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Epilepsy Care in Nigeria: Factors Influencing Default

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ABSTRACT

Introduction: Epilepsy is a common cause of neurologic disability in developing countries where very few patients with the condition have organized regular follow up. This study was conducted to identify factors influencing default of adult epileptic patients in Ibadan.

Methodology: This is a prospective study of subjects with epilepsy seen at the out-patient neurology clinic, University College Hospital, Ibadan Nigeria. A total of 147 patients with epilepsy were recruited consecutively. A structured questionnaire for obtaining information on their demographic characteristics, cost of transportation, estimated distance to the clinic, monthly clinic attendance and seizure frequency was initially applied to each patient who was assigned to be seen monthly for the next six months. Those that defaulted from any subsequent visit were identified and the questionnaire was applied to obtain the reason for default from them.

Results: Male gender (p=0.0001), estimated distance (p=0.010), cost of transportation (p=0.013) and age below 40 years (p = 0.01) were identified to have influence on clinic default. But gender is the only significant predictors on clinic default at the multivariate analysis level.

Conclusions: Creating more advocacy visits on dangers of clinic default, subsidising transportation and decentralising epilepsy care may improve clinic attendance and seizure control.

Key words: Epilepsy-Care-Nigeria-Default.

INTRODUCTION

Epilepsy is a common neurological disease and a major cause of mortality world-wide. It affects an estimated 0.5% of the world`s population[1] and about 40 million of them live in developing countries. Traditional beliefs have influenced public attitude to epileptic patients resulting in some of them being ostracised, stigmatised and misunderstood[2]. Ultimately, epilepsy care in developing countries falls below expectations[2].

In these countries, epilepsy is widely under- recognised and underreported because of beliefs that the condition is caused by evil spirits, or a witch's curse[2]. Epilepsy is also often seen as an infectious disease that is transmissible by contact with the patient's saliva [3].

As a result of these factors, 80-90% of people with active epilepsy in developing countries do not receive adequate antiepileptic drugs[4]. Instead treatment with traditional medicine is often practiced. This practice is also influenced by the advice of relatives and neighbours[5]. However in South Asian communities, traditional medicine is used as an adjuvant to orthodox medicine rather than as substitute[6]. Thus, when some of these patients were in-

troduced to orthodox therapy, they continued to utilize traditional medicine, thus their clinic attendance was observed to be poor[7].

Patients with epilepsy in primary care are treated if they attend clinic. They are also counselled on drug and clinic compliance, but are commonly not followed up if they fail to attend[8,] since there are no established home visitation programs. Some studies showed that few epileptics had organised regular follow up[9] and that many patients with severe epilepsy had received no primary care consultations in the previous year[10]. The reasons for clinic default are not known in most developing countries. This study is aimed at elucidating the major factors influencing clinic default of adult patients with epilepsy in a tertiary hospital in Nigeria, a developing country.

SUBJECTS AND METHODS

We conducted a prospective study of adult (>16 years) patients with epilepsy seen at the neurology clinic of the University College Hospital Ibadan, Nigeria. Epilepsy was defined operationally as two or more non-febrile seizures unrelated to acute metabolic disorders, alcohol or drugs withdrawal. Details of the seizures were obtained from the patients and an eye witness (usually the spouse or any other family member). Eligible subjects were enrolled consecutively from May 2008 to March 2009. We excluded: - patients with inconclusive diagnosis or who did not give consent.

We regarded those who missed any of their monthly clinic appointment as defaulters. Poor compliance was measured as a discrete but continuous period of drug abstinence or failure to take prescribed dosage appropriately[14]. We did not use pill counting method as drugs were not supplied by us. There was no facility to determine serum drug levels.

We recruited 150 patients out of which 3 dropped out of the study. The minimum sample size of this study was determined by using formula

$$N = [Z^2 PQ/D^2]$$[11]

where **N** is the desired sample size; **Z is** standard normal deviate, usually set at 1.96 (or more simply at 2), this corresponds to the 95% confidence level; **P** is the proportion in the target population estimated to have a particular characteristics (here p=0.08 as the prevalence of epilepsy in Nigeria was 80/1000 (8.0%) from Lagos Community[12]); **Q** is 1-P = 0.920; and **D** is Degree of accuracy desired, usually set at 0.05. The calculated sample size was 118.

