

## Spatial Analysis of Population Growth and Health Facilities; Need for Sustainable Development: Example of Akoko Region, Ondo State Nigeria

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### Abstract

One of the myriads of problems facing the Nigerian health system is limited access to health facilities. The distortions in the Nigerian health sectors rising from inequalities have negative implications for the health care delivery system and in meeting the health related Millennium Development Goals (MDGs). Since health is wealth and like a vicious cycle, the crisis in the health sector will depress the economy and thereby causing further widening inequalities in the system. This paper examines the spatial analysis of public health establishment in Akoko region, Ondo state Nigeria with a view to ascertaining whether there is any imbalance. Questionnaire administration harvested information on availability of public health facilities, accessibility to the infrastructural services and health status of respondents in Akoko region. Secondary data were used to complement information gotten from primary data for the research. Simple percentages and correlation analysis were used to summarize data, while tables, charts and figures presented results of the findings. The finding revealed that health facilities in the study area were unevenly distributed. The paper recommends that some of the public health facilities should be upgraded to the status of FMC and General Hospital. The policy implication of this paper is that any effort aimed at improving the efficiency of the health care delivery system should ensure that health facilities are established relative to the structure of the population.

### Keywords:

Population, Health  
facilities,  
Accessibility, Public  
and Akoko region.

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### **Background to the Study**

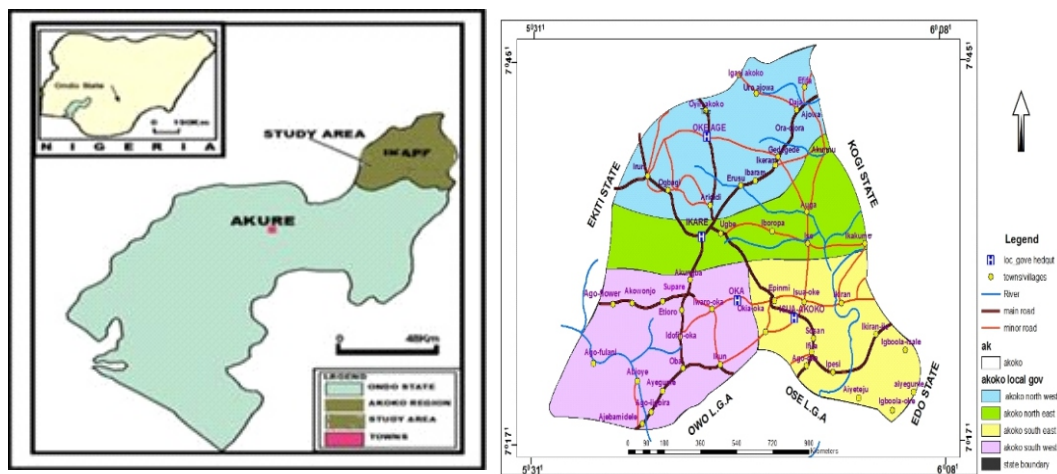
Population in Nigeria is often derived from natural increase. This is evident on becoming glaring when Nigeria is the populous countries in Africa. The actual population of Nigeria has been subjected to massive controversy. According to 2006 census the population of Nigeria was 140million. Projection of the population using 3% growth rate shows that the population of Nigeria could be about 178.5million in 2015 (population Reference Bureau). In balance fertility rate grew at an estimated and unequal margin with mortality rate (Alo 2001) hence a rapid increase in population growth (UN 2005) if this is left unchecked it has been speculated that each generation will be succeeded by a population that is twice its size. On the other hand decline in mortality has led to an increase in life birth. Life expectancy rose from 40.2years in 1963 to 50.4years in 1993, 52years in 2006 and 55 years in 2014 (NDHS 2014) In essence Nigeria has been characterized by high and stable birth rate matched with a gradual decline in the crude death, hence proportionate high population growth. The decline in mortality could be attributed to more accessible health and medical services. Every country in the world pays much emphasis on the status of health of its citizens; however limited health infrastructure is one of the basic problems facing the third world countries. The provision of modern medical care for Nigeria population was as result of the effort initiated by the missionaries who put in place hospital in the 1950s. Government institution began a unified system of health service which expanded very slowly until 1952 when the system was first decentralized. The health care system in developing countries is comparatively in its rudimentary form. In spite of the effort made by the state government to ensure a more equitable distribution of health resources obvious disparities are still evident.

