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Access and Medication Use among Stroke Patients in Rural Cross River State, Nigeria

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Abstract: *This study is designed to investigate influence of access to medication on medication use among stroke patients in rural communities of Cross River State, classified among areas of high prevalence in Nigeria. The Predisposing-Enabling-Need theory provided the framework. The study employed descriptive survey design. Purposive sampling was used to select Ikom, Etung, and Abi Local Government Areas (LGAs) due to their genealogical relationships and presence of stroke patients. The sample size of 600 was selected, from which 200 respondents were sampled from each LGA. A multistage sampling technique was used to select 10 wards from each of the LGAs, 20 villages from each ward and 10 respondents who were stroke patients from each village and were administered with a semi-structured questionnaire. Thirty in-depth interviews were conducted with six key opinion leaders (chiefs, elders and religious leaders), six care givers, six significant others, and 12 stroke patients. Eighteen Focus Group Discussions were conducted among six men, six women, two community leaders and four community members, while two life histories were carried out on stroke patients. Quantitative data were analysed using descriptive statistics, Chi-square and Multivariate logistic regression at p=0.05; while the qualitative data were content-analysed. Access to modern treatment was poor due to bad roads (92.5%), long distance to medical facilities (71.1%), and prolonged waiting time for treatment (76.5%). Medication use was significantly associated with distance to care (OR=0.144). There is need for sustained enlightenment of the people on the risk factors of stroke, access to treatment and use of medication.*
Keywords: *Stroke Patients, Medical Facilities in Cross River State, Access to Treatment, Adherence to Prescriptions.*

1. Background

As a medical, economic, and social problem, the incidence of stroke is increasing globally and perceived as a very significant cause of mortality and disability in several societies (Ogun, 2010). The disease, also known as cerebrovascular accident, is a result of an interruption in the free movement of blood to parts of the brain, which is due to occlusion of a blood vessel, in the case of ischemic stroke, or a rupture occurring in the blood vessel, in the case of the haemorrhagic stroke. The result of this interruption in the free movement of blood is the deprivation of the brain of nutrients and oxygen, and this leads to injury to cells in the part of the brain that is directly affected (Allen, 2013). This illness causation was thought not to be strongly prevalent among blacks in general, and Africans in particular, some decades ago, however, recent investigations on the phenomenon reveal an epidemic of stroke in Third World Countries, due to some demographic changes (Ogunrin, 2015).

For the struggling economies of some developing countries like Nigeria, stroke has brought yet another burden. It kills or paralyzes adults, many of whom are the primary breadwinners and caregivers in families. Millions of children around the world have been orphaned by stroke. Those who survive face poverty, high risk of malnutrition and disease, and the absence of a family support structure.

In Nigeria, the disease has had a heavy impact on urban professionals – educated and skilled workers who play a critical role in the labour force of industries such as agriculture, education, transportation, and government. The decline in the skilled workforce due to stroke has already slowed

economic growth and economists warn of disastrous consequences in the future.

Earlier studies by Watila, et al (2012) on stroke and related diseases have focused mainly on the aetiology of the disease with less emphasis on the social context within which the disease occurs. The urban bias in infrastructural development has also led to the concentration of medical facilities in towns and cities as if an illness is an urban phenomenon. As a consequence, accurate estimates of the incidence and prevalence of stroke and the determinants of health behaviour have been hampered by a lack of community-based studies (Ojini, 2017). To date, most of the empirical studies and theories dealing with stroke have emphasized the individual characteristics while less attention has been paid to the societal impact. Research has also not sufficiently focused on the rural areas where the knowledge base on stroke is still relatively low, hence a gap. These and other related issues form the central problem which this study addressed.

2. Theoretical Framework

Anderson and Newman predisposing-enabling-need Theory

The theory was aimed at practically testing propositions that has to do with inequality in access to health services in the United States. It deals with a basic assumption that health services are not evenly distributed to all the sectors that makeup the society. The distribution is done in a manner that most ethnic minorities and people residing in the countryside are at the receiving end (Anderson and Newman, 1973). This proposition considers access to health services as a function of both the individual's decision-making processes, and his social standing in the society. The theory supports investigations regarding social inequalities.

A cursory look at the theory shows three sets of anticipatory factors which include the predisposing, enabling, and need factors. The general assumption here is that a succession of factors influences the inclination to consume health services: The inclination before the consumption services, the strength, and the drive or desire to use services. His first attention concentrated on the family as the unit of analysis; as a result, it became imperative to use the family-level variables. But later use of the framework involved the patient as the unit of analyses. His use of health services is dependent on three basic factors.

