Factors Effecting The Treatment And Adherence of Epileptic Patients in Mizan Tepi University, South West Ethiopia

Alemu Bedada[1], Raju. NJ[*2], Tasissa Ayela[3], Manjoor Ahmed[4]

[*1234]*Dept. of Pharmacy, College of Public Health and Medical Sciences, Mettu University, Mettu, Ethiopia*

Abstract

Background: The global burden is estimated to be 1% affecting over 65 million people it has profound physical, psychological and social impacts with a greater impact on a person's quality of life than other chronic diseases.

Objective: To assess factors affecting adherence of epileptic patient at MTUTH, south west Ethiopia

Methods: Hospital based cross-sectional descriptive study was carried out on patients who had no change in treatment regimen over the last three months. This cross-sectional study conducted on epileptic patients from 1st March 2019 to 31st July 2019 and Data were collected. Regression model was used for statistical analysis and statistical significance was considered at $P<0.25$.

Results: Out of a total of 96 participants, all were willing to participate and were studied. Out of 96 participants, 55(57.3%) were males and 41(42.7%) were female. Mean age of the participants was 27 years. Range 18 to 75 years. The majority, 51(53.1%), of the participants were taking one antiepileptic medications. Thirty five (36.5.4%) of the participants were adherent to their treatment. The Most common reported reasons for non-adherence were forgetfulness 28(45.9%) and inability to buy drug followed by irregular drug supply 13(21.3%) and side effects 5(8.1%), a bad Patient-prescriber relationship 3(4.9%) and other reasons (6.5%).

Conclusion: The most common reasons for non-adherence were forgetfulness followed by run out of pills.

Keyword:- Treatment, Adherence, MTUTH, Antiepileptic drug

INTRODUCTION

World Health Organization in 2005 reported Epilepsy is a common and wide-spread neurological disorder, affecting people of all ages and socio economic classes' worldwide [1]. Epilepsy is a major public health problem in low and middle-income countries (LMIC) imposing a large economic burden on the health care system [2]. Epileptic patients may also have lower quality of life due to enormous social stigmas [5]. Many Africans believe epilepsy is contagious. As result of this, they are unwilling to help or touch the person who has fallen during seizure. This kind of belief worsens the stigma [2-8].

Non-adherence to antiepileptic medications has been reported to be high. Studies showed a high prevalence of seizure (21–45%) in patients who did not adhere to their antiepileptic medications [9]. Patients who are non-adherent to their medication are frequently hospitalized with prolonged lengths of stay, have repeated emergency department visits, and miss school or work frequently because of the seizure effects or out of fear of seizure occurrence [10]. More than half of epileptic patients have poor seizure control due to non-adherence to medications. Non-adherence to medication is widespread in chronic disease and is a major problem facing medical practice [8]. Current estimates of non-adherence in epilepsy are similar to those in other chronic illnesses and range from 30 to 50% .This reduces the benefit that could be gained from the medication[10].

Studies regarding adherence have found four primary factors associated with medication non-adherence: patient-related factors (e.g., socio-economic characteristics, and perceptions and beliefs), illness-related factors (e.g., severity of illness and frequency of symptoms), medication-related factors (e.g., number of daily doses, efficacy, and side effects), and physician-related factors (e.g., patient- Physician relationship) [13].

Study setting in Mizan Tepi University Teaching Hospital (MTUTH) there are different factors that may affect the Patients adherence to their antiepileptic medications. Irregular medication supply, patient inability to buy their medication at every regular follow up, absence of free medication supply in the hospital, and poor seizure control are some problems that may affect patient adherence. And also prescription refilling by the patients at private drug store during their follow up due to irregular medication supply or lack of patient awareness to visit their physician at each regular follow up was a problem in this setting that leads to poor seizure control.

Therefore, various strategies are important to improve adherence that in turn optimize the therapeutic benefits and results in better patient outcomes and substantial cost reductions.

This research is useful for identifying adherence level and reduce the effect of factors affecting adherence can help patients to minimize seizures and live better life. By indicating level of adherence and associated factors as well as impact of non-adherence on health and promoting appropriate medicine usage habit to earn desirable outcome [seizure free life] through well utilization of AEDs.

Identifying potential barriers for non-adherence and improving adherence to medications through different interventions helps the patients to have sustained remission and functional restoration, decrease treatment failure, seizure recurrence and improve quality of life.

