

Accessibility of Rural Dwellers to Health Care Facilities in Nigeria: The Owo Region Experience

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Abstract: Rural dwellers in Nigeria constitute over 70% of the population of the country, yet they are deprived of infrastructural facilities that are essential for good living. One of such infrastructural facilities is health care facility. This study examined the accessibility of rural dwellers to health care facilities in Nigeria, with a focus on Owo region. The study utilized six accessibility variables in the determination of the level of accessibility of rural dwellers to available health facilities in the region. The findings amongst others revealed that about 74% of the rural dwellers experienced low accessibility. Finally, the paper suggested amongst others the introduction of National Health Insurance scheme, the improvement of rural road condition to facilitate the patronage of health care facilities within and outside the rural settlements in the region and the economic empowerment of the rural dwellers to improve their income with a view to boost their affordability of the cost of health care services.

Key words: Accessibility, rural dwellers, owo region, Nigeria, naira (₦) and okada

INTRODUCTION

The greater percentage of the population of the developing countries is living in the rural areas and Nigeria is one of such countries. Despite the substantial number of people (i.e., over 70%) living in the rural areas in Nigeria, the areas had not attracted sufficient development projects that could have improved significantly the lives of the rural dwellers^[1]. While most of the infrastructural facilities are concentrated in the urban areas, the few ones located in the rural areas have not been functioning effectively. One of such infrastructural facilities is health facility.

The provision of health facilities for the implementation of primary health care delivery system in the rural areas cannot be underscored. However, the accessibility of the rural dwellers to the available health care facilities is expected to improve their health status. Due to the low quality of available health care facilities in the rural areas; the rural dwellers also patronise health facilities located in their surrounding urban areas, where the quality are considered higher^[1]. In Nigeria, any settlement with less than 20,000 people and characterized by agricultural economy is called rural settlement and the inhabitants of rural settlement are referred to as rural dwellers^[2].

This study seeks to examine the level of accessibility of the rural dwellers to health care facilities in Owo region, Nigeria with a view to promote their utilisation which in

turn will improve the health status of the rural dwellers. The examination covers both government-(public) owned and private-owned health care facilities in the region. The justification for the focus on the rural dwellers borders on the fact that this group constitutes the greater majority yet they are the most deprived and neglected. Attempt to improve their accessibility to health care facilities will improve the health status of the country.

LITERATURE REVIEW

Concept of accessibility: Accessibility 'per se' is one of the most frequently used terms and yet little defined in urban and regional studies^[3]. Also, viewed from the same perspective, Lasker^[4] says accessibility has a number of dimensions, thereby making it to face both definitional and measurement problems^[5]. All these qualifications notwithstanding, Ingram 1971 defines accessibility as the inherent characteristic or advantage of a place with respect to overcoming some forms of friction.

In Ingram's definition, it is the location (i.e., a place) that is enjoying the access. However, Ingram 1971 went a step further by classifying accessibility into two: Relative accessibility and integral accessibility. Relative accessibility measures the degree to which two places or things are connected while integral accessibility measures the degree of interconnection of points or things in the system.

However, Okafor^[6] in the study of accessibility to general hospitals in rural Bendel, Nigeria regarded accessibility simply as the ease of getting to a place while Moseley *et al.*^[7] defined accessibility in the light of rural accessibility, which refers to physical access to employment, services and facilities in rural area. It is the ability of rural residents to get to or be reached by the activities or services/facilities, which are relevant to them as explained by Akinola^[8].

The concern of Wachs and Kumagai^[9], is the concept of physical accessibility as a social indicator. While in general, one thinks of accessibility in terms of ease and cost of point-to-point movement, Wachs and Kumagai^[9] believed that such a concept is too vague and devoid of goal-orientation to be useful as an operational basis for systematic measurement and for the comparison of the levels of accessibility of particular socio-economic groups within a metropolitan region. Therefore, they stated that a useful approach to the measurement of physical accessibility is the determination of the number or density of travel opportunities of particular types within certain time distances or travel-cost ranges from the residential locations of population groups of interest.

Hagerstrand^[10] made a distinction between 'social' and 'physical' accessibility. Social accessibility he says connotes the ability to pay (as determined by age and income) to pass the barrier around the supply point the consumer wants to reach and physical accessibility as the ability to get the transportation facilities which are needed for reaching the supply points at suitable times. An evaluation of the above definitions show that Okafor *et al.*^[6,7] are both concerned with physical accessibility and it is conceptualized as a link between the people on the one hand and social accessibility as it links rural activities and services/facilities on the other hand. Other scholars that are concerned with physical accessibility include Daly^[11], who refers to it as the ease with which people can reach distant but necessary services and Barwell^[12], defines physical accessibility as the ease or difficulty of reaching a particular service. The capacity to overcome space is central to all the definitions hence, the words 'ease', 'ability to reach' and 'overcoming friction'. Whichever definition is adopted, one thing that is common to all is that accessibility is a measure of how well a person can reach or a place be reached^[13]. A bothering question in relation to the above definitions of accessibility is who or what experiences accessibility, the people or the location? To Wachs and Kumagai^[9] and Ingram^[14], it is the location (i.e., place), whereas to other scholars^[6,7,11], it is the people. It would be cloudy to say a particular village enjoys certain level of accessibility because individuals or household position comes first before we have to come to village level.

Hence, accessibility within the context of this study is the measure of constraints imposed on movement of households to desired health facilities (destinations) otherwise regarded as personal accessibility.

