VOLUME: 11 ISSUE: 1 JANUARY, 2026 Review Article

INTERNATIONAL JOURNAL OF ARTS, HISTORY AND CULTURAL STUDIES

Socioeconomic Characteristics and Medication use among Stroke Patients in Rural Cross River State, Nigeria

Nnanna Emmanuel Patrick PhD*
*Department of Sociology, University of Ibadan, Oyo State, Nigeria.
nnannapatrick7@gmail.com

Abstract

This study is designed to investigate socioeconomic factors such as percentage of income spent and the perceived cost of medication that influence Medication Use among stroke patients in rural communities of Cross River State, Nigeria. The Predisposing-Enabling-Need theory provided the framework. Purposive sampling was used to select Ikom, Etung, and Abi Local Government Areas (LGAs) due to their marked similarities 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 from each village 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. A significant positive relationship existed between socioeconomic status of respondents and medication use (χ^2 =120). Most of the respondents (92.6%) spent much of their meagre incomes on stroke treatment. Medication use was significantly associated with artisans (OR=0.433), and income level (OR=0.433), Traditional medicine was perceived as less expensive but more effective and largely accounted for adherence to prescriptions among the stroke patients. High cost of modern treatment influenced use of traditional medicine for treatment of stroke in the study area. 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.

INTRODUCTION

Background to the Study

As a significant medical, economic, and social problem, the incidence of stroke is increasing globally and perceived as a very significant cause of mortality and chronic 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 consequences of this interruption in the free movement of blood, is the starvation 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). Stroke was thought not to be 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 transition (Ogunrin, 2015).

Both episodes and genetic stroke has severally been reported from the second millennium BCE going forward in ancient Mesopotamia, and even Persia. The first scholar to describe the disease was Hippocrates (460-370 BCE), when he explained it as sudden paralysis that is often associated

with ischemia. It was in his writing that apoplexy, a Greek word meaning "struck down with violence" first appeared. The word "stroke" was considered to have the same meaning with apoplectic seizure as far back as 1959, and is literally translated to mean the same thing with the Greek word. However, this term, "apoplectic stroke" is an out dated non-specific word for cerebrovascular accident which is associated with haemorrhagic stroke (Wikipedia, 2021).

Use of medication is of critical importance, more so in limited resources areas, and in most settings that are difficult to reach. It is important to note that, the fight against stroke can no longer be restricted to the provision of medications for treatment and prevention only, but also the improvement of utilization of available medication. While access to treatment is important, utilization has become of greater concern for those who suffer the ailment. That a particular treatment will be useful depend on the proper and consistent use of the available treatment regimen. Improper use of treatment regimens threatens the wellbeing of the individual and society. Not following treatment is dangerous with the risk of drug resistance, relapse, long term disability, and early death.

The focus on rural communities of Cross River State is based on the fact that the demography of the people has received very little attention, especially as it has to do with the relationship between socioeconomic issues and medication use for rural stroke patients at the level of the family. The state has majority of the population living in rural areas with farming as their major occupation, and classified in studies among areas of high prevalence of stroke cases.

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). These propositions consider 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.

This framework has been condemned for failing to separate the variables that must be used in the application of the various factors. The decision on the appropriate way to apply them is envisaged from the theoretical application of the dependent and independent variables. It is for this reason choosing variables within the fundamental structure of predisposing, enabling, and need factors, has much to do with the investigator.

In spite of these shortcomings, the usefulness of Anderson's framework lies in its simplicity concerning to making decisions on independent variables tied to their specific assumptions. The application of the theory to examine separate outcomes in later life, all through the utilization of healthcare (Wolinsky & Johnson, 1991), formal care (Bass & Noelker, 1987) and care (Gauler & Kane, 2001), establishes its usefulness in investigating health-seeking behaviour. The theory has proven to be important in predicting treatment options since it was founded years ago (Philips, et al., 1998).

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.

