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# Accessibility to Medical Facilities in the Rural Areas of Ekiti State, Nigeria

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**Abstract**
*Accessibility which could be seen as state or quality of being accessible plays a prominent role in the patronage of facilities, especially, medical services. It is a relative quality accruing to a piece of land by virtue of its relationship to a system of transport. The study employed data from both primary and secondary sources and use spatial interaction model and facility provision model as bases for its theoretical underpinnings. Accessibility in the area was considered in the area of road condition, hours spent by the patrons and the cost of transport by the patrons. Results showed that transport situation in the area was fair while hours spent by the patrons in the course patronizing medical facilities were minimal and the cost of transport was equally minimal. The study suggested in locating medical facilities the decision maker should see how such location will result to minimum cost on the consumers in obtaining the services. The study is of benefit to policy makers and researches.*

**Key Words**: Medical services, accessibility, conceptualization and implications

**Introduction**

Accessibility, according to Oxford Advanced Dictionary (1980) is defined as something that can be reached; entered or easily get-in. It is an essential link between supplying and demand of facilities at the level of individual (Mabogunje, 1974). It is one of the most frequently used in regional studies and yet, little defines (Ayeni, 1979). Ingram (1971) defines accessibility as the inherent characteristics or advantage of a place with respect to overcoming some forms of friction. Ingram (1971) notes further that there two relative notions; that of relative accessibility which means measures the degree to which two places or things are connected and that of integral accessibility which measures the degree of interconnections of points or things in the system.

On the other hand, medical facilities are essential for the overall socio-economic and political development of any nation. Countries with adequate provision and well-maintained medical facilities are well-off. The citizens there are contribute meaningful to the socio-economic and political development of such countries. Such citizens enjoy good health and good health is a precondition to a meaningful development. Provision of medical facilities will contribute to the promotion of the fulfillment of full life objectives of man. The provision of medical services in various Ports of the world comprises one of the main focuses, which has helped in development. Realizing the enormous role health performs in a nation building the World Health Organization (1978) in Alma-Ata adopted a policy of health for all by the year 2000 and beyond. The World Health Organisation (WHO) was concerned with helping developing countries in planning and putting into use a system of health care delivery that will bring the benefit of good health to everybody in all areas.

It is noteworthy that, in most of the developing countries ( Nigeria inclusive), the health of most of the population in the region has remained unstable, poised between infections disease and poverty. Mortality is high, with the majority of deaths due to infections disease and complications of pregnancy and childbirth (Stephensons 1997). However, there has been considerable improvement in the health of the population especially, in the developed countries of the world. Infact Sub-Saharan Africa ( Nigeria inclusive) now ranks covets of all regions in the world in terms of access to primary education, portable water, sanitation and health services (UNICEF, 1995).

Health condition in Nigeria could best be illustrated by comparing the health status of Nigerians with those of both low and high income countries. In a research carried by World Bank (2000), it was shown that Nigeria lagged behind other low income economies talkless of high income economies in the vital task of improving health. Infact, mortality is 20 percent higher and average life expectancy is ten years less in Nigeria than the rest of the world's low income developing countries. Maternal mortality at 800 women per 1000 live births is more often double that of other low income economies and moreover, statistical figure in rural Nigeria where a majority of the people live are worse.

Furthermore, the Nigeria population with access to modern health care services is about 57 percent compared to 75 percent for the industrial countries (UNDP, 1997). The medical situation is further compounded by the current AIDS epidemics (UNAIDS, 1997).

The collapse of the economies from the 1980's and the subsequent introduction of structural adjustments programme to deal with the difficulties have also aggravated the medical situation. There are now apprehensions that the economic difficulties faced in the country coupled with the progressive deterioration of the medical health care system mny have the decline in the level of infant and child mortality in some of the countries (Orubuloye, 1994; Orubuloye and Oni, 1996).

Since, the greatest asset of any nation is human; it is highly improbable that any nation, which cannot adequately protect and maintain the health of its citizens, can ever rise to a leading world power. In view of the foregoing, the study tends to examine accessibility to medical facilities among the rural dwellers in Ekiti State. In order to achieve the aim, the following objectives are set:

- To examine the mode of transport system in the area; to examine the road condition in the area;
- to find out the hours spent by patrons during medical treatment; and to examine the cost of transport by the patrons during patronage of medical services

The research hypothesis considered in the study examines whether accessibility to medical facilities by patrons does not affect the patronage.