There is a relationship between mobility and accessibility. Mobility is the ability of an individual to move about in terms of the amount of travel which is actually made (the tangible aspect) and the ease of movement. Movement is rarely considered an end itself, but rather as a cost, which is normally borne in order to achieve other objectives.

Accessibility to health facilities: Health is central to community well-being as well as to personal welfare. It has a strong influence on people's earning capacity and it is fundamental to people's ability to enjoy and appreciate all other aspects of life. Aregbeyen^[15] regarded accessibility to health facilities as an individual or community's ability to obtain health care. Therefore, from the spatial perspective, physical accessibility of members of a household to health care facilities is of considerable importance. However, one major constraint to accessibility is distance.

As a general principle, it has been stated that the greater the distance between two points, the lower is the probability that these points will be functionally related. A large number of studies have shown a regular decline in contact with increasing distance in road transport journeys to hospital and journeys to educational institutions^[6,16,17]. Similarly, some studies that were undertaken in different parts of Nigeria have equally shown variation in maximum distance which people travel to utilize health facilities^[18,19].

For instance, Adejuyigbe^[18] noted that there is a limit to the distance, which people are ready to travel in order to enjoy some health services. He further maintained that attendance at each medical centre is a function of both the type of service available in the medical center and the distance from other medical centres providing similar services. In another related study in Ife region (which is at a lower scale) Adejuyigbe^[8] shows that people travelled 7 km to utilize health facilities while Okafor^[6] in his study of accessibility to general hospitals in the then Bendel State revealed that there was disparity of access among the rural population to general hospitals in the state. In Ughelli, Burutu and Aniocha LGAs for example, the sampled households were about 25 km away from the nearest general hospital whereas Ndokwa LGA was ranked as the least deprived in terms of accessibility to general hospitals in then Bendel State with only 5% of the sampled households that travelled more than 8 km to the general hospitals^[6].

In a related study in Oranmiyan LGA of Osun State, Olayiwola^[19] indicated that the average trip length to health facilities in the area was 2.60 and 2.78 km to dispensaries and health centres respectively, but a more recent study in Irewole LGA of Osun State shows that 75.01 square km area is served by one dispensary, 144,295 square km by maternity centre and 413 square km by one hospital^[16]. From the submission of Olajuyin *et al.*^[6] the average trip length for dispensary, maternity centre and hospital is 4.9, 6.8 and 11.5 km correspondingly.

However, Olayiwola^[19] further remarked that the distances of 2.6 and 2.78 km for dispensary and maternity centre respectively were considered too long, moreso when the people were made to trek. In spite of the variation in the travel distance to health facilities in part of Osun State as reflected above, Onokerhoraye^[20] in a study that covered Kwara, Kogi, Edo and Delta States has submitted that the maximum distance which people travelled to hospitals for treatment was between 15 and 20 kilometres, while those for maternity centres and primary health centres were between 10 and 15 kilometres, respectively. With the preponderance of private health establishments in peri-urban communities in Ibadan, Oyo State Capital in Nigeria, Adeagbo^[21] has confirmed that the peri-urban residents have fair access to health facilities, particularly when over 50% of the residents have at least one health facility within 2.1 and 4 kilometres from their respective homes. Although Adeagbo^[21] was of the opinion that the health facilities located around the residents may not be the best in terms of quality of services, but they are sure of having somewhere to get at least first aid attention provided they can afford the cost.

However, a study outside Nigeria, titled "Challenging EI Salvador's Rural Health Care strategy" by Lewis *et al.*^[17] revealed that a worst-off rural household in EI Salvador travelled 12 kilometres to utilize health facilities. They further remarked that physical access was not seen as a big problem but poor roads were identified as responsible for limiting access to higher-level health facilities. Is road not a component of physical access? Since poor road is a component of physical access, this remark by Lewis *et al.*^[17] can be regarded as an overstatement. In a similar vein, Fajehisan^[22] has earlier identified lack of good roads in Kajola LGA in Oyo State Nigeria as a factor that adversely affected the patronage of the expanded programmed of immunization by the community.

By way of further explanation, Lewis *et al.*^[17] have stressed that accessibility was constrained more by convenience of day and h of operation and waiting time and quality; while Adeagbo was of the opinion that the cost of services (affordability) could equally be a

constraint. Wagstaff and Doorslar^[23] were of the opinion that payments for health care ought to be linked not to usage of health services but rather to ability to pay. Their concern then is to ensure that spending on health care does not push households into poverty-or further into it, if they are already there.

This explanation supports our earlier submission in the review that accessibility of household to health facilities is not limited to physical access alone. The ability to afford the cost of transport to enjoy medical service is not unconnected with one's disposable income. Gish^[24] and Salkever^[25] have shown that the mobility of individuals is strongly associated with their income. These studies have shown significant and consistent inequalities in access to health care according to income classification. They noted that a given facility, which is located at an equal distance from two different neighbourhoods, would be less accessible to those in the low-income segment. They concluded that if these inequalities of access were ignored, the location design, which minimizes average distance, would not be the one, which maximizes the demand for the facility.

Measuring accessibility: Accessibility is more than mere ease of getting to a place. It is regarded as an individual or community ability to obtain health care services. Therefore, it must be borne in mind that it is very difficult to operationally measure access to health care because of its geographical, financial, social, cultural and psychic components^[15]. These components were described by Lasker^[4] as its numerous dimensions. Therefore, measuring accessibility to health care facilities is beset with many problems and it defies neat mathematical calculations^[6].