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)

Table 4.2: Socio-economic characteristics of respondents

VARIABLE	FREQUENCY	PERCENTAGE %
Occupation		
Farming/Hunting	376	66.2
Trading	104	18.3
Civil Servant	41	7.2
Medical Personal	12	2.1
Local Transport	35	6.2
Total	568	100
Income		
Below 5,000	46	8.1
5,001-10,000	282	49.6
10,001-15,000	133	23.4
15,001-20,000	34	6
20,001-25,000	24	4.2
25,001above	49	5.4
Total	568	100

Source; Field Work, 2018

Table 4.2 shows that only 7.2 percent of the respondents are civil servants. Respondents are however marginally separated along occupational lines, as data have shown. Observations around the communities revealed that movements across occupations are allowed in the same period. In rural Cross River, most people that are engaged in farming, and fishing like the Northern Etung people of the Etung Local Government Area who are mostly riverside people sometimes involved in small trading, also engage in other unskilled work, hence, one can say there is the interchanging of roles/occupations. A female participant in an FGD noted:

*We cannot rely on one form of occupation because of the conditions of the time. We are farmers no doubt, but we need to present some of our products to the market for sale and also run some small provision stores in the community to be able to survive (FGD/female/60/Etomi).

Similarly, another female participant in the same discussion segment noted that:

*I am a civil servant. I teach in the community primary school. My take-home is not enough. I have to involve myself in farming and sometimes, petty trading to be able to meet up with the market situation (FGD/female/62/Etomi).

Table 4.2 also indicated that the average monthly income for the majority of the respondent is betweenN5000 - 10000. A total of 49. 5 percent of the respondents fall within this category. This drop in income level is not unconnected with the fall in the price of cocoa in the years 2015 and 2016, coupled with the flood which ravaged most of the riverside communities in Nigeria within the same period that culminated in the damage of crops in the areas such as yam, cassava, rice, and fish ponds. Although this amount is more than a dollar per day, which places the people well above the national average, the income level is low, relative to the cost of living in the area. The implication of this income is evident. On the one hand, meeting health needs especially for serious illnesses like stroke becomes a serious problem. On the other hand, the delays associated with not raising finances on time contribute to complications due to delay in presentation. The implication of the low income is further expressed in the level of education children can attain. Worse still, just like a female member of an FGD session noted that the low income available at their disposal has made it difficult for them to pay for health services even when they are willing to do so. This is because illnesses such as stroke require a longer period of medication in which both the patient and other family members may not be able to attend to their farms and other businesses within the period of medication.

Table 4.8: Chi-square distribution showing association between average monthly income of respondent and medication use

	Use of medication					
	I don't know	Faith healer	Alternative	Modern	Traditional	Total
Below N5,000	0	0	0	0	46	46
	.0%	.0%	.0%	.0%	100.0%	100.0%
N5.0001-N10,000	0	0	0	0	282	282
	.0%	.0%	.0%	.0%	100.0%	100.0%
N10,001-N15,000	0	0	0	0	133	133
	.0%	.0%	.0%	.0%	100.0%	100.0%
N15,001-N20,000	0	0	0	0	34	34
	.0%	.0%	.0%	.0%	100.0%	100.0%
N20,001-25,000	0	0	0	0	24	24
	.0%	.0%	.0%	.0%	100.0%	100.0%
N25,001 and above	3	2	6	23	15	47
	6.1%	4.1%	12.2%	46.9%	30.6%	100.0%
Total	3	2	6	23	534	568
	5%	4%	1.1%	4.0%	94.0%	100.0%

X2 = 3.8312 P – value 0.000

Table 4.21: Patient's socioeconomic status and Medication use

		FREQUENCY	PERCENTAGE
Percentage of income spent on medication	below 5%	42	7.4
	5%-10%	26	4.6
	11% above	500	88
	TOTAL	568	100

Cost of medication	High	502	88.9
	Moderate	39	6.9
	Low	27	4.8
	TOTAL	568	100

Source; Fieldwork, 2015

According to WHO (2020), not more than 5 percent of individual's or household's income is supposed to be spent on health. Any attempt to spend more than 5 percent of one's income on health signifies a sort of deprivation to health care services (Philips, 1997). Thus, an individual or household spending less than 5 percent enjoyed high accessibility to health. The other two clusters – moderate accessibility and low accessibility were relatively determined using the 5 percent as base-line data. The result as presented in table 24 shows those 9 respondents (1.8%) spent less than 5% of their income on the treatment of stroke. This indicates high accessibility. However, 11 respondents (2.2%) enjoyed moderate accessibility while 474 respondents (93.7%) enjoyed low accessibility.

Overall, 95.9% of the respondents spent over 5% of their income on the treatment of stroke. This implies deprivation of easy access for sick people in the study area which brings to question the free-health program of the Cross River State government.