Ethical clearance was obtained from University of Ibadan/University College Hospital Ibadan Ethical Committee.

Study Protocol: At the end of each enrolment, the patient was assigned to be seen monthly for the subsequent six months. Data was collected using a questionnaire which included: - demographic data, cost of transportation, estimated distance from the clinic and monthly drug compliance and clinic attendance were obtained from each patient. The second part of the questionnaire was structured to find out the reasons for clinic default from those patients who defaulted.

Responses were obtained by direct questioning of the patients with epilepsy and/ or their parents/relatives. The motive of the questioning was clearly explained to the patients and local languages were used sometimes through an interpreter for those who did not understand English language. Each interview took approximately 10-20 minutes and any unclear responses were cross-checked carefully. The reasons for default were established from their subsequent visits and each subject was allowed to give only one most important reason for default. At the end of six months follow up, 14 patients were lost to follow up.

These patients/relatives were contacted through telephone and invited for follow up. They were informed that continued participation was voluntary and refusal to participate would in no way affect their health-care.

Nine patients were able to turn up on two separate clinics and the reasons for default were subsequently obtained. Out of the remaining five, two patients were traced to their homes. The remaining three were not included in the data analysis; - one patient had moved to an unspecified area within Ibadan, the second patient had an incorrect address and the third patient lived outside Ibadan.

Statistical analysis : Analysis was conducted using statistical package for social sciences (SPSS) version 16.0.1. Categorical data were summarised as frequencies and percentages. Continuous data were described as mean-value (standard deviation). Association was tested using the chi-square test and by calculating the odds ratio with 95% confidence interval. A p-value less than 0.05 was considered statistically significant. Logistic regression (multivariate analysis) was applied in finding out the significant independent predictors predicting default.

RESULTS

Characteristics of the study subjects

The 147 subjects studied comprised 79 male (53.7%) and 68 female patients (46.3%) with a male to female ratio of 1.2: 1. Their ages ranged between 16-88 years with a mean of 33.41(16.21) years.

Table 1: Socio-Demographic Information on Epileptic Patients

Socio-demographic Information	Cases(n=147)*(%)
Age (Years)	
Mean	33.41(16.21)
Range	16-88
Mean age of male	35.49(17.24)
Range for male	17-88
Mean age of female	30.99(14.70)
Range for female	16-72
Age Group	
< 20	33(22.4)
20-39	68(46.3)
40-59	31(21.1)
60-79	14(9.5)
>80	1(0.7)
Sex	
Male	79(53.7)
Female	68(46.3)
Educational status	
Poorly Educated (No Formal, primary, secondary)	112(76.2)
Tertiary	35(23.8)
Occupation	
Students	53(36.0)
Apprentice	32(21.8)
Traders	25(17.0)
Civil servants	15(10.2)
Farmers	8(5.4)
Self-employed	8(5.4)
House-wife	3(2.1)
Others	3(2.1)
Residence	
Urban	120(81.6)
Rural	27(18.4)

Table2. Reasons given that were responsible for default (n=100)

Reasons	Responses (% of total)
Cost of transportation to the clinic	22 (22)
Long journey to the clinic	16 (16)
Long clinic hours	12 (12)
Forgetfulness of clinic appointment	12 (12)
Frequent appointments per year	12 (12)
I was busy at school	8 (8)
I was busy at work place	8 (8)
Feeling of well being	5 (5)
Advice from relatives to stop coming to the clinic	2 (2)
Felt it could be cured by alternative means	2 (2)
Unfriendly attitudes of medical staffs	1 (1)

Majority of the patients were young adults below forty years of age. Twenty-eight patients (19.0%) completed primary school education, 80 (54.4%) completed secondary school, 35 (23.8%) patients completed tertiary education while four of them had no formal education. One hundred and twenty patients (81.6%) were resident in urban setting and

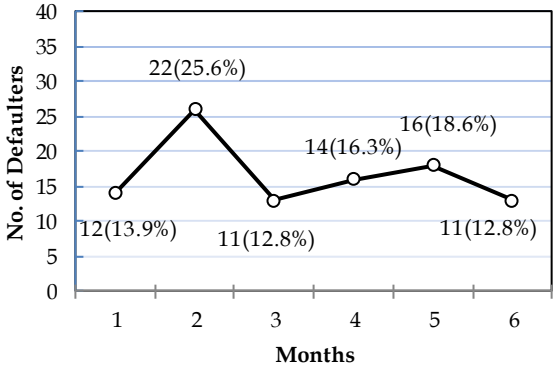

Fig1. Pattern of clinic default

the rest came from nearby rural communities. Most of the subjects (63.2%) belonged to the low-income group. Unemployed school children (students) predominated and accounted for 36.7 % (table 1).