However, personal accessibility measurement does not only include some of the attributes of locational accessibility (such as distance and road conditions) but also connotes the effects of constraints of movement (such as mode, travel time, waiting time and cost of travel in cash) on the individuals or groups being considered. While Okafor^[6] used only 4 accessibility variable (i.e. ratio of LGA population to general hospitals, household traveling more than 8km to general hospital, percentage of income spent on health care and transport cost to general hospital); this study is utilizing 6 accessibility variables to determine personal accessibility of rural dwellers to available health facilities in Owo region. The 6 accessibility variables are household travelling more than 5km to health facilities, travel time to health facilities, condition of roads linking health facilities, travel cost (in cash) to health facilities, waiting time to receive health care service and percentage of household income spent

Table 1: Spatial distribution of health facilities in owo region

S/N	Settlements	Proj. Pop 2000	FMC	Gen. Hosp.	Private Hosp.	Health centre	Disp.	Mat.	Mkt. clinic	Health Post	Total	%
1	Owo	97.928	1	-	28	3	1	1	3	-	37	41.1
2	Ifon	20.279	-	-	5	2	-	-	-	-	7	7.8
3	Idoani	14.293	-	1	1	1	-	-	-	-	3	3.3
4	Uso	6.438	-	-	-	1	-	1	-	-	2	2.2
5	Idogun	8.541	-	-	-	1	-	-	-	-	1	1.1
6	Ute	4.729	-	-	2	1	-	-	-	-	3	3.3
7	Ipele	7.853	-	-	1	1	1	1	-	-	4	4.1
8	Ijagba	5.079	-	-	1	1	-	-	-	-	2	2.2
9	Iyere	9.0.16	-	-	1	1	-	-	-	-	2	2.2
10	Okelusi	6.426	-	-	-	1	-	-	-	-	1	1.1
11	Isuada	751	-	-	-	1	-	-	-	-	1	1.1
12	Arimogija	3.178	-	-	-	1	-	-	-	-	1	1.1
13	Afo iyoye	1.789	-	-	-	1	-	-	-	-	1	1.1
14	Afo	3.115	-	-	1	1	-	-	-	-	1	2.2
15	Imoru	3.850	-	-	-	1	-	-	-	-	1	1.1
16	Ikaro	3.063	-	-	1	1	-	-	-	-	2	1.1
17	Upeme	489	-	--	-	1	-	-	-	-	1	1.1
18	Imeri	2.554	-	-	-	1	-	-	-	-	1	1.1
19	Owani	1.884	-	-	-	1	-	-	-	-	1	1.1
20	Emure Ile	4.508	-	-	1	1	-	-	-	-	2	2.2
21	Obasoto	369	-	-	-	1	-	-	-	-	1	1.1
22	Ojana	398	-	-	-	1	-	-	-	-	1	1.1
23	Eporo	569	-	-	-	1	-	-	-	-	1	1.1
24	Amurin	1.349	-	-	-	1	-	-	-	--	1	1.1
25	Amehinti	674	-	-	-	1	-	-	-	-	1	1.1
26	Okoti-Ofa	1.106	-	-	-	1	-	-	-	-	1	1.1
27	Ijbogun	175	-	-	-	1	-	-	-	-	1	1.1
28	Ago panun	1.353	-	-	-	-	-	-	-	1	1	1.1
29	Kajola	1.046	-	-	-	1	-	-	-	-	1	1.1
30	Waterworks	1.011	-	-	-	-	-	-	-	1	1	1.1
31	Asolo	715	-	-	-	-	-	-	-	1	1	1.1
32	Omolege	555	-	-	-	-	-	-	-	1	1	1.1
33	Owajulaye	1.235	-	-	-	1	-	-	-	-	1	1.1
34	Ori-Ohin	1.929	-	-	-	-	-	-	-	1	1	1.1
35	Igbowoye	1.789	-	-	-	-	-	-	-	1	1	1.1
	Total		1	1	42	32	2	3	3	6	90	100

Source: Field Survey, 2003

on health care. However, the ratio of LGA population to health facilities was not used as accessibility variable because this study did not focus on only one single health facility (i.e general hospital) as demonstrated by Okafor^[6], but focused on all available health facilities in the region as listed in Table 1. This coverage becomes relevance because the rural dwellers need to enjoy health care facilities that are basic to the implementation of Primary Health Care Programme in Nigeria

RESEARCH SETTING: OWO REGION, NIGERIA

The study area is OWO REGION. Owo region comprises Owo and Ose local government areas (LGAs), which are adjacent to one another in Ondo State, Nigeria. The two LGAs as combined made up the former Owo Local Government Council Area prior to 1991 local government councils creation exercise in Nigeria. Geographically, Owo region is located between longitude 5°25' and 5°57' East of Greenwich meridian and between

latitude 6°40' and 7°38' North of Equator Fig. 1. It occupies about 2,516 square kilometers of land^[25].

Owo region is located in the eastern part of Ondo State. The region is bounded in the west by Akure North and Idanre LGAs and in the east by Edo State. It shares boundaries on the north partly with Ekiti State and Akoko South West and Akoko South East LGAs of Ondo State and in the south with Edo state Fig. 2. By population projection for the year 2000 with a growth rate of 2.5%, Owo region was estimated at 312, 768, with a population density of 127 persons per square kilometer (NPC, 2000). Owo and Ifon towns were the only urban settlements in the region that comprised of 195 settlements as at the year 2000 Fig. 2.