**Theoretical Background and Literature Review**

The theoretical background for the study is drawn from spatial interaction model postulated by Edward Ullman (1958) and public facility location theory. Spatial interaction model according to Ullman (1958) opined that certain conditions must be met before there could be any interaction between or more areas: there must be complementarity between the two areas; there must be absence of intervening opportunity and there must be transferability. Complementarity means that there must be demand in one region and supply in another. The model assumes region A and B. Region A is complementary to region B and the demand of region A could be met in region B. For example, region A produces cutlasses and hoes while region B is endowed with fertile agricultural land and the occupation is predominantly agricultural, farm tools will be needed and demanded for farm operators. If there farm tools are only obtainable in region A, region B will have to interact with region A to obtain the farm tools. In this case, A is complementary to region B.

Intervening opportunity on the other hand means, before a region B, there must be absence of intermediate region or point between region A and B that can favourable act as alternative complementary region to region A. For example, if region A and B produce cutlass and hoes and region C, then region C many not be complementary to region A because the demand of region C can be met in region B.

However, transferability takes two forms (economic and physical). Transferability relates to the possibility of movement of an object from one place to another. Three major factors determine transferability. These are: cost of transport; price of the good and law concerning the movement of the good. There may be no interactions between two places even though, there is complementarity, absence of intervening opportunities if the cost of transport between the regions is unbearable, the price of the good to be demand is unbearable and if there is a law restricting the movement of population or the good concerned.

On the other hand, public facility location model was postulated by Micheal Teitz (1968). Teitz (1968) opined that public facilities are those units whose primary function is to deliver goods and services which fall wholly on partly, within the domain of government. The basis for public facility location theory lies in the fact that decisions regarding such facilities are political

decision on public spending in response to a social welfare criterion in a mixed market/non market setting.

Teitz (1968) put into consideration the distributive impacts of the facility system and the influence of political dimension on public dimension. He equally considered dynamic interaction within multiple facility system having employed simple static model aimed at consumption – maximization of a zero priced good supplied from a given spatial distribution of service facilities. He was of the opinion that provision of good and public facilities can only be explained as a consequence of two distinct components: first, a substantive component which is solely concerned with the characteristics of demand and supply of a particular good or service and second, a procedural component which emphasize, the political and administrative procedure which given decisions about the provision of the goods and services.

On literature review, Idachabu (1985) sees medical services as that part of social infractructure which include health facilities, hospitals, dispensaries, maternities and health centres. It also sees medical services to include medical personnel and para-medical personnel which altogether function to improve the health status of the populace.

However, accessibility may mean many things to different scholars. For example Ikporukpo (1986 defines accessibility of a given location in terms of how easy getting to a place. He however, believes that accessibility involves two major components. The first involves ability to get to a given place which entails the availability of means of transport and appropriate infrastructures and the cost components (that of getting quality cheaply) this entails the monetary, time and cost incurred in getting are however, at mutually exclusive in as much as the connection component affects the cost aspect.

According to Hagget (1967), all locations are endowed with a degree of accessibility but some locations are more accessible than others. Accessibility is a variable quality of location. In a technical service, it is a relative quality acquiring to a piece of land (location) by virtue of its relationships to a system of transport. In operational sense, it is a variable quality of centrality or nearness of other functional location clearly; the notion of accessibility is closely related to the movement minimization especially, when this is measured by the costs involved in overcoming distance.

For the purpose of this research work, accessibility is considered as a function of the proximity of a place or population measured in distance along foot paths or major roads) this involves the interrelationship between the population of rural areas, the facilities, which they are required, and the transport link between this population and the facilities.