Pattern of monthly clinic default

Eighty-six patients (58.5%) defaulted within the period. The total number of missed clinic appointment by patients were 100.This comprised seventy-four patients (86.1 %) who missed one clinic appointment during the six months follow up, ten patients(11.6%) missed two appointments while two patients(2.3%) missed three appointments each.

The pattern of monthly clinic default by patients is shown (Figure 1).

Reasons for Default

The cost of transportation (22.0%), long journey to the clinic (16.0%) and long clinic hours were the major reasons for defaulting (Table 2).

Socio-Demographic profile with clinic default

Sixty-six (65.3%) patients whose ages were less than 40 years defaulted clinic attendance compared to 35 (34.7%) patients above the age of 40. The association between the age of the patients and clinic default was statistically significant (OR = 2.45, 95%CI =0.19-0.89) (table 3).

Sixty-seven (84.8%) male patients defaulted clinic attendance compared to 19 (27.9%) female patients. The association between sex of patient and clinic default was statistically significant (OR = 14.40, 95%CI = 0.03-0.17) (table 3).

Sixty nine (61.6%) patients with poor educational status defaulted clinic attendance compared with 17 (48.6%) patients with tertiary educational status. The association between educational status and clinic default was not statistically significant (OR = 1.70, 95%CI = 0.27-1.28) (table 3).

Forty (47.1%) patients who reside less than 10 kilometers from the clinic defaulted clinic attendance

compared to 46 (74.2%) who reside more than 10 kilometers from the clinic. The association between distance from clinic and clinic default was statistically significant (OR = 0.39, 95%CI = 1.22-5.59)(table 3).

Fifty seven (52.3%) patients who spent less than ₦200 to transport themselves to the clinic defaulted clinic attendance compared to 29 (76.3%) who spent more than ₦200 to reach the clinic. The association between cost of transport and clinic default was statistically significant (OR = 0.34, 95%CI = 1.20-7.69) (table 3).

Fifty three (56.9%) patients with low level of income defaulted clinic attendance compared with 4 (50.0%) patients with high level of income. The association between income of patients and clinic default was not statistically significant (OR = 0.72, 95%CI = 0.35-5.46)(table 3).

Socio-Demographic characteristics as a predictor of clinic default

The only significant predictor to clinic default from the logistic regression model was the gender of the patient. Male sex was likely to default clinic with an odds of 50.736 ($p < 0.0001$),(table 4).

Table 3: Clinic default by age group, sex, educational status, estimated distance, cost of transportation and income of patients

Variables	Default status (%) (n = 147)		Chi-square	p value	Odds ratio (unadjusted)	95% CI
	Yes	No				
Age group (years)						
< 40	66 (65.3)	35 (34.7)	6.072	0.018	2.45	(0.19 – 0.89)
>40	20 (43.5)	26 (56.5)			1	
Sex						
Male	67 (84.8)	12 (15.2)	48.683	<0.0001	14.40	(0.03 – 0.17)
Female	19 (27.9)	49 (72.1)			1	
Educational status						
Poorly educated	69 (61.6)	43 (38.4)	1.876	0.283	1.70	(0.27 – 1.28)
Tertiary educated	17 (48.6)	18 (51.4)			1	
Estimated distance (Km)						
< 10	40 (47.1)	45 (52.9)	7.236	0.010	0.39	(1.22 – 5.59)
>10	46 (74.2)	16 (25.8)			1	
Cost of transportation (₦)						
< 200	57 (52.3)	52 (47.7)	6.698	0.013	0.34	(1.20 – 7.69)
>200	29 (76.3)	9 (23.7)			1	
Income						
Low	53 (56.9)	40 (43.1)	0.453	0.828	0.72	(0.35 – 5.46)
Medium	29 (63.0)	17 (37.0)			0.63	(0.37 – 6.70)
High	4 (50.0)	4 (50.0)			1	