The profile of the rural dwellers in Owo region shows that 67.6% were engaged in agriculture and agriculture-related activities. The average household size is 8 persons per household and only 32.8% were without any formal education. About 36.5% of the rural dwellers earned less than N36, 000.00 per annum and 42.5 percent earned between 36,000 and 44,000 per annum while 21%

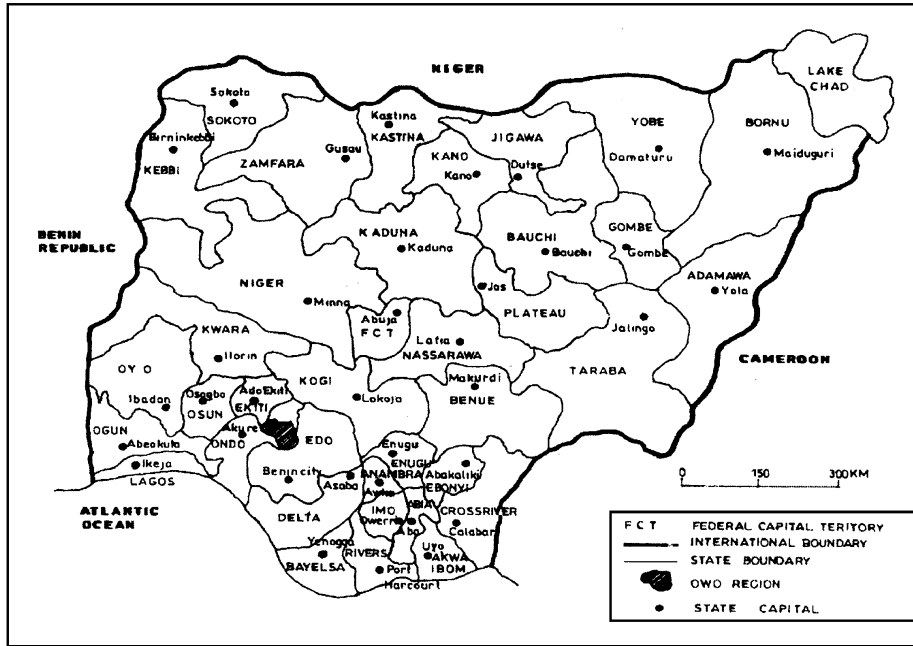


Fig. 1: Map of Ngeria showing owo region at national setting. Source: Ministry of lands and housing, akure, 2000

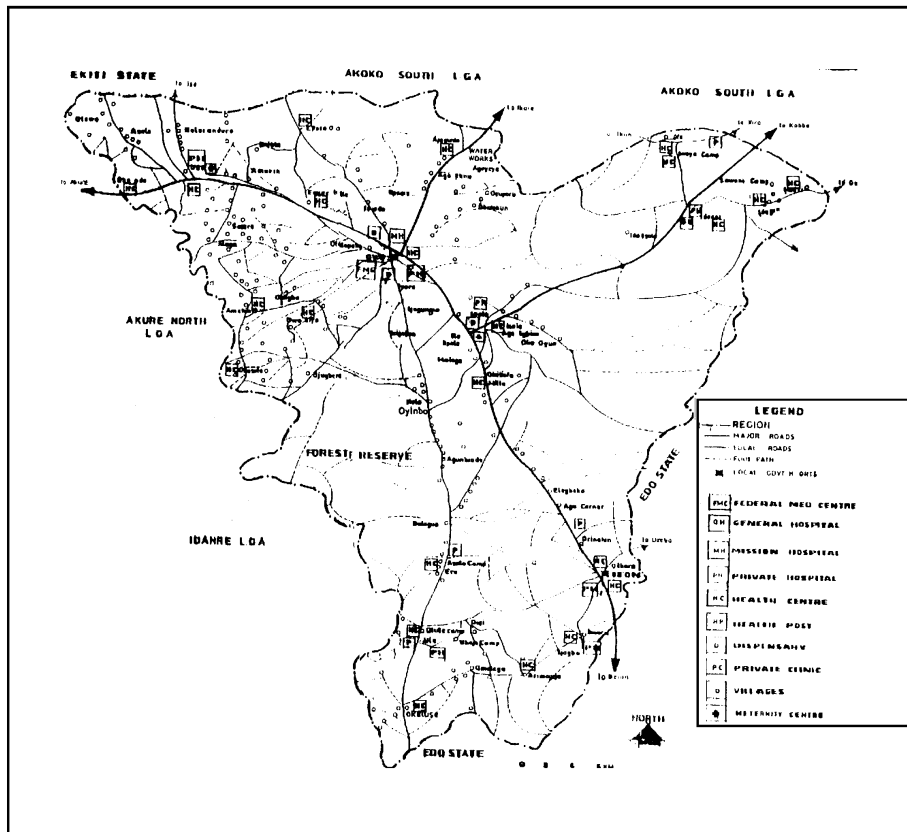


Fig. 2: Distribution of existing health facilities in owo region

earned above N144,000.00 per annum. About 76.4% of those that earned less than N36,000.00 per annum were farmer In the group that earned above N144,000.00 per annum, only 8% were farmers. The reason for this low income among others is not unconnected with the fall in the price of cocoa in the year (i.e., 2000), which adversely affected the income of farmers' in the region^[26].

The locations of health facilities in the region are indicated in Table 1 and shown in Fig. 2. This aggregate analysis of these health facilities in essence shows the overall available health services to the generality of the people without consideration of cost.

RESEARCH METHODOLOGY

A set of questionnaires was designed to collect primary data on accessibility variables from the rural household-heads o their patronage of health care facilities in the region. The questionnaire contained questions that probed into the traveling distance by the rural dwellers when seeking health care services; the conditions of the roads from their houses to health care facilities; travel cost in cash (i.e., transport fare) to health care facilities; the waiting time before receiving medical treatment at both urban-based and rural based health facilities; and the percentage of household income spent on health care per annum.

