Non-attendance of treatment review visits among epileptic patients in a rural district, Zimbabwe

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Abstract

Epilepsy is the most common condition reported through the psychiatric returns surveillance system in Gokwe South District. Review visits attendance is crucial to the successful control of seizures among epilepsy patients. We sought out to establish the attendance pattern of epileptic patients, prevalence of non-attendance and the associated factors. An analytic cross-sectional study was conducted where consenting respondents (N=110) were selected randomly from the district epilepsy register. Interviewer-administered questionnaires were used to collect data. Odds ratios were calculated to determine associations. Logistic regression analysis was done to identify independent risk factors and to control for confounding variables. A total of 110 epileptic patients were included in the study. The patients missed treatment review visits ranging from 1 to 11 of the expected 12 visits between June 2011 and June 2012. Most (70.9%) missed at least 2 visits in a 12month period while 46.4% missed 2 or more consecutive visits. Knowledge of treatment duration [prevalence odds ratio (POR) 0.24 (95% confidence interval (CI) 0.08-0.74)] and high risk perception [POR 0.14 (95% CI: 0.06-0.33)] were associated with a lower likelihood of missing review visits. Barriers such as shortage of drugs [POR 7.09 (95% CI: 3.00-16.72)] and long distances to health facilities [POR 6.63 (95% CI: 2.63-16.76)] were associated with high likelihood of missing two or more review visits consecutively. Shortage of drugs [adjusted odds ratio (AOR) 6.7336 (95% CI: 1.8538-24.4581)] and higher risk perception [AOR 0.1948 (95% CI: 0.0625-0.6071)] remained significant on logistic regression analysis. A high number of epileptic patients miss their review visits mainly owing to shortage of drugs, and long distances from health facilities.

Introduction

Close to 10% of the world's population who live full length of their expected lifespan are expected to experience at least one epileptic seizure in their life.[1] The developing world bears the major burden of the condition[2] with studies carried out in Africa showing prevalence of up to 58 cases per 1000 people.[3] Epilepsy is the most prevalent neuropsychiatric condition in Zimbabwe contributing 56% of all conditions reported through the mental health surveillance system in 2004.[4]

While it has been noted that epileptic seizures could be controlled with medications in 70% of the patients,[2] effectiveness of these medications however, depends on adherence to the whole treatment process. Medication allows epileptic patients to have a better quality of life which is free of seizures. Evidence from Tanzania revealed that 52.4% of epileptic patients achieved complete seizure suppression, 36% had reduced frequency of seizures and only 7.9% experienced no change after 20 years of drug treatment.[5] In rural Mali, 80% out of 96 patients treated with Phenobarbital became seizure free within one year.[6] A study carried out in India revealed that poor adherence to prescribed medication is considered to be the main cause of unsuccessful drug treatment for epilepsy.[7] There is evidence which shows that non-adherence leads to increased frequency of seizures.[8] Non-adherent patients experience an increase in the number and severity of seizures, which leads to more ambulance rides, emergency department visits and hospitalizations.[9] Different levels of adherence to antiepileptic medication have been reported in Zimbabwe. A study in Harare, Zimbabwe revealed that drug compliance was around 67.4% for epileptic children attending a paediatric epilepsy clinic.[10]

Attendance of appointments has been identified as one indirect measure of adherence to antiepileptic medication and generally epileptic patients have been shown to miss more than half of their scheduled visits. A study from Uganda showed that epileptic patients missed more than half of their scheduled visits with 84.5% of epileptic patients missing at least one visit in a period of two years.[11] A follow-up study done in Taiwan showed that only 42% of epileptic patients could adhere to the scheduled appointments.[12]

Difficulties to travel to health centres is also a key hindrance to epilepsy review attendance among epileptic patients as found in a study carried out in rural Ethiopia.[13] Having well informed and involved community leaders is also important in ensuring epilepsy review attendance and reducing defaulting. Educating community leaders significantly increased review attendances of epileptic patients in Epworth, Zimbabwe.[14]

Materials and Methods

We employed an analytical cross-sectional survey in Gokwe South district where epileptic patients were drawn into the study and their review visits attendance pattern was ascertained at the same time with measurement of the determinants variables (predisposing, enabling, reinforcing factors, socio-demographic factors and condition-related factors).

