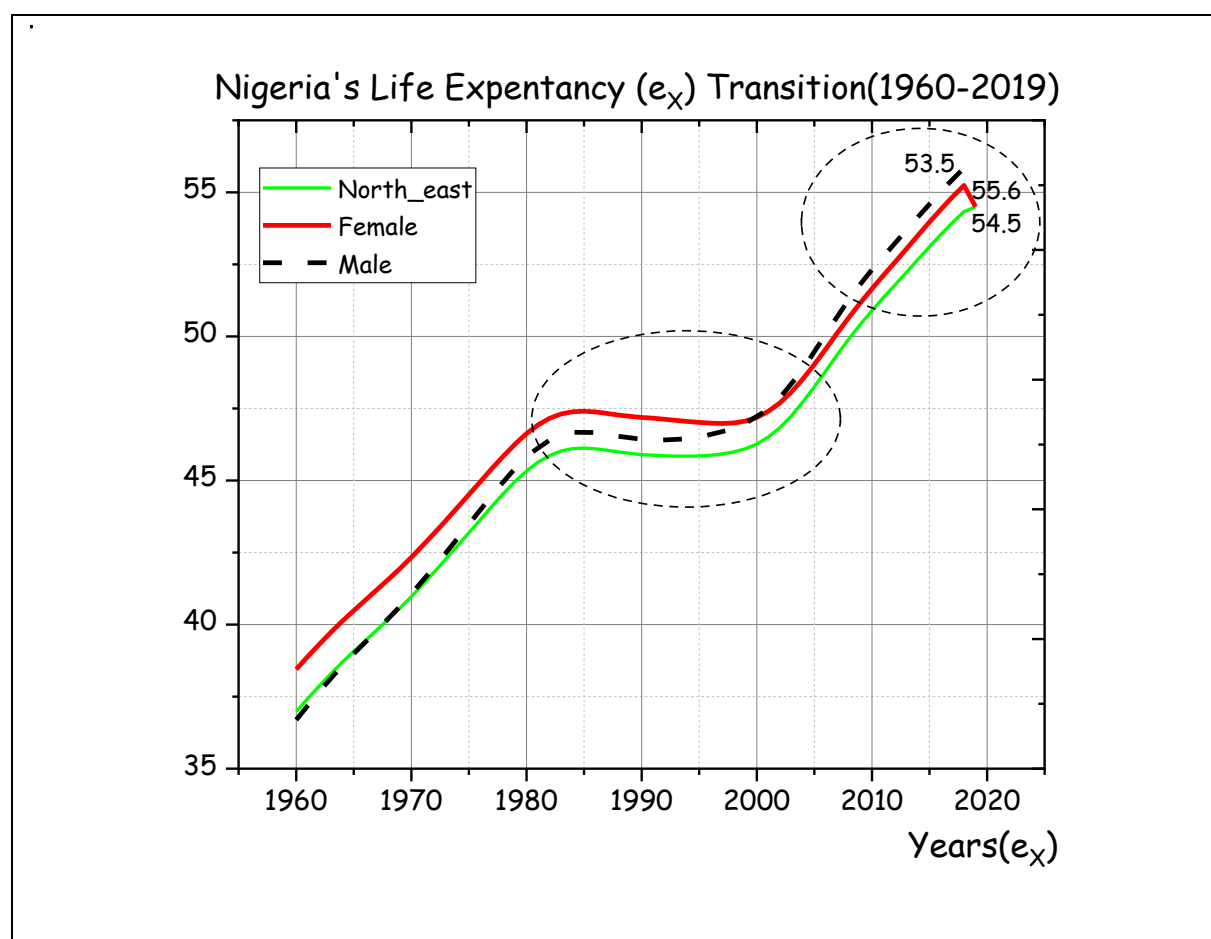
VARIABLES	Model 1 IDP population				Model 2 Host population			
	□	Wald	Sig.	Exp(□)	□	Wald	Sig.	Exp(□)
<b>Age</b>								
50-59	-.604	43.691	<.002	.547	-.792	5.296	<.001	.453
60-69	-.545	43.334	<.010	.661	.439	5.122	<.001	.527
70-79	-.451	41.223	.052	1.232	-.671	4.992	<.002	.531
>80	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>
<b>Educational Status</b>								
No Education	.017	.122	.001	1.017	-.168	.738	<.002	.845
Pry Education	-0.29	.164	<.002	1.040	-.271	2.124	<.001	.743
Sec education/vocation	.071	2.177	<.001	.575	-.283	1.341	<.001	.447
University	.098	.434	.510	.767	-.099	1.291	<.006	.751
Religious	.373	2.115	.075	.918	-.282	3.418	<.001	.847
Others	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>
<b>Gender</b>								
Male	-.404	3.177	<.001	.668	-.980	.784	<.001	.375
Female	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>
<b>Labour Force Participation</b>								