Predisposing Factors

The overriding presumption here is based on the premise that, a family's propensity to consume services depends on a mixture of certain characteristics of the individual which existed prior to the illness. These comprised the family, the nature and form of the society, including the overall health beliefs of the individual being considered. The variables here are sex, age, structure of the family, and social class, and ethnicity. All these variables define the social status of the family which explains their values and attitudes, including their environment.

Enabling Factors

The factors assume that the mere disposition does not translate to use. When a family has the disposition to use health services, some conditions must be available for proper medication use. These characteristics are the demand for health services, availability of health services and insurance. Facilities must be available for utilisation to take place. A disposition does not eventually approximate to use, since other conditions have to consider.

Finally, in other to use, there must first be need to use services in existence. These need factors are present in the model in other to take care of this lacuna that may arise. According to the model, need factors are variables associated with illness, and those associated with intervention. The family is expected to respond appropriately immediately as symptoms occur.

According to this framework, access is fair and just when it is predicted by constant demographic variables like sex and age, or to need factors, like sickness. Access will be fair and just if it is dependent on ethnicity or other enabling factors. It is upon this assumption that the theoretical basis of using the Anderson paradigm in studying social inequalities in medication use is founded.

The usefulness of this model in explaining stroke patient's medication use lies in the fact that rural stroke patients have less opportunity to use medication compared to the rest of the population. In determining health-seeking behaviour of stroke patients, issues that must be considered include; the patient's family, the social structure and the patient's health beliefs. As stated earlier, the stroke

patients may want to use services, other characteristics must be taken into consideration. The factors are income for treatment, health insurance, and availability of service. The lack of services influences the predisposition to use.

Finally, there is a direct relationship between utilization and the need to use services. Use can only happen when there is need for it. This explains that utilisation can only be possible when the need to use services exists. A stroke patient must first recognise and accept the symptoms, and must be willing to respond appropriately.

3. Materials and Methods

A descriptive and survey approach involving a combination of qualitative and quantitative methods of data collection was adopted. Cross River State was purposively selected for the study since the majority of the population lives in rural areas of the state and engage in farming, with an appreciable number of stroke patients among them. Three senatorial districts: North, Central, and South were identified. The Central Senatorial District of the state was purposively selected and sampled for the study. In this Senatorial District, there are six LGAs (Yakurr, Abi, Obubra, Etung, Ikom, and Boki), and from which three LGAs: Abi, Etung and Ikom were purposively identified and selected. The selection was based on the fact that these LGAs share some genealogical relationships with the north and south (senatorial districts), and have the majority of the population residing in rural areas with farming as their major occupation as stated earlier. The local governments selected have relatively, the same background in terms of culture and proximity. The sample size of 600 was selected, from which 200 respondents were sampled from each LGA. A multistage sampling technique was used to select 10 wards from each of the LGAs, 20 villages from each ward and 10 respondents who were stroke patients from each village and were administered with a semi-structured questionnaire. Thirty in-depth interviews were conducted with six key opinion leaders (chiefs, elders and religious leaders), six care givers, six significant others, and 12 stroke patients. Eighteen Focus Group Discussions were conducted among six men, six women, two community leaders and four community members, while two life histories were carried out on stroke patients. Quantitative data were analysed using descriptive statistics, Chi-square and Multivariate logistic regression at p=0.05; while the qualitative data were content-analysed. In the local government areas so selected, 10 wards were selected. And from each ward, 20 villages were selected and sampled for the study. However, Ikom Local Government is made up of eleven political wards. But going by our definition of a rural settlement, Ikom Urban Ward 1 was excluded from the study since it did not meet the criteria. Thirty IDIs were conducted equally among the selected local government areas. Two of which were key knowledgeable members of the communities. The remaining 8 were interviewed in the ratio of two health caregivers, two significant others, and four stroke patients. A total of 18 FGDs were conducted in this study. Out of the eighteen, three of the sessions were carried out during the pilot stage, while the remaining 15 were conducted during the field work. Each FGD session included men and women from the same category, to make for homogeneity. Thorough analyses of individual cases were carried out. The case studies involved gathering of all relevant data which were organized in terms of the cases under review. The basic ethical issues guiding social science research were strictly adhered to which included seeking informed consent from both respondents and participants, guaranteeing their anonymity, and also making sure that they were free from any form of harm that may arise from their participation in the study.