For the selection of sampled rural dwellers, the 195 settlements in the region were classified into groups, using a population classification interval of 2,499. Overall, nine groups emerged. The first group is made up of two settlements with over 20,000 people. In Nigeria, any settlement with a population of 20,000 people or more is regarded as urban settlement. Therefore, the two settlements in the first group are Owo town and Ifon, which are urban settlements. These two urban settlements were ignored in making selection of rural communities for the conduct of health care seekers survey. From the remaining eight groups, 22 rural settlements were selected from the 193 rural settlements, using stratified random sampling method Overall, 348 rural household heads were randomly selected from the 22 rural settlements

The multidimensionality of accessibility suggests a typological approach to the spatial patters. of personal accessibility to health facilities in the region. The processing of the data was carried out through the use of computer, using the Statistical Package for Social Sciences (SPSS) version 10. Rather than relying on a single variable, the sampled rural households were differently grouped into three clusters of low accessibility, moderate accessibility and high accessibility; based on the aggregate of standardized scores (i.e., Z-scores)

generated on each of the six variables. This provided a surrogate measure of personal accessibility of the rural dwellers to health facilities in the region using the Quick cluster analysis technique.

THE OWO REGION EXPERIENCE

In a rural environment, problems of assessing accessibility are compounded more than in the urban areas because of the inherent constraints. There are few means of transportation which make movement difficult; unfavorable physical terrain that increase distance cost; and low income that prohibits excessive spending both on travels and health services.

Data collected on each of the identified accessibility variables were subjected to standardized scores; which were cumulatively aggregated to give the final clustering of rural dwellers into low, moderate and high accessibility clusters.

Accessibility measurement of distance travelled to health facilities by rural households: Information on distance travelled by rural households to health facilities to utilize health care services was collected. Even within the same settlement, rural households travelled to locations of varied distances for health care services. This indicates that settlements with short distances to health facilities exhibit less constraints of movement than those with long distances. In other words, accessibility is higher in the former than in the latter because the shorter the distance; all things being equal, the higher the accessibility.

In the classification of distance travelled by health consumer into degree of relative accessibility, Adejuyigbe^[8] confirmed that an average distance travelled by health consumer in Ife region was 7 km, while Okafor^[6] indicated 8 km as the assumed maximum average distance which health consumers accepted to walk to obtain health services in rural Bendel. But Lewis *et al.*^[17] have confirmed that a worst-off rural household in EL Salvador travelled 12 km to health facilities. However, the report of the committee on vision 2010 suggested that an average rural Nigerian should not travelled more than 3 km to enjoy health care services by the target year (i.e., 2010)^[27].

This invariably informed the use of under 5 km as high accessibility as at the year 2000 and subsequent clustering of other distances into moderate and low accessibility were determined by the computer using the Z-score generated on the variable as presented in Table 2. The Table reveals that 288 respondents 82.7% enjoyed low accessibility, 18 respondents 5.2% enjoyed moderate accessibility, while 42 respondents 12.1% enjoyed high accessibility to health facilities in the region.

Table 2: Grouping respondents into clusters according to personal accessibility using Z-scores of the variables. [No. of respondents(i.e rural household heads in parenthesis)]

Variables/accessibility indicators	Cluster of respondent		
	Low accessibility	Moderate accessibility	High accessibility
(i) Household traveling more than 5 km to health facilities	-0.39804 (288)	3.04124 (18)	1.42601 (42)
(ii) Average travel time	-1.20640 (103)	1.49578 (78)	0.44409 (167)
(iii) Road condition to health facility location	-0.63868 (154)	0.44409 (167)	-2.22624 (27)
(iv) Average travel cost (in cash)	0.44409 (167)	-0.97345 (147)	2.02748 (34)
(v) Waiting time before receiving medical treatment.			
(a) At Rural-based health facilities	0.27358 (204)	-1.10561 (109)	1.84865 (35)
(b) At urban-based health facilities	-0.08427 (289)	1.38711 (46)	-2.92165 (13)
(vi) Percentage of household annual Income spent on health care services	-0.47845 (272)	1.17006 (54)	3.04337 (22)

Source: Field Survey Analysis, 2003

N = 348

It is pathetic to observe from the result that 12.1% of the respondents travelled under 5 km (which is regarded as high accessibility) even when our survey reveals that 83% of the rural households were living in locations under 5 km to health centres in the region. The implication of this paradox is that, many of the households did ignore health centres and other modern health facilities within and around their villages to patronize health facilities located far (usually at the urban centres) for treatment of simple illnesses which ought to have been treated at the low order health facilities in the villages. However, the refusal to patronize the low order health facilities particularly the health centres, is as a result of the poor quality of health services being offered.

Accessibility measurement of travel time by rural households to health facilities: Travel time as an indicator of accessibility measurement introduces another important constraint to movement. Travel time may be prolonged as a result of waiting time of vehicles on the journey to health facilities, either to get more passengers or dropping passengers at points of destination before getting to the final destination (.if it is a public transport).

Other causes of prolonged (delay) travel time to health facilities might be as a result of bad condition of road. From the fieldwork experience, vehicles wait for more passengers as some passengers alight along the route before getting to the final destination. This increases the normal travel time on such routes. Inequality of access due to travel time could be a serious problem in cases of emergency, particularly in children illnesses, which are more frequent than adult illnesses.