Study Area and Study period
This study was conducted from 1st March 2019 to 31st July 2019 at Mizan Tepi University Teaching Hospital (MTUTH) which is found in MizanAman Town, SNNPR State and located at 561 km away from the capital city of Ethiopia, Addis Ababa. It is populated by more than eight hundred thousand inhabitants.

Study Design
A hospital based cross-sectional study was conducted using structured questionnaires including the morisky medication adherence scale (MMAS).

Study Population
All Epilepsy patients who were on follow up in MTUTH and on AED during the study period that fulfills inclusion criteria.

Data Collection Instrument
The questionnaires was structured based on the study objective and was designed as simple as possible to meet the knowledge of both respondent and interviewers to collect the necessary data.

Data Collection procedure
The data was collected from 1st March 2019 to 31st July 2019 at MTUTH by principal investigator using structured and pretested questionnaire including the morisky medication adherence scale (MMAS) was used to interview each epileptic patient that comes for follow up. MMAS is a generic self-reported, medication-taking behavior scale in which the specific health issue in this case Epilepsy is inserted for the health concern. The MMAS consists of items with a scoring scheme of "Yes" = 0 and "No" = 1. High adherence is considered if the patient score 0/4, medium adherence if score is 1-2 and low adherence if score is >2, according to the Morisky 4 item medication adherence questionnaires. The questionnaire was written in English but it was translated to Amharic and interpreted to subject who do not understand English. Information about the patients' baseline characteristics including age, sex, level of education and estimated monthly income was obtained in the first part of the questionnaire. In the other part, questions was asked to help determine level of adherence using MMAS

Data Handling Technique
The collected data was edited, clear and cross check. Finally data was presented in tables, chart and graphs.

Data Processing and Analysis
The collected data was entered to and analyzed by using SPSS for windows version 21. Descriptive statistics were used to determine the prevalence of the dependent variables.The finding was presented using frequency distribution and percentages and then interpreted and presented by charts, figures and tables.

Statistical Analysis
Data were coded, checked for completeness and consistency. Then the data were entered and analyzed using SPSS for windows version 16.0 statistical software program. For descriptive statistics, results were expressed in terms of percentages and presented using tables according to the types of tool used.

Ethical Consideration
The study was cleared by Mizan Tepi University Teaching Hospital Ethics committee. Verbal consent was obtained from patients and health professionals before starting interview.

RESULT
Sociodemographic Characteristics of the participants
Out of a total of 96 participants, all were willing to participate and were studied. Seven patients refused to participate. Of the 96 participants, 55(57.3) were males and 41(42.7%) are female. The mean age of the participants was 27 ranging from 18 to 75 years. Fourtyfive of the participants (46.9%) were in the age group between 20–29 years. The most common ethnic groups were Bench, 43(44.8%), Kaffa,19(19.8%), Amhara, 15(15.6%). Oromo 8(8.3%), and others 11 (11.5%). Protestant 60(62.5%), Orthodox Christianity 28(29.2%), and Islam 8 (8.3%) were the most common religions. Fifty three (55.2%) of the participants were single and thirty three (34.3%) were married. The majority, 30(31.3%), of the participants were student. More than half (67.7.2%) of the participants were rural residents and 31(32.8%) were urban. About 25(26%) of the participants were illiterate. 35(36.5%) participants attended primary education, 18(18.8%) participant were high school and 18(18.8%) participants attended college or university education.

Perceptions of the participants towards their medication and Disease
Thirty two participants (33.3%) perceived that their illness is due to evil spirit. Thirteen (13.5%) and 11(11.5%) participants perceived their illness as neurology and hereditary respectively. Sixteen (16.7%) of the participants perceived that their illness is due to accidental disorder and fourteen (14.6%) of participants have no idea on the cause of their illness and ten (10.4%) participants perceived that epilepsy is contagious. Fourty four (45.8%) of the participant thought their illness (epilepsy) is a curable disease and 29(30.2%) responded that their illness is a controlled. The remaining 13(13.5%) of patients perceived that epilepsy is uncontrolled (serious) and 10(10.4%) of patients perceived that their illness is neither serious nor curable. More than half, 54(56.2%), of the study participants reported that their epilepsy was poorly controlled and (43.8%) of the participants reported that their epilepsy was controlled or had improvement after starting treatment..Out of all the participants, 15(15.6%) had co-morbidity. Hypertension, diabetes mellitus, RVI and major depressive disorder and other chronic diseases were the most common co-morbidity.