Table 1: Health infrastructure profile of Cross River State

S/N	Medical Facility	No available (Urban)	No. available (Rural)	Total
1.	Teaching Hospital	1	-	1
2.	Specialist Hospital	6	-	6
3.	General Hospital	8	-	8
4.	Comprehensive Health Centres	4	-	4
5.	Primary Health Care Centres	23	326	349
6.	Private Hospitals	100	-	100
	Total	142	326	468

Source: Nigeria Health Facility Registry Web (2021)

Results and Analysis

Findings from this study is presented along availability of facilities, means of transportation, distance to facilities and waiting time and their influence on medication use at the individual level. These findings have implication on the health-seeking behaviour of the people in the study area.

Table 3: Access to medication and medication use

		FREQUENCY	PERCENTAGE
Availability of health providers	Public	21	3.7
	Private	544	95.8
	No health providers	3	0.5
	TOTAL	568	100
Major means of transportation	Motor Vehicle	28	4.9
	Motor cycle	527	92.8
	Canoe	13	2.3
	TOTAL	568	100
Distance to medical facilities	Below 5km	4	4
	5-9km	174	30.6
	11km +	390	78.6
	TOTAL	568	100
Waiting time for medication	Below 1hr	116	20.4
	1hr-2hrs	19	3.3
	2hrs +	433	76.3
	TOTAL	568	100

Source; Fieldwork, 2021

Table 3 shows a preponderance of private healthcare providers in the area. About 95.3% of the respondents are of the view that the majority of the healthcare providers are private. The implication of the above is that reasonable interest has not been shown to the need for equity as far as the planning and distribution of healthcare facilities in the rural areas is concerned. A survey in the area showed that public and private healthcare facilities are sparsely provided in the communities. A majority of the areas within the communities with difficult terrain and physical environment have not been adequately catered for in terms of facilities. For instance, in the entire Etung Local Government Area, there is no government hospital except for Primary Health Centres which are not reputed to manage such complicated illnesses as stroke.

It was further revealed that 4.9 percent had a motor vehicle as a major means of transport, 92.8 percent with access to the motorcycle while 2.3 percent had access to canoe. This report is similar to the findings of Grieco and Turner (2017) who in their study of Malawi, Mali, Nigeria, and other African countries, noted that Motorcycle Ambulances convey patients from rural villages to medical facilities, and also transport passengers from various health centres and district hospitals. These motorcycle ambulances also undertake to supply medical equipment and essential drugs to the health facilities. It is important to note that accessibility is a necessary, but not sufficient condition for utilization. Transportation is keys in this regard as suitable, low-priced, and timely transport influences people's ability to receive preventive and emergency care that are necessary conditions for survival in rural areas (WHO, 2020).

Much of the rationale for Primary Healthcare and government investment in healthcare for the poor is to reach isolated low-income communities with healthcare services. Therefore, the primary concern is physical access to healthcare (Olujimi, 2018). This goes a long way to underscore the relevance of good roads to healthcare access particularly during emergency health challenges like stroke. Without a doubt, a good and motor able road would facilitate the movement of patients and reduce complications and health risks in stroke cases that could arise from delay and hindrance posed by pot-holes and other damages on the communities' roads. It was observed that the poor road conditions forced stroke patients to visit treatment centres when the situation is almost getting out of hand. The risk of travelling on bad roads for a stroke patient is very high. In the study area, there are roads with damaged bridges, without passable bridges. In fact, in the southern Etung axis, through many parts of Abi, the rivers are without passable bridges. Often, patients are to trek kilometres

through footpaths before getting to road junctions where public transport facilities, usually Okada, could be bored. Based on the above analysis, the conditions of the rural roads were used in clustering accessibility of rural stroke patients in the region; with good roads as promoting high accessibility, fair roads as promoting moderate accessibility, and poor roads associated with low accessibility.

