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Location Distribution of Rural Medical Services for Effective Development: A case of Ekiti State, Nigeria *(pp. 26-32)*

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Abstract: No economy can be properly regarded as sound when the generality of the people are poor in health. The better the state of health of a country, the better able, it is, to mobilize, develop and utilize the minds, energies, and resources of the people for the task of development. It is very unfortunate that the location of medical facilities in Ekiti State are unevenly located and no wonder, the health of its rural populace are subjected to high incidence of morbidity and mortality resulting from the prevalence of preventable and infectious diseases. This work considers whether or not medical facilities in Ekiti State are evenly and efficiently distributed. Data for this study were collected from primary sources. A total of 1500 questionnaires were administered in this research and 1257 copies were retrieved from the field. Results from the study show that medical facilities in the state were unevenly located, hence hampering health development at the grassroots. The study suggests provision and location of more and equipped medical facilities to the rural area of the state to enhance sustainability development especially, in the medical sector.

Key words: medical services, location distribution, effective development, Nigeria.

1 INTRODUCTION

Good health is a precondition for socio-political and economic development of any nation. In recognition of this, the fourth National Development plan documented that good health has a direct relationship with happiness, intelligence, political stability and productivity of the citizens of a country (F.M.H, 1988). The provision of medical services in various part of the world comprises one of the main focuses, which has helped in socio-economic development. Realizing the enormous role health performs in a nation building, the World Health Organisation (1978) in Alma-Ata adopted a policy of health for all by the year 2000 and beyond.

It is noteworthy that in most of the developing countries, Nigeria, inclusive, the health of most of the population in this region have remained unstable, poised between infectious diseases and poverty. Mortality is high, with the majority of deaths due to infectious and complications of pregnancy and childbirth (Stephenson, 1997). While there has been considerable improvement in the health of the people especially, in the developed countries of the world. However, Sub-Saharan Africa countries (Nigeria inclusive) ranks lowest of all

regions in the world in terms of access to primary education, portable water, sanitation and health services. This is corroborated by Henry Akpan, reported in Vanguard August 21st (2010) that Cholera, measles killed 1,631, and 4500 persons respectively in the Northern States of Nigeria. It is noteworthy that though, medical facilities were provided in most of the developing countries of the world but, the fact remains that, most of these medical facilities are lopsidedly located at the detriment of the populace they are to serve.

Sometimes, most of the areas they are to serve, people there are subjected to high incidence of morbidity and mortality resulting from the prevalence of preventable parasitic and infectious diseases. On the other hand, while it is argued that less than 40 percent of the health clinics are located in rural areas in most of the states of Nigeria, better and standard medical services is reflected in the distribution of the specialist hospitals in the country. For example, 27 University Teaching Hospital, 3 Orthopedic Hospital, National Eye Clinic as well as 12 federal medical centres (FMC) which are established pre- 1991, (Omotoso, 2007), all these are located in urban areas. It is noteworthy while most of the health centres in urban areas are full-fledged hospitals, the majority of health centres/clinics in rural areas are mere consulting clinics for lack of equipment and drugs (Orubuloye, 1991).

However, the locational pattern of any facility, (Medical facilities inclusive) can determine the level of its utility. From the locational pattern, the spatial distribution of any facility could be determined. Adejuyigbe (1973) sees spatial structure of a distribution as both the location of each element relative to each other of the other taken together. For any locational pattern to be said efficient, the utility level of the place and the level of interaction should be at least cost. Therefore, in this research works, efforts were made to see if the medical location would be the one which is accessible to the user population at least, in cost, either in terms of money, efforts or time and the pattern of their location in space. Moreover, it will be considered in this study, to see if the medical facilities in Ekiti State are evenly and efficiently distributed.