Table 1 Distribution of Socio demographic characters of Epilepsy patients on AEDs at MTUTH, South west Ethiopia, 2019

Socio demographic		frequency	Percentage
Sex	Male	55	57.3
	Female	41	42.7
Age	< 20	19	19.8
	20-29	45	46.9
	30-39	21	21.8
	40-49	5	5.2
	>50	6	6.2
Ethnicity	Bench	43	44.8
	Amhara	15	15.6
	Kaffa	19	19.8
	Oromo	8	8.3
	Others	11	11.5
Religion	Protestant	60	62.5
	Orthodox	28	29.2
	Muslim	8	8.3
Level of education	Illiterate	25	26
	Primary school(1-8)	35	36.5
	Secondary school (9-12)	18	18.8
	College	7	7.3
	University	11	11.5
Marital status	Single	53	55.2
	Divorced or window	10	10.4
	Married	33	34.3
Monthly income	< 500	66	68.8
	500-1000	16	16.7
	1001-2000	6	6.3
	>2000	8	8.3
Occupation	Student	30	31.3
	Farmer	27	28.1
	Daily labor	16	16.7
	Government employ	9	9.4
	Others	9	9.4
Residence	Urban	36	34.3
	Rular	69	65.7

Table 2 Antiepileptic medications prescribed to treat epilepsy at MTUTH July 2019, Ethiopia

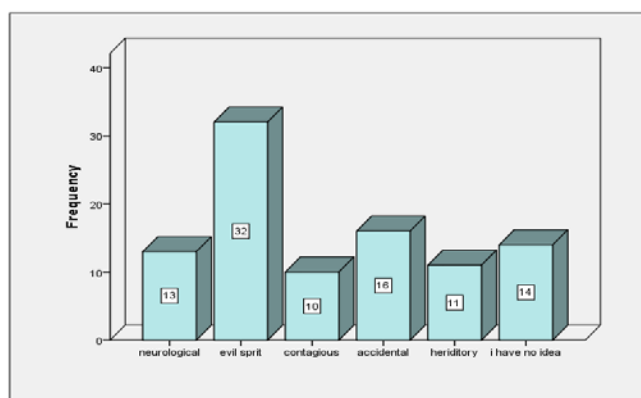| Anti-epileptic Drugs		Frequency	percentage
	Phenobarbital	51	53.1%
	Phenobarbital & carbamazepine	17	17.7%
	Phenytoin	10	10.4%
	Sodium valproate	5	5.2%
	Phenobarbital &phenytoin	13	13.5%

Figure 1.Perception of participants towards epilepsy at MTUTH July, 2019
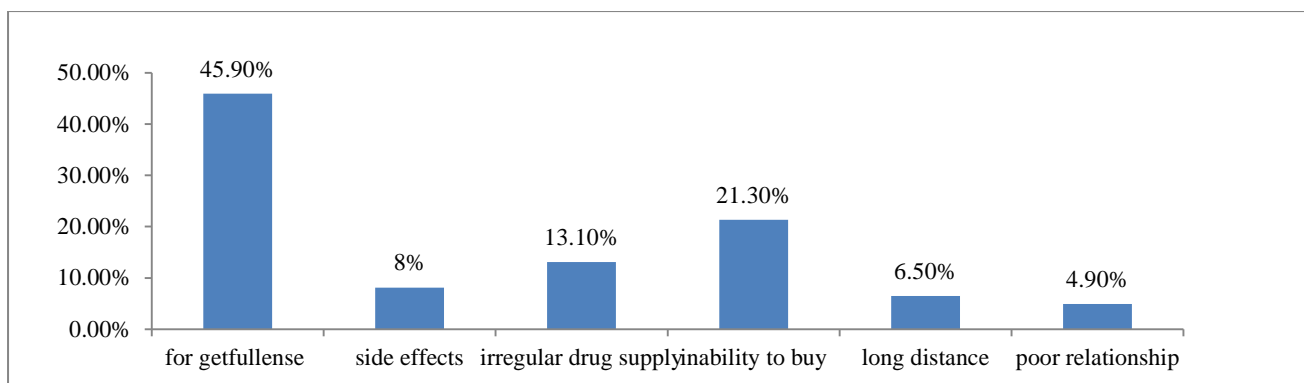
Figure 2: Self-report reasons for medication non adherence among epileptic patient at MTUTH July, 2019