Survey around the communities shows that often, drugs are not available in the government health institutions and some facilities for the conduct of medical examinations are either not available or not functioning given that stroke required special examinations like use of a computer tomography which uses X-rays to obtain images of the inner structures of the body to determine the type of stroke in question (whether ischemic or hemorrhagic), which is not readily available in rural hospitals. Patients are, therefore; constrained to make a purchase of drugs and conduct medical tests and examination outside the government-owned hospitals. The government-owned health institutions located in the study area are worst affected by these inadequacies. Observations further shows that the frustrations on the part of stroke patients and their families as a result of the inadequacies often forced them to patronize private health institutions (which are mostly dominated by quacks) and patent medicine store operators for respondents who perceive the disease to be caused by risk factors, whereas a greater percentage of the respondent opted for unorthodox options for treatment. A member of a discussion segment in Nsofang observed that:

*There are so many problems associated with the treatment of stroke in this area. You have to spend all your money and even go to the extent of borrowing before you can get treatment. You cannot get proper attention in government health institutions which will force you to begin to look elsewhere for treatment. They do not have facilities to even conduct proper tests; they do not have qualified staff that knows much about stroke, which causes us to travel as far as Ikom to conduct an examination. Giving that we are riverside people, the cost of transporting both the patient and other family members is very high. Sometimes we end up mortgaging our farms and property since our meagre income is not enough to cater to the treatment (FGD/male/39/Nsofang).

Besides, all patients, including their relatives are to pay for transport fare to and fro the health institutions. All these constitute the medical cost which cumulatively costs more than 5 percent of the households or individual's income. Thus, 95.9% of the respondents spent more than 5% of their monthly income on treatment for stroke, which indicates very low accessibility.

There is a strong relationship between use of medication and the purchasing power or an effective demand. This is largely dependent on finance (Wagstaff, 2016). When a portion of a person’s income used for treatment rises, all things being equal, healthcare utilization for stroke patients in the rural areas falls. Even with the existence of free treatment in the villages, there is still need for some expenditure on some necessary preliminaries like transportation costs, medical screenings, and tests paying for some drugs that may be lacking in public health facilities. All things factored together form the portion of a person’s income used for treatment of stroke cases.

Table 4.22: Chi-square distribution showing association between percentage of one income spent on stroke and medication use

Percentage of income spent on stroke medication	Medication use Traditional	Modern	Alternative medicine	Faith healer	I don't know	Total
Below 5%	42	0	0	0	0	42
	100.0%	0%	0%	0%	0%	100.0%
5-10%	26	0	0	0	0	26
	100.0%	0%	0%	0%	0%	100.0%
10 and above	466	23	6	2	3	500
	93.2%	4.6%	1.2%	.4%	.6%	100.0%
Total	534	23	6	2	3	568
	94.0%	4.0%	1.1%	.4%	.5%	100.0%

X2= 4.918a p-value =0.000 DF=8

Result from the table above shows a very strong influence of percentage of income spent on medication, and use of medication for strong patients. It indicated that the majority (93.2%) of the respondents, who spent more than 10% of their income on medication, used traditional medicine as a pathway to treatment.

Table 4.23: Chi-square distribution showing association between perceived cost of treatment and medication use

Perceived Cost	Medication use Traditional	Modern	Alternative medicine	Faith healer	I don't know	Total
High	502	0	0	0	0	42
	100.0%	0%	0%	0%	0%	100.0%
Moderate	32	7	0	0	0	26
	83.1%	17.9%	0%	0%	0%	100.0%
Low	0	16	6	2	3	500
	0%	59.3%	1.2%	.4%	.6%	100.0%
Total	534	29	6	2	3	563
	94.0%	4.0%	1.1%	.4%	.5%	100.0%

X2= 4.905 E2a P-value =0.000 DF=8

There is a strong association between the perceived cost of treatment and medication use. The P-value of 0.000 indicates a very strong influence. Respondents (100%) who perceive the cost to be high used traditional medicine as a pathway to treatment.

Table 4.24: Regression showing influence of socioeconomic characteristics on medication use

	High utilization	Preference for modern medication
SOCIO – ECONOMIC STATUS		
What is your occupation?		
Farming and hunting	1.000	1.000
Trading	3.146	5.972
Artisan/okada/driver	43.372	19.566
Civil servant/ professional	2.722	2.719
What is your average monthly income?		
Below 5000-10000	1.000	1.000
100001-20000	0.680	3.340
20001-35000	39.733	8.377
35,001 and above	0.512	5.098

Intercept		
Diagnostics		
$\chi 2$	448.416 (0.000)	117.228(0.000)
-2log Likelihood	248.100	63.763
Pseudo R2	0.786	0.688
Correct classification	89.9%	98.0%

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.