On many occasions, public vehicles are available on some routes only during the market days. This gives an indication that health care services might be available within a large sector of a region, but might be inaccessible

to many residents if transit service is unavailable or of poor quality. Therefore, using travel time as indicator of accessibility, information collected from respondents on their travel time for health care services were clustered into three groups. High accessibility refers those using less than 30 min to get to health facilities. This is consistent with the 1986 Spanish general law that indicated a minimum of 30 min travel time to health facilities, which was approved by the WHO^[28].

The clustering result as shown in Table 2 shows that 103 respondents 29.6% enjoyed low accessibility, 78 respondents 22.4% enjoyed moderate accessibility while 167 respondents 48% enjoyed high accessibility. Overall, 52% of the respondents spent more than an average of 30minutes as travelling time to health facilities in the region.

Despite the numerous constraints facing rural transportation in general, one may feel skeptical in accepting the outcome of the rural accessibility to health facilities in the region, using travelling time as an indicator. The 48% of the respondents that claimed to have enjoyed high accessibility are part of those that patronized health facilities located within their villages. The reason for such patronage is not on the basis of quality of health services being rendered but as a result of being the only available health facility to them.

Using road conditions to health facilities by rural households: Much of the rationale for primary health care and for government investment in health care for the poor is to reach isolated low-income communities with health care services. Therefore, the primary concern is physical access to health care. In this regard, the relevance of good roads to health care delivery particularly during emergency health cases cannot be relegated to the background.

Without doubt, a good and motorable road would facilitate movement of patients and reduce complication and health risk that could arise from delay and hindrance posed by pot-holes and other damages on rural roads. Poor road conditions promote restricted mobility by forcing rural households only to visit a health facility for serious illnesses. The risk of traveling on rural roads can be very high sometimes. There are roads with damaged bridges, without side rails and some rivers are without passable bridges. Often times, patients are to trek kilometers through footpaths (i.e., bush paths) before getting to road junctions where public transport facility, usually Okada could be bored.

Based on the above analysis, the conditions of the rural roads were used in clustering accessibility of rural households to health facilities in the region; with good roads as promoting high accessibility, fair roads as moderate accessibility and poor roads as associated with low accessibility^[2,29]. The clustering result as shown in Table 2 reveals that 154 respondents 44.3% enjoyed low accessibility by traveling to health facilities through poor roads; 167 respondents 48% experienced moderate accessibility through traveling on fair roads while only 27 respondents 7.7% experienced high accessibility as a result of traveling on good roads.

Even when two major highways passed through Owo region (i.e., Akure-Kabba highway; and Akure-Benin highway) which is in good condition, other rural roads in the region were mostly in poor condition. Therefore, 44.3% of the respondents travelled on poor rural roads while 48% travelled on fair roads to health facilities within the region to receive health services. The low percentage 7.7% of high accessibility experienced by health consumers points to the fact that any attempt at promoting physical access of rural dwellers to health facilities in the region needs a radical improvement of the rural road network.

Accessibility measurement of travel cost (in cash n) to health facilities by rural households: Travel cost and distance seem to play a significant role in the measurement of accessibility. The longer the distance, the higher the travel cost and the lower the accessibility. In the same vein, travel cost tends to reflect road condition, which is another essential constraint to movement. A short distance with bad road attracts higher fare and therefore associated with low accessibility.

Usually in the rural area, the transport fare of the patient and that of the patient's relation that accompanies the patient to the health facility for treatment are put together as the travel cost in cash. This cost can prevent rural households from patronizing health facilities.

Table 2 shows the outcome of the clustering of travel cost (in Naira (₦) which is Nigerian currency), of the rural households to health facilities in the region into 3 clusters. Those grouped into the third cluster are regarded as enjoying high accessibility with respondents not spending money as transport fare or spending less than ₦50.00 as transport fare to health care facilities.

However, one of the limitations of using travel cost in cash as a single indicator to determine accessibility of rural households to health facility is in situations where household that spent no money on transport (i.e trek to health facility) is classified as enjoying high accessibility. After all, trekking over long distance to get to health facility implies inaccessibility. Therefore, using N50.00 as a baseline travel cost to health facility; the other two clusters were relatively determined into moderate and low accessibility as shown in Table 2. The table reveals that 167 respondents 48% enjoyed low accessibility; 147 respondents 42.2% enjoyed moderate accessibility while only 34 respondents 9.8% enjoyed high accessibility.

Despite the grouping of rural household-heads that never expended money along with those that spent less than ₦50.00 as transport fare to health facilities as enjoying high accessibility; the proportion of this group is still very low 9.8%. The poor condition of the rural roads in the region only attracted few public transport operators, with resultant increase in transport fare. Thus, about 90% of the respondents spent more than N50.00 as travel cost to utilize health services in the region.

Accessibility measurement of waiting time to receive health care services: There are preliminary activities, which patients are to undertake before receiving medical treatment. These preliminaries among others include payment for and registration of patients at the Record Section of the health care facility, minor examinations of patients such as observation of body-temperature and blood pressure; and queuing at the Doctor's waiting-room for medical consultation in turns. The time to receive medical care is one of the determinants of consumer's satisfaction with health services^[12].