Table 3: perceived type of side effect experienced by patients due to AED regimen at MTUTH July, 2019

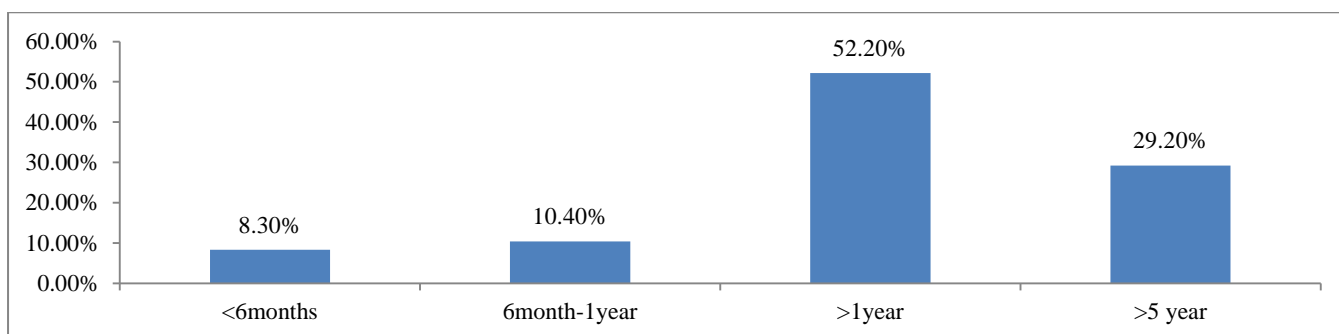| Type of side effect	Frequency	Percent (%)
Rash	4	9
Sedation	28	63.6
Cognitive impairment	10	22.7
Gingival hyperplasia	1	2.2
Other	1	2.2
Total	44	100

Figure 3: Duration of epilepsy treatment of epileptic patient at MTUTH July, 2019

Treatments and adherence of patients to antiepileptic medication(s)

About half, 50(52.1%), of the participants have been taking antiepileptic medication(s) for greater than one year and 28(29.2%) of the participants have been taking for five years and above. Eighteen (18.7%) participants have been taking antiepileptic medication(s) for 6 month to \$1year. The majority of the participants have been taking phenobarbital 51(53.1%), phenytoin 10(10.4%) were antiepileptic medications prescribed as monotherapy. The remaining phenobarbital and phenytoin combination 13(13.5%) and phenobarbital and carbamazepine combination 17(17.7%) were combination therapies prescribed for the patients.

According to MMAS-4score, 16(16.7%), 45 (46.8%), and 35 (36.5%) of the participants had a score of low adherence medium adherence and high adherence respectively. Merging participants with low adherence and medium adherence together as non-adherent; 61(63.5%) epileptic patients were non-adherent to their antiepileptic medication(s).The remaining, 35(36.5%) of the participants were adherent to their antiepileptic medication(s).Those patients perceived that their illness is caused by evil spirit and their epilepsy poorly controlled and have low monthly income were non adherent. The most common reported reason for non-adherence was forgetfulness, 28(45.9%) as shown on Fig 2

From the total of 96 patients, only 42 (43.8%) of them experienced side effects from their AEDs and sedation was the most common side effect which was perceived by the patients 28(63.6%). Details of the types of side effects experienced by the patients presented in (Table 3).

DISCUSSION

More than Half (56.2%) of the participants reported that their epilepsy did not improved despite treatment. The majority of the participants were on Phenobarbital monotherapy therapy. The majority of the participants were non adherent to their Medication. The Major reason for non-adherence was forgetfulness 28(45.9%) followed by inability to buy drug 16(23.1%). Independent predictors of antiepileptic medication (s) adherence are poor relationship with physician, epilepsy treatment for < 1 year, epilepsy treatment for 1–3 years, epilepsy treatment for 3–5 years, being married, grade 9–12 education, college or university education and absence of co-morbidity.

The reason for low rate of adherence in this set up maybe due to poor patient awareness about epilepsy, the role of antiepileptic medication, and adherence to antiepileptic medication.

