HARAMAYA UNIVERSITY

POST GRADUATE STUDIES

TREATMENT OUTCOME AND ASSOCIATED FACTORS AMONGCHILDREN WITH EPILEPSY AT PEDIATRIC FOLLOW UP CLINIC OF HIWOT FANA SPECIALIZED UNIVERSITY HOSPITAL, HARAR, ETHIOPIA.

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LIST OF ABBREVIATIONS/ACRONOMYS

ADHD	Attention-deficit hyper activity disorder
AEDS	Anti-epileptic drugs
CI	Confidence interval
EEG	Electro encephalogram
HFSUH	Hiwot fana specialized university hospital
HMIS	Health Management Information System
IHRERC	Institutional Health Research Ethics Review Committee
ILAE	International league against epilepsy
MMAS	Morisky medication adherence scale
MOE	Minstery of education
MRI	Magnetic resonance imaging
NPV	Negative predictive value
OR	Odds ratio
PPV	Positive predictive value
SPSS	Statical package for social; science
WHO	World health organization

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ABSTRACT

Background. Epilepsy is the most common chronic neurological disorder which affects an estimated 10.5Million child worldwide and 80% of them live in developing countries, often accompanied by physical and cognitive disability. However there is scarcity of evidence on treatment outcome and associated factors among children with epilepsy

Objectives. The objective of this study was to determine treatment out come and associated factors of epilepsy among children at pediatric follow up clinic of Hiwotfana specialized University Hospital from November5, 2020 to February5, 2021.

Methodology. Hospital-based cross-sectional study was employed. One hundred forty children who were having follow up at pediatric follow up clinic of HFSUH from November5, 2020 to February 5,2021were included with non-probability convenience sampling technique. Data on socio demographic characteristics, epilepsy treatment outcome and associated factors was collected through face to face interview of children and their care givers complemented through their medical record by Two BSc nurse and one resident using semi structured questionnaire. Data was entered Epidata 8, transferred and analyzed SPSS statistical software version 20.Both Bivariable and multivariable logistic regression were computed at 95% CI and the final model was checked by Hosmer and Lemeshow goodness fit test. A p-value < 0.05 was considered to declare a statistically significant association.

Result. A total of 140 epileptic children were included**.** Of whom 57(40.7%) had complete seizure control, 67(47.9%) had partial seizure control and 16(11.4) had poor seizure control.Phenobarbitone monotherapy (AOR=0.14, 95% CI: 0.001-0.552) and higher level of adherence (AOR=0.09, 95%CI: 0.01- 0.102) were protective of poor treatment outcome while less than higher school educational status of the primary care giver and seizure frequency greater than one before initiation of AED were predictors of poor treatment outcome.

Conclusion. More than half of patients have uncontrolled seizure.Phenobarbitone monotherapy and high level of adherence were potentially protective factors of poor treatment outcome while Primary care giver with less than higher school educational status and higher initial seizure frequency before initiation of AED were predictors of poor treatment outcome**.**

Keywords. Epilepsy, Epilepsy treatment outcome, Seizure control, Children, Ethiopia

1. INTRODUCTION

1.1 BACKGROUND

Epilepsy is a disorder of the brain characterized by an enduring predisposition to generate seizures and by the neurobiological, cognitive, psychological, and social consequences of this condition and clinical diagnosis of epilepsy usually requires the occurrence of at least 1 unprovoked epileptic seizure with either a second such seizure or enough EEG and clinical information to convincingly demonstrate an enduring predisposition to develop recurrences. For epidemiologic and commonly for clinical purposes, epilepsy is considered to be present when 2 or more unprovoked seizures occur in a time frame of longer than 24 hours(Swaiman, Ashwal et al. 2017).

A recent official report from the International League Against Epilepsy (ILAE) suggests that epilepsy is a disease of the brain defined by any of the following conditions: 1: at least two unprovoked (or reflex) seizures occurring more than 24 hours apart; 2:one unprovoked (or reflex) seizure and a probability of further seizures similar to the general recurrence risk (at least 60%) after two unprovoked seizures, occurring over the next 10 years; 3:diagnosis of an epilepsy syndrome(Swaiman, Ashwal et al. 2017).

In2017, ILAE published an updated classification of both seizures and epilepsies(Falco-Walter, Scheffer et al. 2018).The new basic 2017 classification of seizure is based on three key features viz., (i) locus of seizure origin in brain ;(ii) level of awareness during seizure; and, (iii) other features. The basic operational seizure type classification includes: Focal onset seizures (Aware/Impaired awareness; Motor/Non-motor onset; and Focal to bilateral tonic-clonic); Generalized onset (Motor/Non motor (Absence)); and Unknown onset (Motor/Nonmotor; Unclassified). The classification of the disorder which facilitates appropriate therapy may be difficult in the resource-poor parts of the developing country where neuro diagnostic facilities may not be readily available(Falco-Walter, Scheffer et al. 2018).