**Participants and Procedures**

Ekiti State, Nigeria is the study area, situated in the South/Western part of Nigeria and carved from the 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 government 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 settlements 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 communities. 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 is 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 consumers' questionnaire were majorly the households head or elderly persons met at home and such questions relating to mode of transport; road condition/worthiness, hours spent in the course of receiving treatment and cost of treatment were asked from them while the sampling frame was upon the residential building. 1500 copies of questionnaire were distributed to the

medical patrons while 1257 copies of the questionnaires were retrieved representing 83.8% and this was analysed. In selection of the medical operators, this involved both the medical operators, this involved both the private and public medical establishment of different ranks; tables, simples percentages, and pearson's product moment correlation analysis were used to analyse data.

**Result and Discussion**

In order to achieve the set aim for the study, some objectives were considered and hypothesis was tested. On the mode of transport in the study area, the variables employed are; public transport; private/personal vehicles, motorcycle/bicycle and trekking/foot. 1257 patrons of rural medical services were interviewed. Results show that patrons made used of public transport either through taxi; bus and okada were (51.6%), 239 (19.0%) through private vehicles, 207 (16.5%) through motorcycles/bicycles and 162 (12.9%) through foot by trackling. On individual communities considered in the study, this is presented in the table 1 and from the table 1, it shows that majority of the medical centres in the state are accessible by means of transportation.

However, on the road condition of most of the medical centres in the state, the parameter used for the assessment was; whether the road condition was bad; fair and good. Results show that 269 (21.4%) believed that the road condition was bad while 733 (58.3%) were of the opinion that the road condition was fair while 256 (20.3%) believed that the road condition was good. On variation of the result from the communities considered, table 2 provides better explanation.

On hours spent by the patrons in the course of patronizing medical facilities the number of hours spent was ranged between less than 30 minutes and above 2 hours. Hours spent involves the time spent along the roads before getting means of transport to convey the patrons to the medical centres and time waiting for doctors. From the study, it was revealed that 501 (39.8%) asserted that they spent less than 30 minutes; 630 (50.1%) spent between 30 minutes and 1 hour, 78 (6.0%) spent between 1 hour – 1 hour 30 minutes and 2 hours while 18 (1.4%) spent above 2 hours. The spatial variation from the communities under consideration is presented in table 3.

On the other hand, on cost of transport by the patrons, 67 (48%) claimed to be spending below N100 as transport cost per trip to the medical centre; 493

(39.2%) spent between N101-400 and 30 (2.3%) above N400 per trip. Table 4 gives the spatial differences among the communities.

On the assumption that accessibility to the medical facilities in Ekiti State does not affect its patronage pattern, a null hypothesis and alternative hypothesis were set. The cost of transportation by the patrons was subjected to Pearson's product moment correlation analysis. The accessibility level and the level of patronage were determined. Results show that at 0.05% significant level, the result of the correlation analysis shows that r-value was 0.9 176 and the t-test was conducted, the tabulated was 1.860. This implying that v-value is not statistically significant.

However, the null hypothesis is rejected which says that accessibility does not affect medical services patronage and accept the alternate hypothesis which says accessibility affects the level of medical services patronage.

**Conclusion**

Accessibility to the user population is an important pre-requisite for the patronage of any medical facility. The correlation analysis, using transport cost shows that accessibility affects the patronage. Therefore, the more accessible the medical facilities are to the users, the more the patronage. In fact, the study suggests that more medical facilities be provided to the population, especially, at the peripheral side, people need not travel far before enjoying medical facilities. Apart, from equipping the medical facility with modern-day facilities, the road condition must be superb. It is on this note that efforts by made by government to construct and rehabilitate the rural roads so that transport cost especially at the rural areas could be cheaper. This is one way of achieving health for all by the year 2020 and consequently achieving Millennium Development Goal (MDGs) on health sector.