The district epilepsy register constituted the sampling frame for the study. All patients on the register were allocated a number between 1 and 209. Microsoft excel Random function (=RAND()*n) was used to pick study participants randomly from the sampling frame where 'n' was the total number on the sampling frame. This sample size was calculated using the Dobson formula assuming that 15.5% of epileptic patients[11] did not miss any scheduled visit in the district in the previous 12 months.

A pretested interviewer-administered questionnaire was used to collect data and it was created based on the constructs of the conceptual framework (the Educational and ecological diagnosis of the PRECEDE-PROCEED model). The model is a logical planning model with 8 phases.[15] The Educational and Ecological assessment is Phase 3 of the PRE-CEDE-PROCEED Model. This helps planners to identify antecedent and reinforcing factors contributing to an identified and prioritized behaviour for intervention. The factors are divided into Predisposing factors, Enabling factors and Reinforcing factors.[15] Question-naires were designed in English and translated into the local Shona language and back translation was employed to preserve accuracy in the translation. Attendance was measured from patients' self-reports and verified by checking patients' treatment cards. Study participants were followed-up using addresses listed in the registers. Logistic regression analysis was performed to identify independent risk factors associated with non-attendance of review visits among epileptic patients and to control for confounding variables.

Ethical considerations

All participants gave written informed consent, and the study protocol was reviewed and approved by the Institutional Review Board at University of Zimbabwe College of Health Sciences and Parirenyatwa Hospital and the Medical Research Council of Zimbabwe. Parental consent and study participant assent was sought for all participants aged below 18 years.

Results

A total of 110 (67 males, 43 females) epileptic patients who were on epilepsy treatment for more than 12 months were interviewed. Participants had suffered from epilepsy for periods ranging from 1 year to 50 years and had a median period of 12 years (Q1=7 years; Q3=20 years). Their period on biomedical treatment ranged from 1 year to 40 years with a median period of 10.5 years (Q1=6 years; Q3=19 years). Respondents reported initially seeking treatment from a health facility (47.3%) while others (52.7%) consulted traditional and/or faith healers first. At the time of the study, seventy-five (68.2%) of the epileptic patients were receiving treatment from health facilities only, while 31.8% were also concurrently getting treatment from either traditional healers or faith healers.

Socio-demographic and condition-related variables

Females were more likely to miss two or more consecutive visits compared with their male counterparts [odds ratio (OR)=4.24 (95% confidence interval (CI): 1.87-9.59)]. Another significant factor was distance from the nearest clinic where shorter distances (0-5 km) showed a protective effect with a pooled OR (POR) of 0.31 (95% CI: 0.12-0.81). Epileptics who were on biomedical treatment for more than five years were more likely to miss two or more consecutive visits in a 12 months period compared with those who were on treatment for five years or less [POR=1.28 (95% CI: 0.51-3.19)]. Those who reported to have ever been burnt during an epileptic seizure were more likely to miss at least two consecutive treatment review visits compared with those who have never been burnt during an epileptic seizure [POR=1.59 (95% CI: 0.72-3.53)].

Bivariate analysis

Bivariate analysis was performed to determine factors that are associated with missing at least 2 visits consecutively. The factors were divided into predisposing factors, enabling factors and reinforcing factors.

Predisposing factors

Knowledge of treatment duration was shown to be associated with a low likeliness of patients to miss two or more visits consecutively [POR=0.24 (95% CI: 0.08-0.74)]. Epileptic patients who had their review visits indicated on their treatment cards were less likely to miss two or more treatment review visits consecutively [OR= 0.41 (95% CI: 0.19-0.89)]. These results are summarised in Table 1. Patients who received epilepsy information through health education sessions at health facilities were less likely to miss two or more consecutive review visits and this was statistically significant [POR=0.33 (95% CI: 0.15-0.73) P=0.01]. Epileptic patients who stated that they do not receive epilepsy information from any source were four times more likely to consecutively miss at least two review visits [POR=4.03 (95% CI: 1.68-9.66) P=0.003].