Table 4: Predictors of defaulting status among epilepsy patients attending clinic

Variables	B (regression coefficient)	p value	Odds ratio	95% C.I. for Odds ratio	
				Lower	Upper
Age group (years)					
<40	1.844	0.178	6.324	0.432	92.592
>40			1		
Sex					
Male	3.927	<0.0001	50.736	9.251	278.267
Female			1		
Educational status					
Poorly educated	0.582	0.630	1.790	0.168	19.082
Tertiary educated			1		
Estimated distance (Km)					
<10	0.153	0.876	1.165	0.169	8.029
>10			1		
Income					
Low	-0.354	0.824	0.702	0.031	15.916
Medium	-0.624	0.536	0.536	0.074	3.858
High			1		

*Reference category, R^2 (coefficient of determination) = 38.8% to 52.2%

DISCUSSION

Epilepsy is a very common neurologic disease in the developing countries[1]. Information on the factors influencing default is thus necessary to ensure a holistic approach to the management of the affected individuals. This study showed that eighty-six patients (58.5%) defaulted from the clinic. This rate is similar to reports by Iyun[13], and Adamolekun[14], lower than the findings of Izuora[15], and higher than the rates found by Elechi[16].

These discrepancies may be explained by the different operational definitions of default, periods of study and study populations (whether hospital or community-based study). The major reasons for default were cost of transportation to the clinic (22.0%), long journey to the clinic (16.0%) and long clinic hours (12.2%). Elechi found a similar proportion (22.2%) of persons who defaulted due to cost of transportation. This is not surprising because, more than 50% of participants from our study earned below 25,000 naira (166.67 USD) per month with a modal monthly income of 5,000 naira. The mean cost of transportation per clinic was 205.78(215.77) naira (1.37 USD) and may be too high for many of them to afford on a regular basis.

Moreso, we observed that more patients defaulted when the cost of transportation exceeded 200 naira (76.3%) than when the cost was less than 200 naira (52.3%).

Incessant petrol shortages were also responsible for hike in the cost of transportation in our country during the period of study.

In Ethiopia[7], where rural health centers were run by nurses and health officers, epilepsy clinics were decentralized and nearer to patients` homes. Despite this, the most common reason given for default from follow-up was difficulty in travelling to the health Centre because of long journey. The mean time for a return journey was >10 h and it was not surprising that a proportion of patients were not prepared to make such a long journey regularly[7]. This is similar to the findings in this study with long journey to the clinic as the second most important reason for defaulting. This obviously will be difficult for many patients who may want to walk to the clinic. Those who travelled shorter distances (<10km) to the clinic attended the clinic more (52.9% vs. 47.1%) regularly.

In India long waiting periods was stated as the most common reason for not preferring the government health care facilities as patients stand in long queues for every service provided[17]. Availability of private health care facility at the door step might be one of the reasons for giving preference to it[17.] This may explain why long clinic hours is one the major reasons accounting for clinic default in our study. Though we experience almost a similar scenario in Nigeria, the general health seeking behaviour of our people needs to be studied to justify this claim.

The only significant predictor to clinic default was male sex. Also it is believed from previous studies that women have a better health seeking behaviours compare to men[18] .About two-thirds of defaulters were young adults (< 40 years). This may be due to commitments in school and at the workplace; - (farming, trading and apprenticeship). This group also constitutes the active working class for which the need to meet up with economic demands may also have contributed. An apprentice may not likely be allowed regularly to attend clinic by his trainer.

Conclusions: Male sex, age below 40 years, high cost of transportation and estimated distance to the clinic were significantly associated with poor clinic attendance in our environment.

The only predictor of default after controlling for confounders was male sex. Improved health education with structured regular wide spread care at the community level may reduce default from follow up. Epilepsy Nurse Specialists should be trained to do out lying clinics, also moving work place closer to the clinics could help. Furthermore, subsidizing transportation may improve clinic attendance.

These interventions need to be tested in future studies.

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