Active Non-active	.488 <i>Ref</i>	10.879 <i>Ref</i>	.001 <i>Ref</i>	1.629 <i>Ref</i>	1.055 <i>Ref</i>	2.988 <i>Ref</i>	<.001 <i>Ref</i>	2.871 <i>Ref</i>
<b>Household Dependency Status</b>								
High	.832 <i>Ref</i>	1.139 <i>Ref</i>	<.001 <i>Ref</i>	.856 <i>Ref</i>	.226 <i>Ref</i>	.362 <i>Ref</i>	<.004 <i>Ref</i>	1.253 <i>Ref</i>
Low								
<b>Household Consumption Quintile</b>								
Poorest Q1								
SecondQ2	.668	2.566	<.001	1.950	-.655	.192	<.001	.520
Middle Q3	.831	3.288	.003	2.296	-.301	.039	<.002	.740
FourthQ4	.631	1.654	<.001	1.880	-2.936	2.889	<.004	.053
Highest Q5	.383 <i>Ref</i>	.648 <i>Ref</i>	<.001 <i>Ref</i>	1.467 <i>Ref</i>	-1.741 <i>Ref</i>	1.321 <i>Ref</i>	<.001 <i>Ref</i>	.009 <i>Ref</i>
<b>Level of Communal Engagement</b>								
High	.241	3.651	.056	1.272	.019	.003	<.003	1.019
Low	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>
<b>Type of Waste Disposal</b>								
Discrete	-.013	.438	.508	.987	.217	.481	<.000	1.242
Indiscrete	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>
<b>Type of household Toilet</b>								
Unimproved	-.081	.100	<.001	.922	-.905	1.303	<.002	.404
Improved	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>
<b>Source of Drinking Water</b>								
Non-Treated	.071	.363	<.001	1.074	.729	2.307	<.002	2.072
Treated	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>
<b>Household Density</b>								
High	-.154	1.085	.005	.857	.760	2.114	<.001	2.138
Low	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>	<i>Ref</i>
<b>Constant</b>	8.602	48.133	.000	5439.928	10.243	4.258	.000	28073.768
<b>Model Summary</b>	-2 Log likelihood 554.219a Cox & Snell R <sup>2</sup> .116 Nagelkerke R <sup>2</sup> .368 Hosmer & Lemeshow Test .802				2 Log likelihood 68.196a Cox & Snell R <sup>2</sup> .237 Nagelkerke R <sup>2</sup> .368 Hosmer & Lemeshow Test .815			

Source: Computed by authors from NGA-IDP data (2018).