Similarly a marked growth in the private sector is being experienced and a decline in government attempts to strengthen health care system in Nigeria in general and Ondo state in particular is not exempted from this eventualities. Ujah et al 2005 mentioned that deficient medical treatment is one of the key factors responsible for deterioration of health sectors in Nigeria. Approximately two-thirds of Nigerian women deliver outside health facilities and without medically skilled attendants present. The weak performance of the health system must be understood in the context of the country's long standing problems with governance. It is against this background that this study seeks to determine accessibility of health facilities by the populace of Akoko region.

### **Study Area**

The study area is Akoko Region in the Northern Senatorial District of Ondo State, Nigeria (Figure 1a& b). It lies between latitude 7°19'N and 7°46' North of the Equator and longitude 5°30'E and 6°15' East of the Greenwich Meridian. It covers land area of about 836,970 square kilometer (Ministry of Lands and Housing, Akure, Ondo, Nigeria, 2013) It has four Local Government Areas, sprawling over 40 settlements. Akoko region is bounded in the East by Edo State and in the West by Ekiti State. It is also bounded in the North by Kogi State, while in the South by Owo and Ose Local Government Area of Ondo State. The study area is situated in the western upland areas of Nigeria, which is characterized by rugged topography. (Marans, R. & Rodgers. W). The land is underlain with the old Pre-Cambrian complex basement rocks. These rocks are mainly of gneiss, schist and quartzite with an elevation ranges between 150-500 meters above the sea level. These hills are visible along

Owo - Oba Akoko road, between Iwaro and Akungba, also between Akungba and Supare, Ikare, Epinmi, Sosan and Okeagbe Akoko. Due to the nature of basement - rock, access to underground water is very difficult and the few ones available are seasonal. This makes availability of portable water a goldmine during the dry season. This is more reason why the residents of the area depend mainly on pond water in the absence of public tap, which may not be hygienic enough. The study area is associated with Tropical Climate. The mean monthly temperature is 27°C with very little variation. Monk house F.J. & Small J. The rainfall is usually torrential in nature and can last for several hours. Akoko Region comprise four local government areas has the population of 831,843 people NPC. By virtue of function and services, the study area has four urban centers. The first is Ikare, headquarter of Akoko North East. Okeagbe is the headquarter of Akoko North West, Isua is headquarter of Akoko South East while Oka is also performing headquarter roles to Akoko South West.



Relevant

Fig 1a & b: Ondo state showing Akoko Region and its LGAs  
**Source:** Ministry of Lands and Housing, Akure, 2012.

### Literature

The recent global focus on the reduction of poverty and encouragement of the emancipation of the poor population through the Millennium Development Goals programmes (United Nations 2013) has been a subject of focus in the development plans of most countries Nigeria inclusive. Improvements in health happen to be one of the programmes of the MDGs which include reduction of child mortality, combating HIV/AIDS, malaria and other diseases. Access to quality health care is a fundamental human right because of the enormous benefit it will have on the individual and the economy. For instance improved health has direct link with productivity of labour force Hamoudi and Sachs (1990) argue that there is a circle of simultaneous impact between health and wealth. Similarly Castro et al (2000) is of the opinion that health care is the most essential service in any effort to reduce poverty and achieve sustainable development. The demand for health is a derived demand and this explain why access to health care has been justified on economic grounds Gulford et al 2003

is of the opinion that access to health care is of great concern most especially among the low income countries. The persistent low quality and the inadequacy of health services provided in public facilities had made the private sectors unavoidable choice for consumers of health care in Nigeria (Ogunbekun et al 1990). This also support the view of Millman 1993 that barriers to access health facility may result in delay in treatment which can cause dissatisfaction among users.