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**Table 1: MODE OF TRANSPORT BY THE RESPONDENTS**

| | Ijesa Isu | | Orin | | Ogotun | | Ogbese | | Ikoro | | Awo | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % |
| Public transport | 110 | 47.5 | 128 | 73.6 | 99 | 42.7 | 75 | 50 | 119 | 42.5 | 112 | 64 | 649 | 51.6 |
| Private vehicle | 36 | 14.8 | 20 | 11.5 | 81 | 34.9 | 18 | 11.8 | 52 | 18.6 | 32 | 18.3 | 239 | 19.0 |
| Motorcycle/bicycle | 48 | 19.7 | 18 | 10.3 | 36 | 15.5 | 22 | 14.5 | 69 | 24.6 | 14 | 8.0 | 207 | 16.5 |
| Food/Trekking | 44 | 1.0 | 8 | 4.6 | 16 | 6.9 | 37 | 24.3 | 40 | 14.3 | 17 | 9.7 | 162 | 12.9 |
| **Total** | **244** | **100** | **174** | **100** | **232** | **100** | **152** | **100** | **280** | **100** | **175** | **100** | **1257** | **100** |

*Source: (Author's Field Survey, 2006)*

**Table 2: ROAD CONDITION**

| | Ijesa Isu | | Orin | | Ogotun | | Ogbese | | Ikoro | | Awo | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % |
| Bad` | 51 | 20.9 | 117 | 67.3 | 14 | 6.0 | 13 | 8.6 | 45 | 16.0 | 29 | 16.5 | 269 | 21.4 |
| Fair | 107 | 43.4 | 57 | 32.7 | 196 | 84.5 | 101 | 66.4 | 166 | 59.3 | 106 | 60.6 | 733 | 58.3 |
| Good | 87 | 35.7 | 00 | 00 | 22 | 9.5 | 38 | 250 | 69 | 24.6 | 40 | 22.9 | 256 | 20.3 |
| **Total** | **244** | **100** | **174** | **100** | **232** | **100** | **152** | **100** | **280** | **100** | **175** | **100** | **1257** | **100** |

*Source: (Author's Field Survey, 2006)*

**Table 3: HOURS SPENT DURING MEDICAL TREATMENT**

| | Ijesa Isu | | Orin | | Ogotun | | Ogbese | | Ikoro | | Awo | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** |
| Below 30 minutes | 55 | 22.5 | 111 | 66.7 | 112 | 48.3 | 25 | 16.4 | 104 | 37.1 | 91 | 52.8 | 501 | 39.8 |
| 30 minutes to 1 hours | 169 | 69.2 | 48 | 27.6 | 9.6 | 41.4 | 117 | 76.9 | 146 | 53.2 | 54 | 30.8 | 630 | 50.1 |
| 1 hour 30 minutes to 2 hours | 2 | 0.8 | 2 | 1.1 | 7 | 3.0 | 3 | 2.0 | 6 | 2.1 | 10 | 5.7 | 30 | 2.3 |
| Above 2 hours | 1 | 0.4 | 00 | 00 | 5 | 2.2 | 3 | 2.0 | 2 | 0.7 | 7 | 4.0 | 18 | 1.4 |
| **Total** | **244** | **100** | **174** | **100** | **232** | **100** | **152** | **100** | **280** | **100** | **175** | **100** | **1257** | **100** |

*Source: (Author's Field Survey, 2006)*

**Table 4**: Patrons Transport Cost Per Medical Treatment Trip

| | Ijesa Isu | | Orin | | Ogotun | | Ogbese | | Ikoro | | Awo | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** |
| Below N100 | 146 | 59.8 | 60 | 34.5 | 120 | 51.7 | 73 | 48.1 | 185 | 65.7 | 33 | 18.9 | 617 | 49.0 |
| N101 = N200 | 74 | 30.3 | 95 | 54.6 | 80 | 34.5 | 60 | 39.5 | 79 | 28.2 | 105 | 60.0 | 493 | 39.2 |
| N201 – N300 | 17 | 7.0 | 8 | 4.6 | 15 | 6.5 | 10 | 6.6 | 15 | 5.4 | 18 | 10.3 | 83 | 6.7 |
| N301 – N400 | 5 | 2.0 | 6 | 3.4 | 10 | 4.3 | 6 | 3.9 | 00 | 00 | 7 | 4.0 | 34 | 2.7 |
| Above N400 | 2 | 0.8 | 5 | 2.90 | 7 | 3.0 | 3 | 2.0 | 1 | 0.4 | 12 | 6.4 | 30 | 2.3 |
| **Total** | **244** | **100** | **174** | **100** | **232** | **100** | **152** | **100** | **280** | **100** | **175** | **100** | **1257** | **100** |