Life expectancy at a specific age is the number of additional years that a person of that age can expect to live if current mortality levels observed for higher ages continue for the rest of that person's life. Thus, based on the result of the study abridged life table (Sullivan method), aged

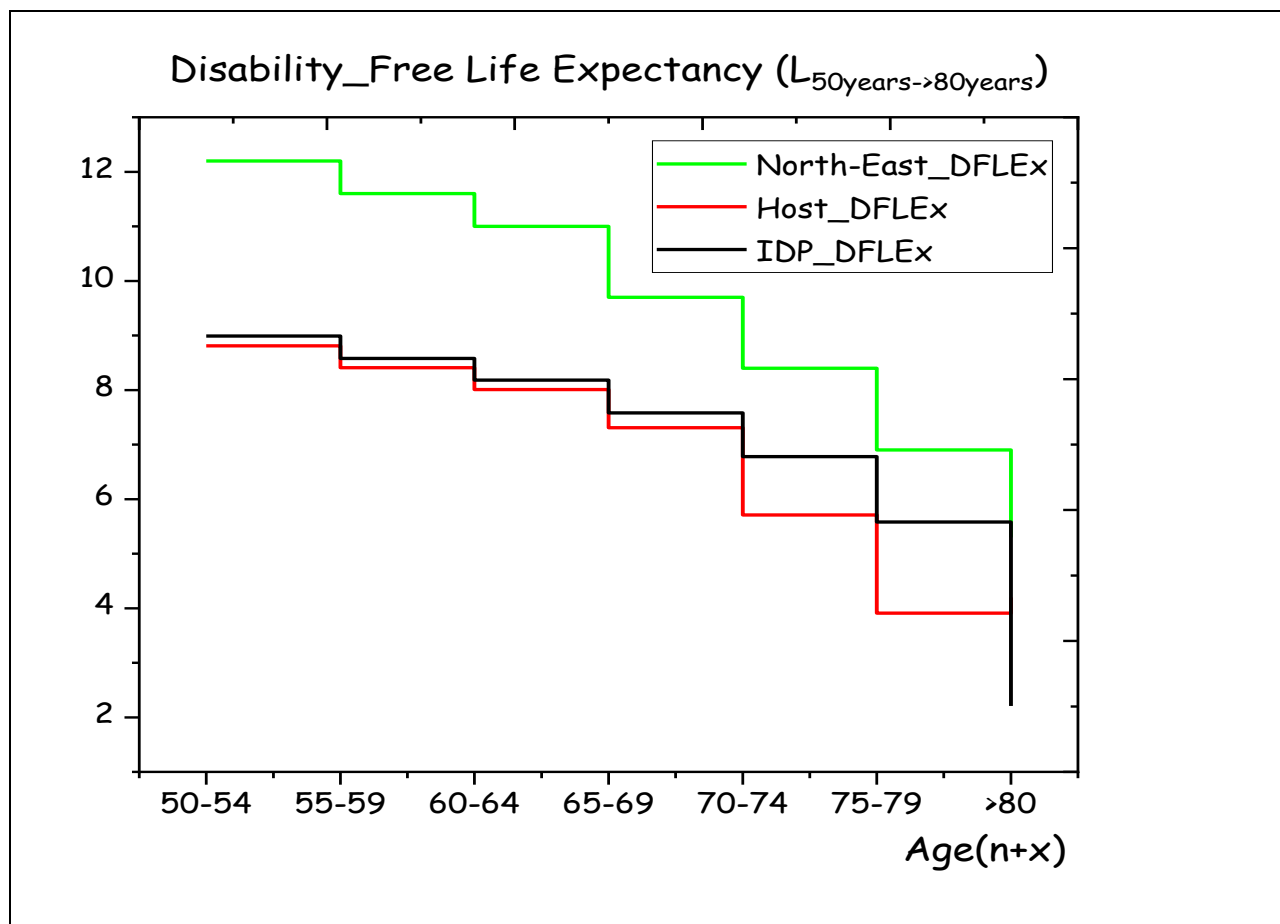
persons in the host communities are expected to live  $4 \pm 9$  years more IDPs. Along cohort delineation host person aged 50-59 have a mean life expectancy of  $17 \pm 9$  years compared IDPs (mean  $16.4 \pm \text{years}$ ), person aged 60-69 host (mean  $11 \pm 2 \text{years}$ ) > IDPs (mean 10years), person aged 70-79 host (mean 6years)>IDPs (mean  $4 \pm 8 \text{years}$ ) and persons aged 80 and above host (mean  $2 \pm 9 \text{years}$ ) > IDPs (mean 2years) respectively (see in Table 2). Longer lives are an incredibly valuable resource, both for each of us as individuals and for society more broadly. Older people participate in, and contribute to society in varied ways. This social engagement may in turn reinforce the health and well-being of older people themselves