The corresponding result from the qualitative study reveals that only few respondents enjoy high accessibility by travelling to health facilities on good roads, a relatively few respondents too enjoyed moderate accessibility by travelling to health facility on moderate roads, while the majority of the respondents enjoy low accessibility by travelling to health facility on bad roads. This implies that the status of the road might have made it difficult for the majority of stroke patients to use health care facilities and may have also contributed to increasing in transportation cost, as noted in a report by Neupane (2004). It was further observed that when there is an improvement in rural transport infrastructure, it will lead to a corresponding reduction in the time that it takes to reach health facilities, and good roads can encourage local motor services to extend their coverage and reduce costs since different kinds of both motorcycles and motor vehicles can use it. In his paper on the evidence regarding the level of relationship between good road construction and access to healthcare, Porter (2007) noted that good road is a source of immediate means of transportation for both bicycles and motorcycles.

A key feature of stroke symptoms is that they are unexpected and develop suddenly, though they may worsen over the next several hours or days. The symptoms primarily affect only one side of the body because blood flow is cut off to only part of the brain during a stroke. One of the most common symptoms of strokes is that as soon as the brain is unable to receive oxygen any longer, sudden weakness or numbness in a portion the face or an arm or one of the legs begins to manifest. Under the present circumstance, transporting both the patient and even a member of those who care for him through the bad roads makes the situation worse. A member of a Focus Group Session conducted in Ediba, Abi Local Government noted that:

> *A stoke patient is very weak. Most times he finds it very difficult to perform certain physical activities. He will always need the support of somebody who has to carry him through the bad roads, making the condition to get from bad to worse for both the patient and the family member or helper. The bad road sometimes can discourage you from going far. You may then decide to find other means of treatment within the village (FGD/male/55/Ediba).*

This assertion was supported by a male member of a Focus Group Session in Alok when he observed that:

> *The only time we hear any reasonable mention during elections when the politicians of the day come to canvass for votes. Stroke develops very fast and as such requires quick response. Our roads are bad in this community as such, may not be very suitable when stroke occur due to the very quick action required. If we rely on this road, stroke cases will go from bad to worse before getting to the hospital. The situation is so because the symptoms develop very rapidly (FGD/male/39/Alok).*

Data in terms of distance covered by patients in these communities to treatment centres was gathered and it was discovered that within the same community, the majority of the patients still go to places of varying distances for treatment. This implies that communities with shorter distances suffer fewer inhibitions of movement when compared to those settlements with longer distances. This shows that the former enjoys greater accessibility than the latter.

A categorisation of distance covered by health seekers was done by Adejuyigbe (1977), into relative accessibility. It was found that the average distance covered by health consumers in Ife area was 7km, while for Okafor (1984), the assumed maximum average distance which health seekers agreed to walk to use health services in rural Bendel was 8km.

For the purpose of this study, less than 5km is used to indicate high accessibility. The reason for this classification is because, the finding from the result of the committee on vision 2010 submitted that an average Nigerian in any rural settlement must not cover more than 3km to consume health services before or by the target year, 2010 (Philips, 2000). The other points were either classified as moderate, or as low accessibility. From the table above, 0.6% of the respondents had high accessibility, whereas 30.2% respondents enjoy moderate accessibility, while the remaining 69.2% of the respondents had low accessibility.

It is quite disturbing to find from the report that only about 0.6% of the respondents perceive stroke patients to cover below 5km to enjoy health services when an investigation around the

settlements show that about 83 percent of the participants in Itigidi were residing in places under 5km to the General Hospital in the area. This contradiction implies that many of the stroke patients who perceive risk factors to be the cause of the disease ignored modern health services around their immediate communities and villages to enjoy health services in Calabar. However, respondents who perceived personalistic factors as the cause of the disease travelled to other villages far from their immediate communities of solutions. A key informant in Adadama village observed that:

> *The person of Adadama understands that stroke is different from malaria which is a very common disease. It is not a hospital sickness. Going to the hospital is a waste of time and energy. Nobody has ever gone to the hospital and became well. We know the cause of the sickness, so we equally know where to go to get treatment (KII/female/60/Adadama).*

A village mobilizer in Ekpalegwa community in Abi also noted that:

> *Stroke is a black man's illness that has no business with the hospital. Whoever understands this will not waste his time going to the hospital because, he or she will still find his way to alternative means of care.*

Staying with this belief, a 40-year-old man in a Focus Group Discussion in Etara noted that:

> *Whoever has a stroke in this village must do a self-evaluation. Something must be wrong somewhere. If he offended man, he must beg for forgiveness. But if on the other hand he offended the gods, then he must go for cleansing. Every member of this community understands this (FGD/male/40/Etara).*

There are preliminary activities that stroke patients are to undertake before receiving medical treatment. These preliminaries include but not limited to payment for and initial registration of patients in the records section facility, examination of patients such as checking of body-temperature, and even the blood pressure of the patient; and queuing at the waiting-room for consultations which are usually in turns. The time to enjoy medical treatment is a major determinant of medication satisfaction (Lewis et al, 2009).