Those patients who perceived themselves to be in danger of suffering more epileptic seizures were less likely to miss two or more consecutive review visits compared with those who did not perceive themselves to be in dan-

Table 1. Knowledge and awareness related factors.

Factor	Missed N=51	Did not miss N=59	POR (95% CI)	P
1. Knowledge				
Date of next review visit				
Yes	33	39	0.94 (0.43-2.07)	0.96
No	18	20		
Treatment duration				
Yes	37	54	0.24 (0.08-0.74)	0.02*
No	14	5		
AED regiment				
Yes	42	53	0.53 (0.17-1.60)	0.39
No	9	6		
Expected number of visits per year				
Yes	40	43	1.35 (0.56-3.26)	0.65
No	11	16		
2. How review visit was given				
Verbally				
Yes	18	26	0.69 (0.32-1.50)	0.46
No	33	33		
Written on card				
Yes	20	36	0.41 (0.19-0.89)	0.04*
No	31	23		

POR, prevalence odds ratio; CI, confidence interval; AED, antiepileptic drug.*Statistically significant.

ger [POR=0.14 (95% CI: 0.06-0.33)]. Perceiving that missing review visits would lead to more severe epileptic seizures was also significantly associated with low likelihood of missing at least two consecutive visits [POR=0.32 (95% CI: 0.14-0.73)]. Those who believed that attending treatment review visits had a benefit of epilepsy treatment progress monitoring were also less likely to miss their treatment review visits [POR=0.10 (95% CI: 0.04-0.24)]. On analysis those who intended to attend all their visits were less likely to miss their treatment review visits compared with those who intended to attend some of the visits [POR=0.18 (95% CI: 0.08-0.42)].

Enabling and reinforcing factors

Significant factors included shortage of drugs and long distances as barriers to review visits attendance. Epileptic patients who indicated shortage of antiepileptic drugs were 7 times more likely to miss at least 2 review visits consecutively compared with those who did not mention shortage of drugs [OR=7.09 (95% CI: 3.00-16.72)]. Those who indicated long distance as a barrier to review visits were also more likely to miss review visits than those who did not [OR=6.63 (95% CI: 2.63-16.76)]. High consultation fees were associated with an increased likeliness of missing review visits, however this factor was not statistically significant [POR=1.47 (95% CI: 0.62-3.49)]. The only significant reinforcing factor was being assisted by village health workers in the treatment process. Those who were assisted by village health workers in their epilepsy treatment were less likely to miss their treatment review visits [POR=0.39 (95% CI: 0.16-0.94)].

Logistic regression analysis

Stepwise multivariate analysis was carried out to estimate the measures of association while at the same time controlling for a number of confounding variables. All the variables that were significant at 0.25 level (P<0.25) in the bivariate analysis were included in the logistic regression model. The model was started off with a single variable with other variables being added one by one. Variables that were not significant were eliminated until all the variables that were significant at the 0.05

level (95% CI) were added to the model. The adjusted odds ratios (AOR) and 95% confidence intervals from the final model are presented in Table 2.

The results showed that behaviour intention to attend treatment review visits [AOR 4.21 (95% CI: 1.13-15.69) P=0.0323], long distance as a barrier to treatment review visits attendance [AOR 6.09 (95% CI: 1.60-23.15) P=0.008], perceiving oneself to be susceptible to more frequent seizures [AOR 0.2 (95% CI: 0.16-0.61), P=0.0048], shortage of antiepileptic drugs (AEDs) as a barrier to review visits attendance [AOR 6.73 (95% CI: 1.85-24.46) P=0.0038] and monitoring of treatment progress as a benefit of attending epilepsy treatment review visits [AOR 0.12 (95% CI:0.04-0.43) P=0.0010] were independent factors associated with the likelihood of non-attendance of 2 or more consecutive review visits in Gokwe South district (Table 2). Those who intended to attend some visits were about 4 times more likely to miss their review visits compared to those who intended to attend all their visits. Perceiving self to be at risk of frequent and severe seizures and perceiving monitoring of treatment progress as a benefit of attending treatment review visits were protective against missing 2 or more treatment review visits in a 12 months period.