In this finding, about 33.3% of the participants perceived that epilepsy is caused by evil spirit and hereditary inheritance which in turn might have affected their belief to modern drug therapy. In addition the majority of patients (66.8%) have a very low monthly income to afford antiepileptic medications.

Age and medication adherence are significantly associated (p = 0.002). All Patients (age above 50 years) were non-adherent to their medications. This May be due to the fact that elderly patients have more difficulty in following instructions owing to cognitive impairment or other physical difficulties such as problems in swallowing tablets, opening drug containers or handling small tablets.

Mono therapy is the gold standard epilepsy management. About 30% of patients become seizure-free with the administration of antiepileptic [8].

Chigier[12]also reported that the parent, other family member and friend support is considered as the corner stone to medication adherence among adolescents with epilepsy. Adolescents often want to talk with family members and friends about their personal issues [13] which may have a positive impact in improving adherence. Educational Level above grade eight is significant predictor of good adherence. As educational level increases, patients' awareness about the disease and the importance of adhering to medications will increase.

Kyngas[11] Reported that discomfort from treatment, expense of treatment, decisions based on personal judgments about the effectiveness of the proposed treatment, have been considered the common reasons for non-adherence which is similar with my study set up that about 43.8% were discomfort due to irregular drug supply, lack of hope on medications and medication side effects. In this study forgetfulness (45.9%) was the most common cause of non-adherence this is supported by a number of studies.

Limitation of the study
This study is only limited to MTUTH due to financial and time constraints and due to smaller sample size, the results obtained from this study may not be generalized to the large population particularly influenced by recall and social desirability biases which potentially have under estimated or overestimated the prevalence of non-adherence in the study.

CONCLUSION
In this study the rate of adherence was low. The most common reasons for non-adherence were forgetfulness followed by run out of pills. The majority of the patients reported that their epilepsy was not controlled after starting treatment. More than half of the patients were on one antiepileptic medication (monotherapy). Forgetfulness, perception on cause of illness, inability to buy medication and irregular drug supply were reason for being non adherent.

REFFERENCES
1. De Boer HM. ''Out of shadow'': A global campaign against epilepsy. Epilepsy 2002; 43:7-8
2. World Health Organization. Atlas: epilepsy care in the world WHO. Geneva; 2005 Ngugi AK. Bottomley C, kleinschmidt L. sander JW. Newton CR. Estimation of the burden of active and life time epilepsy: A meta-analytic approach. Eplipsia. 2010; 51(5); 883-90.
3. Internationalleagueagainstepilepsy;qualityoflife;Generalconsiderati onsEpilepsia.2003:44(6); 57-8
4. Chin JH. Epilepsy treatment in sub-Saharan Africa; closing the gap. Afr Health Scl.2012; 12(2); 186-92.
5. Prince MJ, Acosta D, Castro-costa E, Jackson j, Shaji KS. Packages of care for dementia in low-and middle-income countries.plosmed.2009;6(11)
6. Baskind R, birbeck GL. epilepsy-associated stigma in sub-Saharan Africa: the social landscape of a disease epilepsy behave.2005;7:68-73
7. Liu J, liu z, ding H, Yang x. adherence to treatment and influencing factors in a sample of Chinese epilepsy patients'. Epileptic disord.2013; 15(3):13-6
8. Hovinga CA, Asato MR, Manjunath R, WhelessJW, Phelps SJ, Sheth RD, et al. association of non-adherence to antiepileptic drug and seizures, quality of life, and productivity: survey of patients with epilepsy and physicians. Epilepsy behave.2008;13:316-22
9. Davis a Pack A. initial management of epilepsy. N Engl J med. 2008:359(23):2499-500.
10. World health organization. Adherence to long-term therapies evidence for action. WHO. Geneva, Switzerland; 2003:1-194.
11. Sackett D. Patient compliance with antihypertensive regimens. *Patient Counseling & Health Education,* 1978; 11:18-21.
12. French J. The long-term therapeutic management of epilepsy. *Annals of Internal Medicine,* 1994; 120: 411–422. Dinka*et al.* Page 018 of18World Journal of Advance Healthcare Research Volume1, Issue2.2017
13. Buck D. Factors influencing compliance with antiepileptic drug regimes. Seizure, 1997; 6: 87 Barrow Neurological Institute, Phoenix AZ, 2010; 77(7):457-468.