A patient that has stroke-like symptoms may pass through a battery of imaging techniques to rule out any other medical issues and confirm that stroke has happened. The computed tomography is the key imagine technique used in diagnosing stroke which uses x-rays to extract images of the internal organs of the body. This technique is used scan and show a physician whether or not a stroke is happening, and the type of stroke, whether ischemic or hemorrhagic, and in many cases, the extent of damage the stroke has caused to the brain. There abound many more techniques used in the diagnosis of stroke found in treatment centres. The challenge thus is that many of them take some luxury of time before the process is completed.

In view of these dynamics, the waiting time to receive treatment for stroke differs according to the condition of the time and place. Given the action ties of rural communities in earning a living in Nigeria; over 62.4 percent of rural dwellers were self-employed in agricultural pursuit (Titiola et al., 2018). But 67.6 percent of rural dwellers in central Cross River were self-employed in agriculture and agricultural-related pursuits. Usually, they work out time from their normal time for farms-work to be in health institutions to deal with serious health challenges like stroke. This is in view of the long time spent on related preliminaries in the facilities which the patient is required to undergo. All these procedures put together are considered as constraints which could go a long way to influence medication use for stroke patients. Considering the fact that the rural stroke patients are accustomed to being told their challenges by the traditional healer at the first meeting without much ado, they become disappointed when they have to go through certain hurdles on getting to the clinic, given the urgent attention in which a stroke patient requires. This position was supported by a female member of a focus group session in Ngbaka when she noted that:

> *Once you have a first encounter with the traditional healer, he will immediately inform you all you need to know about the disease is. But on getting to the hospital, they begin to take you through several procedures without considering the urgency of the case. In Some cases, the situation gets worse as the waiting continue to prolong. In the end, all what they need to act on will depend on what you tell them. The much time spent on preliminaries in the hospital is really unnecessary (FGD/female/47/Ngbaka).*

Going by the perception of the respondents, data on waiting time for care was collected, and their clarifications on what they perceived as to be normal waiting time were also sought. Hence, a waiting time of less than an hour was considered as ideal and grouped as permitting high accessibility. But other clustering using below an hour as base-line was determined using moderate and low. From table 14, 118 (23.4%) respondents enjoyed high accessibility, 28 (5.5%) respondents enjoyed

moderate accessibility, while 360 (71.1%) of the respondents had low accessibility. This could be due to the length of time required for preliminaries, the tests, and the x-rays. The processes involved increase the waiting in addition to the behavioural inadequacy of the health workers in rural communities.

Stroke increases in intensity if blood flow is cut off at any point between the heart and the brain; portions of the brain relying on blood from the obstructed blood vessel become deprived of oxygen. Brain cells are extremely sensitive to such oxygen deprivation, and nutrients for more than several minutes, they starve to death.

Unfortunately, stroke patients may be going through the various preliminaries like the computer and X-rays tests, waiting and expecting the results of those tests, and the blood vessels gets disconnected from oxygen the more since these procedures most times take long hours and even days for results to show.

A knowledgeable individual in Okokoma village noted that:

It develops with speed of lightening. Treatment must be sought immediately or as soon as possible. But unfortunately, our hospitals take so much time to conduct different exercises conducting and tests, and in several cases, before they conclude the diagnosis, the condition deteriorates (KII/male/55/Okokoma).

A stroke results in lasting injury to the brain tissues – and in some instances, permanent injury for the patient. A patient who has suffered the illness may develop paralysis on some or all parts of the body; have challenges with walking, eating and, or other daily physical activities. He may even find it ability to speak and comprehend speech.

A survey around the communities found that the disabilities caused by the illness increases due to the waiting time for treatment as the stroke patients may not readily volunteer the necessary information required. The patient may experience some sudden dimness or loss of vision, particularly in one eye. These patients may also have challenges with speech, and may also not understand speech as stated earlier. He may experience sudden severe headaches without any explicable cause. Any sudden unexplained dizziness, unsteadiness, or falls are all warning symptoms a stroke. A stroke patient with these signs will find challenges presenting his or her case to the medical personnel within a specified period of time.