**Figure 5:** Gender-based distribution of Life Expectancy Transition in Nigeria (1960-2019)

Source: Adopted from the World Bank, 2020

Result show that Nigeria has experienced a progressive trend growing at an average annual life expectancy growth rate of 0.60%. Interestingly, during the onset of the economic recession in the early 1980's the country experienced a decline (1980(45.3)-1990(45.9)-1998(45.9)) in its life expectancy status, and this remained so until the re-adoption of democratic governance in 1999 (46.1-2010(50.9)-2019(54.5)). Coincidentally, the 21<sup>st</sup> century has also ushered an increase in global life expectancy due to concomitant factors (See in Figure 5).



**Figure 6:** Disability-Free Life Expectancy (DFLEx) of the Study Area

Source: Computed by authors from NGA-IDP data (2018).

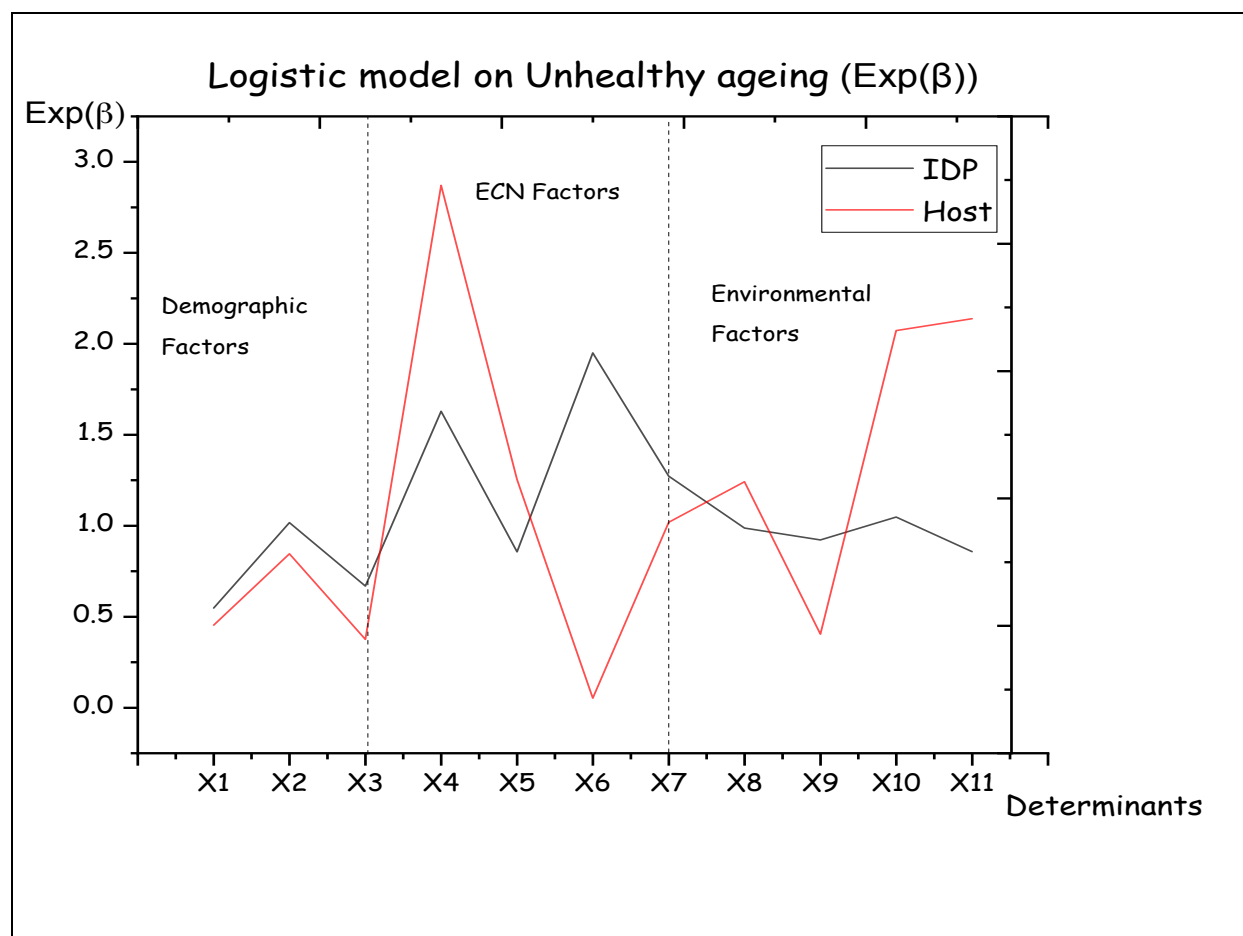
The Sullivan health expectancy was utilized to determine the current health status of person aged 50 years and above adjusted for mortality levels and independent of age structure. The study calculated the number of remaining years, at a particular age, that an individual can expect to live in a healthy state void of sensory disabilities (See in Figure 6), considering that almost one-third (32.8%) of people's age 60 or older in Nigeria is reported to have at least one form of disability (NDHS, 2019). Results showed healthy ageing disparities, considering that IDPs were more susceptible to sensory disabilities, meaning that this cohort were projected to have far less disability free life compared to their peers in the host communities across the entire age cohort (aged 50-80 and above).