Discussion

This study sought to establish the prevalence of epilepsy review visit non-attendance and the associated factors. Only 12.7% of epileptic patients did not miss any review visit in a 12 months period. Missing consecutive visits worsens epilepsy treatment outcomes since the patient will be going for longer period of time without taking the antiepileptic drugs. Knowledge/memory of review dates was not significantly associated with review visits attendance. This is contrary to the other findings where memory of dates of review visits was a significant factor in determining epilepsy treatment review visits.[16] In the Zimbabwean situation, there might be other factors such as drug availability and overall accessibility of epilepsy treatment services

that could rule out the significant protective effect of memory of dates of review visits.

Having review visits written on treatment card was significantly associated with a low likeliness of missing at least 2 consecutive visits. This could probably be due to the fact that the treatment card will serve as a reminder on when one is expected to attend clinical reviews. Al-Faris *et al.* have shown that forgetfulness contributed to 22.5% of the reasons for children's failure to attend epilepsy treatment review visits in Saudi Arabia.[16]

Having information through posters and pamphlets was not significantly associated with missing at least 2 consecutive visits a result that is contrary to other findings from Zimbabwe.[17] The reason for this could be that in Adamolekun's[17] study there was use of multiple methods that included the training of health staff such as environmental health technicians who also did patient follow ups. Health education and advice given at health facilities showed a significant association with review visits non-attendance, where the health education sessions and health advice was protective against review visit non-attendance. The health advice could play a major role since this includes a one-to-one interaction between the health care provider and the patient where there could be a two way communication where issues are also clarified. Those epileptic patients who would have gone for their review visits may be a more receptive audience than those within communities. Information dissemination however remains an important factor to treatment review attendance as shown in this study as those who do not have any source of epilepsy treatment information were more likely to miss their review visits. There is need to utilize multiple methods of information dissemination to improve review visits attendance among epileptics.

Long distances were associated with high likelihood of missing 2 or more visits and these findings are consistent with those of Odaga who indicated that the major reasons for treatment review visits non-attendance was residing far from the health facility.[11] Longer distances from the health facility thus lower accessibility of health services even in situations where services are readily available.

Table 2. Logistic regression analysis.

Term	AOR	95% CI	Coefficient	SE	Z-statistic	P
Intention to attend	4.2087	1.1292-15.6869	1.4372	0.6713	2.1410	0.0323*
Long distance	6.0874	1.6008-23.1480	1.8062	0.6815	2.6504	0.0080*
Frequent and severe seizures	0.1948	0.0625-0.6071	−1.6357	0.5799	−2.8206	0.0048*
Shortage of AEDs	6.7336	1.8538-24.4581	1.9071	0.6581	2.8979	0.0038*
Treatment monitoring	0.1225	0.0352-0.4261	−2.0994	0.6359	−3.3018	0.0010*

AOR, adjusted odds ratio; CI, confidence interval; SE, standards error; AEDs, antiepileptic drugs. *Statistically significant.

Availability of drugs can impact much on attendance this was shown in this study's results where 87.3% of the participants indicated that the main benefit of attending monthly treatment review visits was to acquire medication and consequently when there constant AEDs stock outs, patients may not notice the benefit of attending the treatment review visits. Perceived susceptibility to epileptic attacks was shown to be among the most significant determinants of review visits attendance and this factor remained significant on logistic regression analysis. This may be because patients who perceive that they are at risk of experiencing more seizures will frequent the facility even if they do not get their AEDs supply.

Conclusions

Even when patients have knowledge on epilepsy and have the intention to attend treatment review visits, an enabling environment is required to improve and ensure treatment review visit attendance among epileptic patients. This study has shown that drug availability and supporting structures such as village health workers improves treatment review attendance. Patients who lived far from health facilities were shown to miss visits compared with those who lived closer and utilization of village health workers support in epilepsy management follow-up could help reduce this gap. The results of this study cannot however be generalised to other districts in Zimbabwe as the setting was largely rural. It is recommended that further qualitative studies which may explore the lived experiences and meanings epileptic patients attach to their condition be carried out so as to gain a complete picture of patients' intention to utilise services.

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