Table 4. Chi-square distribution showing association between perceived available health providers and medication use

Available health provider	Medication use					
	Traditional	Modern	Alternative medicine	Faith healer	I don't know	Total
Public	21 100.0%	0 0%	0 0%	0 0%	0 0%	21 100.0 %
Private	513 94.3%	23 4.2%	0 1.1%	2 4.%	3 100.0 %	544 100.0 %
Non-Governmental Organisation (NGO)	0 0%	0 0%	0 0%	0 0%	3 5.%	3 100.0 %
Total	5.34 94.0%	23 4.0%	0 1.1%	2 4%	3 .5%	568 100.0 %

X2= 5.693 E2a P-value =0.000 DF=8

The table above reveals a significant association between perceived available health providers and medication use. Result showed that 513 (94.3%) of perceived private health providers to be the most available and this influences the use of traditional medicine.

Table 4.18: Chi-square distribution showing association between major means of transports and medication

Means of Transport	Medication use					
	Traditional	Modern	Alternative	Faith	I don't	Total

			medicine	healer	know	
Motor vehicle	26	0	0	0	0	26
	100.0%	0%	0%	0%	0%	100.0%
Motor cycle (Okada)	506	21	0	0	0	527
	96.0%	4.0%	0%	0%	0%	100.0%
Canoe	0	2	6	3	3	13
	0%	15.4%	46.2%	15.4%	23.1%	100.0%
Total	534	23	6	2	3	568
	94.0%	4.0%	1.1%	.4%	5%	100.0%

X2= 4.874 E2a P-value =0.000 DF

Results from the table above indicate that the major means of transportation in the area is motorcycle. It showed that 506 (6.0%) of them use traditional medicine as a pathway for treatment for stroke. There is a strong influence of the means of transport on medication use, a show by the P-value of 0.000.

Table 4 Chi-square distribution showing association between perceived distance to care and medication use

Distance to Care	Medication use					
	Traditional	Modern	Alternative medicine	Faith healer	I don't know	Total
Below 5km	4	0	0	0	0	4
	100.0%	0%	0%	0%	0%	100.0%
5-9km	174	0	0	0	0	174
	96.0%	0%	0%	0%	0%	100.0%
10km and above	356	25	2	2	3	390
	91.3%	5.9%	.5%	.5%	.6%ss	100.0%
Total	534	23	2	2	3	568
	94.0%	4.0%	4.0%	.4%	5%	100.0%

X2= 16. 506aP-value =0.036 DF=8

Result from the table above show a slight association between distance to care and medication use. The P-value of 0.036 shows a not too significant influence it showed that 4 (100%) of respondent who perceive below 5km to be distance to care use traditional medicine. it also found that 174 (100%) of the respondents travel 5-9km to care and also use indigenous medicine foe treatment. Result further found, that 536 (91.3%), out of 390 (100%) who travel 10km and above, also use indigenous medicine for healing.

Table 5: Chi-square distribution showing association between perceived waiting time for treatment and medication use

Waiting Time	Medication use					
	Traditional	Modern	Alternative medicine	Faith healer	I don't know	Total
Below 1 hour	16	0	0	0	0	16
	100.0%	0%	0%	0%	0%	100.0%
1-2 hours	19	0	0	0	0	19
	100.0%	0%	0%	0%	0%	100.0%
2hours and above	399	23	6	2	3	433
	92.1%	5.3%	1.4%	.5%	.7%	100.0%
Total	534	23	6	2	3	568
	94.0%	4.0%	1.1%	.4%	.5%	100.0%

X2= 11. 275a P-value =0.187 DF=8

Table 6: Regression showing influence of access to medication on medication use

Access to medication	High utilization	Preference for modern medication
Which health providers are available in this community		
Private	1.000	1.000
Public	14.482	0.751
How far are medical facilities for stroke patients in your community		
Below 11km-20km	1.000	1.000
21km and above	0.218	0.505
How is service cost of these medication like?		
more than 5%	1.000	1.000
less than 5%	56.452	3.722
Intercept	0.192	0.005
Diagnostics		
χ^2	*448.416*	*117.228(0.000)*
-2log Likelihood	*(0.000)*	*63.763*
Pseudo R^2	*248.100*	*0.688*
Correct classification	*0.786*	*98.0%*
	89.9%	

Result from the table above showed that there is significant association between waiting time for medication and medication use. The P-value of 0.187 which is greater than the 0.05 level of significance shows that there is no positive association between waiting time and medication use.