In Model 1, all the explanatory was found to be statistical predictors the healthy ageing status among older IDPs, based on demographic predictors, age was negatively correlated to healthy ageing status of IDPs ( $p\text{-value}.000 < 0.05$ ), there is a 0.55 odds of unhealthy ageing with advance in age, more educated persons were 1.017 times more age healthy in comparison with less educated peers. Males were .668 ties to age healthy compared to females with a 1.497 greater odds of ageing healthy (See in Table 3). Economic variables were all statistically significant and made unique contributions to prediction of healthy ageing status in the full model, people actively involved in the labour force were 0.614 times likely to experience unhealthy ageing while those outside the labour force were 1.629 times to experience less wellness as they age. Consumption patterns appears to be quite skewed among IDPs population, persons grouped in the lowest consumption were 1.950 times more likely to experience prolonged health complications as they age. In addition, environmental predictors were all statistically significant. Older adults who were more socially engaged 0.78 times less likely to age in poor health compared to the less engaged ones who had 1.272 higher likelihood of ageing in poor health. Improved waste disposal .987 times experience healthy ageing compared to

those resident in households with unimproved methods with a 1.085 greater odds to age poorly. Unimproved toilets .922 times experienced unhealthy ageing compared to person's resident in households with improved toilets who are 1.085 times more likely to age in good health, likewise older persons in households with unimproved source of drinking water who are .857 times to age in poor health (See in Table 3).

In model 2, the p-value for each regression effect is smaller than .05, thus all the predictors in the model were statistically relevant. Results show that there is a .453 times increase in the odds of ageing in poor health among persons in the host community. Males were .375 times more likely to age in poor health compared females (2.667 better odds of healthy ageing), older persons in the labour force were 2.871 times likely to age in poor health compared to peers that are still active (0.348 better odds of healthy ageing), Older adult's resident in household with lowest consumption profile were .520 times expected to age in poorer health. The environmental factors were also found to be unique predictors of healthy ageing status, findings in table 3 shows person's residents within households with unimproved wasted disposal method (Odd ratio=1.242), using unimproved toilet types (Odd ratio=.404), drinking water from non-sanitary source (Odd ratio=2.072) and sleeping in densely populated housing (Odd ratio=2.138) respectively, we predicted to experience unhealthy ageing (See in Table 3).