One concept that has been frequently used and is found relevant to this study is the Friedman's core-periphery model (Pepper, 1999). According to the Friedman's model, the landscape of a society is made up of a core, resource base and periphery (Friedman, 1973). The resource base, usually the rural area with abundant natural resources, is exploited to develop the core, which often is an urban area or an administrative center. Following continuous exploitation, the resource base becomes deprived and impoverished, and its inhabitants are less catered for at the expense of the 'core', which usually receives the 'lion's share' of the development. Subsequently, the rural areas are often characterized by economically poor and vulnerable inhabitants with inadequate or an absolute lack of social amenities, including health services, good schools, electrical supply and good roads; a condition that has encouraged intensive rural-urban migration. The developed centres often become overwhelmed in infrastructure and population problems because of unsustainably increasing numbers of migrants, and other forms of the backwash effects (Todaro, 1980; Opponget *al.*, 1988; Cohen, 2004).

## **Methodology**

Data for the study were collected through primary and secondary sources from Akoko Region. Secondary data considered include population records from National Population Commission (NPC) offices, health records from the state's ministry of health and primary health care in Akure and Akoko region. Primary data include the use of questionnaire. The settlements were stratified into sizes using population criterion by considering population above 100,000 as large; those between 20,000 and 100,000 as medium, while less than 20,000 as small. Questionnaires were administered on household heads to draw information on accessibility to health based infrastructural services and health conditions of respondents. Three (3) settlements were purposively chosen as sampling size which includes: Ikare, Akungba and Isua. Simple percentages and correlation were used for data analysis. Tables, charts and figures were used for the summary and presentation of data.

## **Results and Discussions**

### **Population Size and its Spatial Distribution in Akoko Region**

Total population in the four local government in Akoko region is put at 701,785, with males accounting for 50.42% (356,440) and females accounting for 49.58% (345,345) Table 1. Annual population growth rate is high at 2.87% and about 53% of women are in age group 15-49, the reproductive age group. (NPC 2006) The effect is high population momentum that will be felt in the coming years and will result in continued high population growth. The age structure of the population in the region is young with 38% of the population being in bracket (0-14). The elderly population of 65 years and above constitutes 3.7%. As a result of this, the Age Dependency Ratio is still high at 72 persons per 100 populations.

**Table 1: Population Distribution by Local Government Area**

	<b>Males</b>	<b>Females</b>	<b>Total</b>
Akoko North-East (Ikare)	92,456	86,636	179,092
Akoko North West (Okeagbe)	107,076	104,791	211,867
Akoko South West (Oka)	42,175	40,268	82,443
Akoko South East (Isua)	114,733	113,650	228,383
<b>Total</b>	<b>356,440</b>	<b>345345</b>	<b>701,785</b>

**Source:** NPCAkure, 2006.

Table 2 depicts the pattern of the income structure of the respondents as obtained from field investigation. Analysis of Table 2 shows that a high proportion of the respondents 75.6% earn below #15,000 monthly. In other words majority of the respondents can be classified as low-income earners, while about 20% can be classified as middle-income earners. The remaining 4.6% of the sampled population are therefore under the high-income group. This result shows that majority of householders or residents of the study area are low and medium income earners. This pattern of income distribution has a lot implication on residents' ability to access health facilities

**Table 2: Income Profile of Respondents**

<b>Income (Naira)</b>	<b>Freq</b>	<b>%</b>
Below #15,000	211	75.6
#15,001-#50,000	60	19.8
Above #50,000	17	4.6
<b>Total</b>	<b>288</b>	<b>100</b>

**Source:** Field Survey 2015.

### **Distribution of Public Health Institutions in Akoko Region**

In Ondo state for example rapid population growth had prompted the need for more hospitals and Health Centres. According to Health Manpower Statistics from the ministry of health the number of hospital in each local government. Table 3 revealed the spatial distribution of the available public health facilities in Akoko region by local government. There are various categories of health facilities provided by the government. These ranges, General/State Hospital, Comprehensive Health Centre and Basic Health Center

**Table 3: Number of Medical and Health Institution by LG in Akoko Region**

	FMC	General Hospital	CHC	BHC	Total
Akoko North-East (Ikare)	-	1	2	12	15
Akoko North West (Okeagbe)	-	1	4	19	24
Akoko South West (Oka)	-	1	2	20	23
Akoko South East (Isua)	-	1	3	7	11

**Source:** Ministry of Health Akure 2015

FMC: Federal Medical Center

CHC: Comprehensive Health Center

BHC: Basic Health Center

The percentage of respondents that visit hospitals and the health facilities utilized most was compared. (Table 4&5)

**Table 4 Use of Hospital/Health Centers**

	Frequency	Percent
Yes	259	90.7
No	29	9.3
Total	288	100

**Source:** Author's Fieldwork, 2015.

It was observed that 90.7% of the sampled population visit hospitals/health centres while 9.3% do not. However, they claim to use traditional method whenever they are sick. The higher number of users of health centres is influenced largely by the factor of accessibility. Over 90% of the respondents used the nearest public health centres, except for severe cases when they are referred to the State Hospital of Federal Medical Centre.