As a result of some peculiarities, waiting time to receive medical treatment varies from one place to the other. Therefore, waiting time of rural households at urban-based health facilities and that at rural-based health facilities were differently assessed. By virtue of the activities of the rural households towards earning their living in Nigeria; over 62.4% of the rural dwellers were self-employed in agricultural pursuit^[30]. But 67.6% of rural households in Owo region were engaged in agriculture and agricultural-related pursuits Usually, time is taken-off their farm-work to attend health institutions for medical

treatment only for serious illnesses. This is because of the long-time spent on associated preliminaries, which they were expected to undertake before receiving medical treatment. This is considered as constraint that could create inaccessibility to health services. From the rural household perception, information on waiting time before treatment were collected and their clarifications on what they considered as tolerable waiting time was equally sought. Thus, a waiting time of under one hour was regarded as ideal and grouped as permitting high accessibility. Subsequent groupings using under one hour waiting time as a base-line information were computer determined.

At the rural-based health facilities, Table 2 reveals that 204 respondents 58.6% enjoyed low accessibility; 109 respondents 31.2% enjoyed moderate accessibility while 35 respondents 10.2% enjoyed high accessibility using waiting time before treatment as accessibility indicator. The reasons for this result are not unconnected with the behavioural inadequacy of the health personnel working in the rural-based health facilities coupled with the staffing situation. The rural-based health facilities more often than not are poorly staffed. The few available health personnel at the rural-based health facilities are (either) often over-stressed (or over-worked) by attending to too many patients or not reporting at their duty posts on time thereby making patients to wait endlessly for their arrival. This is common in the government-owned health facilities where most of the personnel posted to rural-based health facilities live in the urban centres and shuttle daily between the urban centres and their village-based place of work. Often times, the rural-based health workers may not even report for duty for many days.

Even when they report for duty, the nurses unofficially arranged working schedule that keeps some of them away from duty. For instance, in a health center with 7 nurses on roll, there should be at least 4 nurses on duty at any point in time. It could be unofficially arranged such that only one or two nurses would be on duty. The rest would stay away because of the belief that the volume of work is not sufficient to occupy the 4 officially expected number of nurses as well as non-commitment to work.

At the end, the volume of work becomes too tedious for the available one or two nurses on duty to handle. Thus, increasing the waiting time spent by the few rural patients that called for medical treatment. After all, if the officially expected number of nurses had reported for duty, it would have been a 'child' play' assignment that would have reduced drastically the waiting time at the rural-based health facilities.

At the urban-based health facilities, the result of the clustering of respondents to relative accessibility clusters is almost similar to the rural-based health facilities waiting time clusters. Table 2 reveals that 289 respondents 83% enjoyed low accessibility, 46 respondents 13.3% enjoyed moderate accessibility while 13 respondents 3.7% enjoyed high accessibility. The turnout of urban household patrons coupled with the pressure created by the turnout of rural household patrons resulted to congestion of patients at the urban-based health facilities. This high number of turn-out of patients at urban-based health facilities compared to the available staff at the record office could be responsible for this result. The 13 respondents (i.e., 3.7%) that enjoyed high accessibility could have been assisted in one way or the other particularly by relations or church-members working in the health institutions. This assistance could be in form of facilitating the registration of the rural patients at the record section, or speeding up the conduct of the preliminary examinations and medical consultation.

Accessibility measurement using percentage of rural household income spent on health care: An important determinant of accessibility to health care services is the purchasing power, which to a large extent depends on income^[23]. The higher the proportion of ones income spent on health care, the less accessible is health care services. Even when free medical services are available to the generality, one needs to spend money on some required preliminaries such as transport cost, medical examinations and tests as well as purchase of drugs when not available in the government health institutions. Everything put together constitutes part of ones income being spent on health care services.

WHO^[31], suggest that not more than 5% of individuals' income is supposed to be spent on health. Any attempt to spend more than 5% of ones income on health signifies a sort of deprivation to health care services Phillips, 1997. Thus, a household spending less than 5% enjoyed high accessibility to health facilities. The other two clusters-moderate accessibility and low accessibility were relatively determined using the 5% as base-line data. The result as presented in Table 2 shows that 22 respondents 6.3% spent less than 5% of their annual household income on health care services. This indicates high accessibility. However, 54 respondents 15.5% enjoyed moderate accessibility while 272 respondents 78.2% enjoyed low accessibility.

Overall, 93.7% of the total respondents spent over 5% of their household's income on medical care. This implies a deprivation of easy access to health services which brings to question the free-health programme of the

Ondo State government in the region. By the State government free health programme, cost of medical treatment for patients under 18 years at state and local government health institutions are to be free while for those patients above 18 years are to enjoy highly subsidized medical treatment cost in the state.

Often times, drugs are not available in the government health institutions and some facilities for the conduct of medical examinations and tests are either not available or not functioning. Therefore, patients are to make purchases of drugs and conduct such medical tests and examinations outside the government health institutions. The government health institutions located in the rural areas are worst-affected by these inadequacies. The frustrations on the part of the health consumers as a result of the inadequacies often forced health consumers to patronize private health institutions (which are mostly dominated by quacks in the rural areas) and patent medicine store operators. Besides all, patients are to pay for transport fare to and from the health institutions. All this constitute the medical cost which cumulatively cost more than 5% of the household's annual income. Thus, 93.7% of the rural households in the region spent more than 5% of their annual income on health care services.

Overall clustering of rural households according to their personal accessibility to health care facilities in owo region: The overall clustering of the rural households according to their personal accessibility to health facilities in the region is achieved from the combined effects of the aggregate scores of the 6 variables. The final clusters are shown in Table 3 and illustrated in Fig. 3.

The Table reveals that 258 respondents, which constitute 74.4% experienced low accessibility to health facilities and only one respondents experienced moderate accessibility. However, 89 respondents that constitute 25.5% experienced high accessibility to health care facilities in the region. This final outcome of the analysis shows that 74% of the rural households in Owo region suffered deprivation of access to health care services, even when 83% of the rural households were living less than 5km to locations of health centres. The reason for this is the massive conversion of ill-equipped dispensaries to health centres for the implementation of Primary Health Care (PHC) programme. The health centres were poorly equipped for the PHC programme.