2 THEORETICAL BACKGROUND AND LITERATURE REVIEW

The theoretical background for this study was drawn from the concept of Nearest Neighour Analysis (NNA). The concept of nearest neighour analysis was first introduced in 1954 by two Botanists, Clark and Evans (Ayeni, 2000). The concept was used to analyze and describe plant patterns. Since then, geographers and scholars of different disciplines have adopted it in their researches. For example, in geography, the technique is used to describe and analyse the pattern of settlements, urban and land use, such as distribution of teaching hospitals on a country, industrial location schools and analysis of physical features such as spots, heights, peaks, trigonometric stations. The concept can be applied to phenomena, which assumed to be distributed in an isotropic or uniform surface or phenomena that are strongly clustered.

The Nearest Neighbour Analysis (NNA) is based on a straight line measurement of distance separating a phenomenon and the nearest neighbour space. As earlier stated, it was

originally developed by plant ecologists who were interested in the distribution of various developed plants species over the earth surface.

The method indicated the degree to which any observed distribution deviates from what may be expected, if the distribution of points are random. Phenomena are said to be randomly distributed if they satisfy the following conditions.

(a) Any part in the area has the same chance of occurring in any sub-area like any other point.

(b) Any sub area of specified size has the same chance of receiving a point as any sub-area of that size

(c) The placement on the location of each point is not influenced by any other point.

The formular for the Nearest Neighbour Analysis is

$$R = \frac{ra}{re} \quad (1)$$

where R = Nearest Neighbour Analysis,
ra = observed means distance which is the average between points in the areas to their neighbor,

$$ra = \frac{\sum r}{N} \quad (2)$$

Where ∑r is the distance of every point to its Nearest Neighbour,
N = the total number of points in the area,

$$re = 1\sqrt{n}, \quad (3)$$

where n equals to the observed density of points in the area. Density is defined as the number of points per square unit of measurement. There assumption holds in the use of the concept:

$$R = \frac{ra}{re} = 1.0 \quad (4)$$

This represents pattern of points in space. If the pattern of points is clustered (Agglomeration),

$$r = \frac{ra}{re} = 0 \quad (5)$$

If the pattern of points in space is regular, uniform or hexagram,

$$r = \frac{ra}{re} = 2.149 \qquad (6)$$

Nearest Neighbour Analysis (NNA) has been applied into a spatial dimension by scholars. For example, Ayeni (2000) applied the model to the spatial distribution of secondary school in Egba Division of Ogun State, where he discovered that the spatial distribution of secondary schools in the area were more than random being clustered or uniform.

On location of medical facilities, numerous factors of public facilities have been given. Reid (1984) displays that in recent times, the issues of access, equity and efficiency criteria that considers the distributional aspect of public facilities have been receiving attention. Filani (1992) shares the same idea when he asserted that accessibility questions are assumed greater importance among researchers and policy makers in recent years because, it is now recognized that the actual is to them, who get what depends on where one lives implying that, location on a transport network is an important determinant of the availability of public facilities (medical services inclusive).

Maro (1987) in his study of the location of health facilities in Tanzania used the distance of within 5 kilometers, within 10 kilometers and beyond when 10km as reasonable measures of proximity to health facilities. Kirby (1980) however, suggests that the cure of the problem of allocation is that which practices access to health is highly influenced by proximity to supply, the provision of services will be equal. Minimal provision of free hospital at widely separate location has the effect of transferring the real cost of health care to patients through additional transport cost.

Ikporupko (1986) sees accessibility of a given location in terms of how easy getting to place. He however, believed that accessibility has a role to play in locational activities (medical facilities inclusive). He viewed accessibility in terms of ability to get to a given place which entails the availability of means of transport and appropriate infrastructure and the cost component (that of getting cheaply) this entails, the monetary, time and cost incurred in getting at the location in question. Therefore, location does affect utilization of facilities, it is an important factor for the spatial demand for goods and services.