**NB:** x1-age, x2-education, x3-gender, x4-labour participation, x5-dependency ratio, x6-consumption quintile, x7-communal engagement, x8-waste disposal, x9-toilet type, x10-drinking water source, x11-household density

**Figure 7:** logistic regression graph showing propensity to healthy ageing

Source: Computed by authors from NGA-IDP data (2018).

In Figure 7 the projected odds ratio of older adults ageing in an unhealthy way in both the host and IDPs by determinants is presented. Demographic determinants appear to be uni-directional across both groups which might be a result of the normalized distribution of respondents by age. Unlike demographic factors the economic factor effects exhibited more variance, out of labour older adults in the host communities be it retirement or unemployment were projected to be less active while ageing accompanied with predicted higher morbidity in later life, IDPs without employment or

any work would also experience the same fate but with much lower odds. In terms of consumption rate, more IDPs were projected to experience more health crises in later life in comparison to their host community peers.

## ***CONCLUSIONS AND RECOMMENDATION***

Nigeria has benefited immeasurably from the socio-economic and technological evolution of the 20th century resulting in improved standard of living and life expectancy. This success can be attributed to migratory processes be it human resource migration, technological transfer and data/information transfer. Interestingly, older adults often termed as “invisible population” have also been development actors. However, recent estimates indicate that the ageing population in Nigeria now constitutes more than 10% of its National population with a doubling time of a few decades. Interestingly, the failure to ensure that extra years of life gained are enjoyed in the best possible health is avoidable. However, this mega-demographic change has become a macro-level concern mainly due to the accompanying economic and social costs, culminating in the absence of a geriatric healthcare policy to cater to the healthy ageing needs.

Contemporary Nigeria is being battered by phenomena such as environmental stressors such as floods and drought and widespread conflict, notably in its most disadvantaged region the Northeastern. Hence household’s decision whether to migrate or not migrate now has later life health implications on the older adult cohort within this region. Our study makes a valuable contribution to the literature on population ageing in Nigeria. In particular, the goal of this study is to better understand the impact socio-economic and environment determinants on healthy ageing status among later life migrants and non-migrants within IDPs and host communities in Northern Nigeria. Findings revealed a much higher prevalence sensory impairment among IDPs than for stayers in the host communities; in generality the mean prevalence was significantly high in the

Northeast region. Secondly, socioeconomic and environmental determinants were significantly associated with healthy ageing status outcomes in Northeastern Nigeria. In addition, combinations of this factor or the lack of it was also associated with healthy ageing. Inclusion of the decisions on the side of the IDPs to migrate to neighboring towns and cities in Northeast has significantly improved their odds of ageing in an active and healthy manner probably due competing with stayers in these communities for limited resources and services such as healthcare, employment and farming space. Alternatively, stayers had a slightly greater odds of ageing healthy but increased inflow of more migrants; increased desertification and poor governance, the trade-off for non-migration in the long-run may their healthy ageing trajectory may fall lower than that of the IDPs.

Based on our findings we conclude that the older people's lives are characterized by growing inadequacies in customary family supports, social exclusion and non-existent social security programmes targeted at them and thus being vulnerable to poverty and diseases. We recommend that the proposed ECOWAS Sahelian "Green belt" afforestation project especially areas around the Chad basin, this project will help reduce perennial conflicts between herdsmen's-farmers. In addition, the government needs to improve security by defeating Boko-Haram and other Islamist militias. Furthermore, there is an urgent need to formulate an integrated migration-adult health policy or plan that is comprehensive but also evidence driven. Finally, the budgetary allocation for health should have a ceiling capped at 20% of the National budget.

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