The fallacy of the implementation of the PHC programme is the division of the two LGAs into 23 Health Districts. In each of the health districts, there is at least a health centre which is expected to be headed by a PHC Unit-Head, who is responsible to the PHC Coordinator for

Table 3: Clusters of rural households into personal accessibility to health care facilities

Cluster	Description	No of respondents	% of total
1	Low Accessibility	258	74.14
2	Moderate Accessibility	1	0.29
3	High Accessibility	89	25.57
Total	348	100.00	

Source: Author's Field Work Analysis, 2003

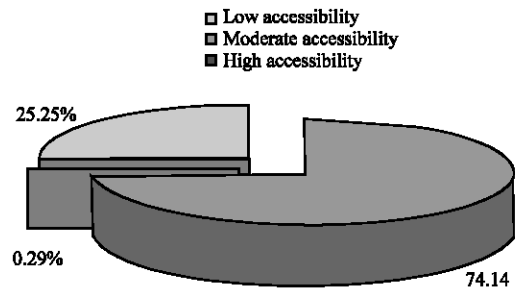


Fig 3: Clustering of rural households in owo region into personal accessibility to health care facilities. Source: Author's Fieldwork, 2000

the LGA. The division of the two local government areas into health districts was not based on population but on administrative convenience.

CONCLUSION

Our findings amongst others have revealed that 74.14% of rural dwellers had low accessibility to health care facilities, 0.29% had moderate accessibility while it was only 25.57% that had high accessibility to health facilities in Owo region. Different reasons were identified for this low accessibility of rural dwellers to health facilities in the region. These findings from Owo region mirror the accessibility situations of rural dwellers in Nigeria to health care facilities; which are not likely to be different from what obtains in most developing countries of the World.

One of the important characteristics of low accessibility of the rural dwellers in the region is the inability to afford the cost of health care services. This is the position of about 93.7% of the rural dwellers spending more than 5% of their annual income on health care services. This has two implications. It is either the rural dwellers are too poor (due to low income) to afford the cost of medical services and/or that medical treatment cost and services are too high for them to afford. The profile of rural dwellers in the region shows that about 79% of them fall below the poverty level.

This calls for economic empowerment of the rural households to boost their income. Since about 67.6% of the rural dwellers are engaged in agriculture and agriculture-related activities; the economic empowerment

of the rural dwellers should be through improving the quantity and quality of agricultural yields of the rural farmers in the region. The improvement could be achieved by providing improved-seedlings (of cocoa, cola, orange and cashew) and disease-resistant seeds (such as maize and beans), yams and cassava stands for planting as well as chemicals to the farmers at highly subsidized rates and provision of agricultural extension services.

The inaccessibility of majority (i.e., 74%) of the rural households to health care services in the region means something drastic and urgent needs to be done to ensure a nation-wide implementation of the National Health Insurance Scheme (NHIS), as planned by the Federal Ministry of Health. The implementation of the NHIS on the one hand would eliminate the inaccessibility created by inability to afford medical cost by individuals, particularly the rural poor. On the other hand, it will ensure sustainable source of funding to improve the quality of health services offered in health institutions in the region.

Our findings have equally revealed that transport-related problems put together ranked first among the problems confronting rural dwellers in the patronage of health facilities in the region^[26]. Therefore, rural road condition in Owo region (like in any other rural region in Nigeria) needs to be improved upon particularly in the provision of bridges and culverts where necessary.

The respective local government authorities in whose domain that covers the indicated rural roads should undertake the construction of the bridges and culverts. However, the people in each locality through self-help programme should complement the efforts of the local government councils (i.e., Ose and Owo LGCs) in the continuous maintenance of the drainages and embark on regular clearing of weeds along the rural roads in their localities.

Considering the importance of Owo-Obasoto and Owo-Amehinti roads in the evacuation of farm produce in the localities; it is suggested that the two roads should be upgraded to state roads and subsequently tarred. It is hoped that the implementation of the road-related suggestions would improve the movement of people and farm produce on the roads as well as facilitate the utilization of welfare services (including health care services) in the localities by the rural dwellers. The improvement of the condition of the rural roads would also attract the plying of the roads by Okada operators and other public transport operators. This will reduce the travel time on the rural roads by the rural dwellers.

Over 87% of the rural dwellers traveled more than 5km to receive health care services even when 83% of them were living at locations under 5 Km to health centres in the region. The implication of this is that health care

facilities are located within the reach of the rural dwellers in the region but the rural dwellers are not patronizing them. The main reason for the non-patronage or low patronage is as a result of poor quality of health care services offered in these health centers, that made it inaccessible to the rural dwellers. Therefore, the rural dwellers preferred to travel over 5 Km away (i.e., to other urban-based health facilities) for their health care services.

It is therefore necessary for the Ondo State Ministry of Health to intensify her quality control monitoring exercise of all the health care institutions in the region by ensuring that available health institutions have the required facilities that would improve the quality of services rendered. Therefore, good health service delivery requires that trained and motivated health workers are in place and have the supplies, equipment, transportation and supervision to do their job well. This requires both adequate funding and good management of the rural-based health facilities in particular and the urban-based health facilities in general. This will equally check the care-free and non-committing attitude particularly of both the rural-based and urban-based government-owned health institutions which often resulted to increase in waiting time of patients for medical treatment.

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