3 PARTICIPANTS AND PROCEDURES

The study area is Ekiti State, situated in the South/Western part of Nigeria and carved from old Ondo State in 1996 with twelve local government areas that made up of the Ekiti Zone of the old Ondo State. However, additional four local governments were carved out of the old ones and today, the state is made up of sixteen local governments areas and Ado-Ekiti, is the capital (Ekiti Government, 2004). The research work was carried out in the rural areas of Ekiti State and data were collected from the sampled areas for both quantitative and qualitative analysis. Ekiti State consists of three Senatorial Districts namely Ekiti

North, Central and South Senatorial Districts. Six rural communities were purposively selected for the study and the six rural communities were spatially selected in the three Senatorial District of Ekiti State. The six rural communities include Awo and Ikoro in the Central, Ijesa-Isu and Orin in the North while Ogotun and Ogbese were selected in the South.

Data for the study were collected from both primary and secondary sources. Two principal actors were involved in the collection of data. These are the medical consumers and the medical operators. A double random sampling was employed to select the respondents from the community. A double random sampling includes a stratified sampling which entailed a hypothetical division of the community into zones. The zones are core; intermediate and periphery.

In a community where it was difficult to identify the zones, respondents were drawn from the existing streets and quarters within such rural settlements. In most of the rural communities, existing transport networks were used to demarcate the streets and quarters. The respondents to the medical consumer's questionnaire were majorly the house heads or elderly persons met at home 1500 copies of questionnaire were distributed to the medical patrons/consumers while 1257 copies of the questionnaires were retrieved representing 83.3% and this was analyzed. In selection of the medical operators, this involved both the private and public medical establishments of different ranks. Tables, simple percentages and nearest neighbour analysis model were used to analyze data.

4 RESULTS AND DISCUSSION

On pattern of distribution of rural medical services in the state, results showed that uniformity and clustered pattern of distribution were both 0% while that of the medical patterns that were randomly distributed in the state stood at 100%. However, to determine whether the medical facilities in the state were evenly and efficiently distributed, nearest analysis model was used as a distance matrix to test the location pattern. This provides test for spatial distribution by indicating uniformity, clustering and randomness. The six selected rural communities were put on a Nearest Neighbours Analysis Chart (see table 1).

Table 1: Nearest Neighbours Analysis Chart

Town	Ijesa-isu	Orin	Ogotun	Ogbese	Ikoro	Awo	Minimum Distance
Ijesa-Isu	0	40	65	60	75	50	40
Orin	40	0	70	72	45	30	30
Ogotun	65	75	0	35	70	40	35
Ogbese	60	65	35	0	75	60	35
Ikoro	75	40	60	80	0	40	40
Awo	50	25	40	45	35	0	25
Total							**205**

Source: (Author's field survey, 2007)

In table 1 above, the nearest neighbour analysis model was applied to

provide test for spatial distribution of the medical facilities in the state. This shows that it is above the indication from the Nearest Neighbours Analysis and this is as a result of the limitation in the use of the model which may be as a result of the way the study area was bounded which may not be consistent with subject under the investigation. As a result of the limitation in the model, it is assumed that medical facilities in the state were scattered all over and they were not evenly distributed to meet the expected development.
Results showed that Awo Community has the minimum distance to locations of medical facilities in the study area, while Ijesa-Isu and Ikoro communities respectively had the maximum distance from the location of medical facilities. This implies that the people in Awo enjoy more of the presence of medical services than any other community in the study area and consequently more pruned to effective development.

5 CONCLUSION

Medical service as one of the social infrastructural facilities is very essential for good economic production. Unfortunately, it is at the moment one of the major social infrastructure lagging in Ekiti State. Thus, it should be provided to enhance good health of the citizenry especially, at the rural areas and consequently, enhances development. It is saddening and very unfortunate that rural areas of (Ekiti State) remains, till date, the most neglected and its people, the most deprived with respect to the position and location of modern medical services. Medical services in the area were unevenly distributed and inadequate to cope with the population therein. It is on this note that suggestions are made on the needs to provide more modern medical services in the study area.

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