**Table 5 Hospital made use most**

	Frequency	Percent
Public	187	67
Private	72	24
None	29	9
Total	288	100

**Source:** Author's Fieldwork, 2015.



In Ondo state, cost is the main determinant of access to health care both in private and public hospitals except for some category that are exempted in public hospitals. Greater percentage of the respondents make use of the public health facilities (Table 5) with 67% of the sample population the reason for this is that the public hospitals is cheaper because government subsidize it. However others who can afford the private hospital are 24%. Therefore respondents recognize the fact that sound health is wealth.

Correlation method of analysis was adopted to determine the kind of relationship that exists between population growth and public health institutions

**Table 6: Correlation between population by L.G and public health institutions.**

	<b>General Hosp</b>	<b>CHC</b>	<b>BHC</b>
Akoko N.E	.040	-.067	.089*
Akoko N.W	-.056	-.087	.081*
Akoko S.W	.033	.091*	.094*
Akoko S.E	-.024	-.026	.038

**Source:** Author's Fieldwork, 2015.

*\*correlation is significant at 0.05.*

The above relationships show that the availability of health institution in the study area varied among the local government areas. Federal Medical Center was not considered because there was none in the study area. In additions, Basic Health Center accounted for the highest numbers of correlated patterns that play significant roles in the availability of the infrastructure. It is generally clear that the available public health institutions are not adequate compare with the population.

### **Policy Implications**

One of the ways Nigerian Government can achieve vision 20:2020 (one of the top 20 leading economies by year 2020) is to pay a serious attention to her health system. Nigeria's intervention in public health should be given priority in order to reduce morbidity and mortality. The National Health Insurance Scheme (NHIS) should be made truly national by making all Nigerians of all social strata-literate or illiterate and of any level or cadre at work to be beneficiaries. The populace will have more access to quality health care when this is fully operational. This will invariably reduce mortality rate in the country, especially in Ondo State where cost is the main determinant of access to health care among some age groups. Achieving this means the government has to give free medical treatments to expectant mothers, infant mothers and the aged people. Although this practice is on in Ondo State, Lagos state, the FCT and most recently Imo State for instance; it has to be improved on if there will be any meaningful achievement at reducing mortality rate in the State.

Moreover, various lectures and seminars should be organized from time to time by the State and local Government to teach people on environmental sanitation, personal hygiene and other factors that can improve their health and secure their survival chances. Also, different NGOs, other stakeholders and Private individuals should organize such seminars. For instance, the annual Late Professor Olutoye Ransome Kuti's (Nigeria's ex-Minster of Health)

Memorial Lecture in Lagos has always centered on Maternal and Infant mortality and it is usually widely attended. Such lectures if organized in Ondo State from time to time will go a long way to inform people of safety precautions that will both help them to live more healthy lives.

### **Conclusion and Recommendations**

The burden of global economic melt-down and population growth has led to stagnant economic performance and inequalities. Akoko region is characterized by inadequate health care facilities. From analysis it was noted that the numbers of medical personnel and hospital were not adequate compared with the increase in population growth. Some of the lacking facilities include lack of drugs, non-proximity to public hospitals and cost of time spent. These factors usually force them to patronize private hospitals, for those who can afford it. The state government will therefore be required to establish more health centers especially in rural areas and to upgrade existing health centers, dispensaries and hospitals. Furthermore government should increase the number of trained personnel for health care delivery, educate people on how to make maximum use of health facilities and services, maintain living standards and health habits that will enhanced health status of the entire population. The participation of private sector should be encouraged so that it can complement the services provided by government health care system. Improve health care delivery in Akoko region must continuously level up with population growth. A breakdown of the health system might pose a big challenge to the economy particularly with wealth creation. Therefore, to create wealth, healthy individual is needed.



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