DISCUSSION OF FINDINGS

Socio-economic factors were found to have a significant influence on medication use for stroke patients in the study area. Respondents spent more than 5% of their income on treatment. This finding is consistent with findings from other Nigerian communities which showed that the majority of rural dwellers still spend more than 5% of their meagre resources on chronic illnesses. This has influenced their decision to use traditional medicine.

A study by Etobe (2008) found that certain socio-economic variables like youthfulness, unemployment and underemployment, poverty, and large family sizes are predictors of poor medication use. This study is significant in the sense that it raises a lot of questions as to how socioeconomic characteristics of individuals will progressively determine their medication use upon noticing symptoms of a stroke. In that study, men with low socio-economic status where found to have greater barriers to medication use than those with high socio-economic status. Similarly, Hughes (1990), in a review of barriers to medication use noted that personal and social factors including poverty, social marginalization, large family sizes, etc., are serious impediments to proper medication. He further asserted that the size of a family can positively or negatively affect the utilization of medical services for individual members of the family. A large family size, other factors remaining constant, can put pressure on the economy of the family and thus influence medication use for stroke patients. But Hetzel (1998) was of the view that all individuals sharing the same demographic characteristics may not face the same barriers to medication use. Bodenheim (2007) noted that personal health is the foundation of social life. Yet, capitalist societies make health a commodity, so that health follows wealth. This is more evident in third world societies with absence of a comprehensive health system. Capitalism may provide excellent health care for the rich; it simply does not provide it very well for the rest of the population. Medication in these societies is subject to market forces, that is, for those individuals who has the ability to pay for services.

According to Otuaga, Oni, Eweka, Prefa (2009) in their study of the incidence of stroke in Bayelsa State, Nigeria, it was found that, high cost of living which make life difficult for peasant farmers, lowly paid civil servants and housewives who mainly dwell in rural communities of the state has a strong influence on medication use for stroke patients. The study found that the resources at their disposal were significant for choice of treatment.

In a cross-sectional study by Yusuf (2008) on the factors that influence the use of Primary Health Care (PHC) services in Barkin Ladi, a suburb in the Plateau state of Nigeria, data collection involved studying 360 mothers of five years of age. Structured questionnaire was distributed to respondents of which 99.2%, were returned. Results from the analysis revealed that non-attendance to facilities was due to high cost of drugs, increased service charge, uneasy access and proximity to traditional treatment, and long waiting time at the health facility. However, the result indicated that the unfriendly attitude of medical practitioners and long waiting in the facilities did not significantly influence non-attendance. This study can be applied to stroke patients in rural Cross River since the factors that cause non-attendance for primary health care can also be the same for patients who notice symptoms of stroke in the study area.

Similarly, Chukuani, Olugboji, and Ugbene (1980) noted that the Bamako Initiative (BI) was introduced to increase access to important drugs for the people who are most susceptible in the

society to improve health outcomes. However, for about 20 years after initiation, the results and or effects on the health indicators of many African countries implementing the program, remain varied, without any substantial improvement in health status is the situation in most of countries (WHO/UNICEF, 1980). This study is important in the sense that utilization depends to a great extent on availability to health care.

The study also revealed that medical services are not free and sampled rural households paid between N500-N2000 to obtain services. It was found that 39.7 of the respondents claimed to pay between N600 to N1000 to obtain services for mild health problems like fever, cough, stomach ailments, while about 30.5% of the respondents usually spend over N1000.00. Generally, these are minor health issues according to Adedayo and Yusuf (2012) because, surgery and chronic health cases like stroke, heart attack and hypertension that require referrals to general hospitals cost more. According to the majority of the respondents studied they usually spend over N20, 000 for such serious medical cases.

Some participants in the focus group sessions in the communities under review attributed poor medication use for stroke cases to their poor economic situations. They explained how poor nutrition makes them vulnerable to the disease in the first place, and how bad eating habits and inappropriate foods led to eating those classes of food that are risk factors for stroke. The majority of them identified eating good food as a preventive measure for stroke.

CONCLUSION

Findings amongst others revealed that the majority of stroke patients in rural communities in Cross River State have low medication use. Findings also showed 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 is consistent with several findings in rural Nigeria on medication use, which are not likely to be different from what obtains in most developing countries of the world. The study found a significant association between income level of respondent and their perception cost of treatment.

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