4. Discussion of Findings

Findings from the study showed that access to modern health services in the area was inadequate. The difficult terrain in some areas notwithstanding, many of the villages still lack basic health facilities, more so when it has to do with treatment for terminal illnesses like stroke. Findings reported that, the majority (99.2%) of the respondents indicated to have used motorcycle as a means of transport. This situation resulted to avoidable delays in getting to treatment facilities in emergency cases like stroke. Findings further revealed that 91.5% of respondents travel on bad roads and hence had low access. Respondents (0.6%) travel less than 5km to consume health facilities. This shows very low accessibility when distance is considered These and other related factors influenced the use of indigenous medicines which were easily available around the villages. The finding is in agreement with that of Good (1987) who reported that rural stroke patient will readily prefer indigenous medicine due to distance to modern treatment. The findings of Read (1996) accentuated this position when he identified poor conditions of the road as impediments to medication use. The conditions of the roads in the communities could act as obstacles to movement to hospitals. This can discourage patients and influence their use of indigenous treatment, which is easier to reach. Further findings supported this assertion when Ogun, Ojini, Ogagbo, Kolapo, and Danesi (2009) reported that most of the deaths and disabilities from stroke recorded in the Ogun State University Teaching Hospital, took place in the emergency unit. Investigations revealed that most of the patients lived in rural villages.

In a related study by Bohland (2008), it was reported that the unavailability of medical facilities in villages has to do with the uneven spread of health services between towns and villages. This finding is supported by the work of Adedayo and Yusuf (2012) who in a study on deprivation due to spatial distribution of villages in Borno State based on access to medical services. In the work, physical access comprising distance and time, and socio-economic access, comprising affordability of services, were used to determine health deprivation. The outcome of the research showed that 17.0% of the respondents found themselves within less than 30 minutes' movement to health services, and this happened to be the closest physical distance to a treatment center. About 34% of the villagers travel up to an hour to get to the general hospital. Investigation show that was 30.6% the people travel with a vehicle or motorcycle for up to 90 minutes to for treatment, and 17.5% of them take about two hours to reach the hospital. In the said Borno, it was observed that the spatial distribution showed that, Damboa, Konduga, Monguno and Hawul LGAs had settlement with short distances. Further investigation also showed that most of the villagers stay about 60 minutes on the road before receiving medical attention in the whole of the study communities. Using distance, villages in Bama, Kujawa, and Mobbar enjoy limited access to medication. Aside distance, it was also observed that the poverty in rural areas constituted obstacles to medication use.

The study further revealed that, only 48.1% of the respondents were within 400 meters walking radius to the nearest clinic/dispensary being the primary health facilities at the local level while about 51.9% were beyond 400 meters' radius. In all, about 65.26% of the respondents suffer deprivation because of the inability to patronize the facilities when the situation demands. This was considered a great barrier to medication use among the people especially when other factors such as the overall burden of poor health conditions on income-earning, household maintenance, social stability and involvement in communal activities are taken into consideration.

Modern health facilities in the study area were not evenly distributed. The multinomial logit regression was used to determine the factors influencing level of medication use. The results showed that household size, distance and total cost of seeking healthcare influenced the utilization of government and private hospitals, while the total cost of seeking healthcare and the nature of access route informed the use of traditional care. Findings further revealed that there is unequal access to modern health care facilities in the study area. Results also indicated that the patient ratio per health personnel, determined the pressure of work on the personnel and their job performance. The waiting time for medication was influenced by a number of patients' health personnel needed to attend to, which significantly influenced medication use. This result showed a direct relationship between the average number of patients per a health personnel and medication use. The policy implication that arose from this study suggests that distance to health facilities and the total cost of seeking healthcare need to be reduced to enhance access to improved health services by various socio-economic groups in the area, which can equally be applied to stroke patients.

5. Conclusion

Findings amongst others have revealed that a good number of rural stroke patients in rural communities in Cross River State have low medication use. Different reasons were identified for this. It was also revealed that the propensity to use, the level of utilization and perceived pathways to treatment were different for different stroke patients. The implication of this is that accessibility is not a guarantee for utilization. This finding from Cross River, mirror the situations of rural stroke patients in Nigeria on medication use, which are not likely to be different from what obtains in most developing countries of the world.

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