Epilepsy is the most common chronic neurological disorder which affects estimated 10.5million children worldwide, and 80% of them live in developing countries. African countries are among the highly affected regions and it is estimated that ten million people live with epilepsy in Africa. Likewise, Ethiopia is affected by epilepsy with a reported prevalence of 5.2/1000 population and

annual incidence of 64 per 100,000 population(Almu, Tadesse et al. 2006).Treatment outcome in epilepsy is often vague ill-defined subjective measure and most often defined in terms of seizure control and response to medications. Thus poor treatment outcome is defined as increase in the number of seizure episodes or uncontrolled seizure in patients taking AEDS due to different reasons(Dugassa, Simegnew et al. 2017)

A number of problems affect the provision of adequate treatment of epilepsy and cause poor treatment outcome and these problems are more pronounced in developing countries. The major problems include; lack of qualified medical personnel, unavailability of medications, poor community knowledge and awareness, cultural beliefs, stigma, poor economy, lack of prioritization, and poor health system infrastructure(Scott, Lhatoo et al. 2001).

Majority of epileptic seizures are controlled with the optimal use of the currently available AEDs with phenobarbitone being reported to be the most commonly prescribed medicine in the developing world not because of its efficacy but due to its availability and low cost(Ngoungou, Quet et al. 2009).However, about one-third remained uncontrolled despite optimal therapy(Sillanpää and Schmidt 2017)

Although AED therapy does not offer a permanent cure, successful therapy can eliminate or reduce symptoms. In the case of treatment failure, it is crucial to establish whether the failure is a result of inappropriate drug selection, inappropriate dosing, refractory disease or poor adherence to the therapeutic regimen(Garnett 2000).

1.2. STATEMENT OF THE PROBLEM

Although most of the people with epilepsy can become seizure-free with the optimal use of drug therapy, the treatment outcome in the majority of epileptic patients remains unsatisfactory in resources limited countries (Epilepsy 2004). Several studies revealed that only 70% of children and 60% of adults achieved a complete seizure control with AEDs(Salzman 2005).

According to a study done in Bangladesh around 65% of children with epilepsy have controlled epilepsy and 43% have uncontrolled epilepsy (Moinuddin, Rahman et al. 2010).A similar study in Ethiopia to asses epilepsy treatment outcome and its predictors in children have shown that 6% of children with epilepsy have uncontrolled seizure(Beyene, Ayalew et al. 2020).

Poor control of seizure leads to impairment of quality of life, excessive bodily injury, neuropsychological impairment, social stigma and school absenteeism, reduced marriage rates, poor education, reduced employment levels, and finally shortened lifespan(Sperling 2004).thus Early identification of factors of that affect epilepsy treatment out come in children will help in reducing the incidence and severity of poorly controlled epilepsy and thus the quality of life of epileptic children(Moinuddin, Rahman et al. 2010)

Treatment outcome is affected by several factors including drug-related factors, disease-related factors and patient-related factors. Drug-related factors include pharmacokinetics of the drugs, drug-drug interactions and toxicity among others. Similarly, irrational prescribing with respect to drug selection and inappropriate dose will result in poor treatment outcome(Salzman 2005). None adherence to medical therapy is one factors that affect epilepsy treatment outcome and assumed to be the main cause of poor treatment outcome(Dugassa, Simegnew et al. 2017).

Another factor that affect epilepsy treatment outcome is seizure frequency before initiation of AED, for which patients who had fewer seizure attacks before initiation of therapy have good treatment outcome than those with higher attacks(Dugassa, Simegnew et al. 2017). Several other factors have been found to be associated with treatment outcome of epilepsy. These include; gender, age of seizure onset, type of epilepsy, etiology of epilepsy, duration of epilepsy, and presence of comorbidities(Niriayo, Mamo et al. 2018)

Assessment of epileptic patient's treatment outcome and its associated factors is crucial to develop treatment optimization strategies and responsible care of patients as clinicians may have

difficulty in identifying patients that are less likely to have controlled seizure. Although different studies have been conducted in different parts of the world, there is no adequate data on epilepsy treatment outcome and associated factors in Ethiopia. To our knowledge, there is no study in our particular setting. Hence, this was the first study to determine treatment outcomes and associated factors of epilepsy in children attending at HFSUH pediatric follow up clinic.

1.3. SIGNIFICANCY OF THE STUDY

The result of this study will be used to HiwotFana University Hospital to develop intervention about childhood seizure control and identify possible preventable factors that affect with childhood epilepsy treatment outcome. Besides, it will help Harari Regional Health bureau program planners, and supporting stakeholders on the measures to improve childhood epilepsy treatment outcome based on this study. It also provides information about treatment out come and associated factors on childhood epilepsy for researchers who want a further study on the same area or topic.

1.4. Objectives

1.4.1. General objectives

To determine treatment out come and associated factors of epilepsy among children at HFSUH pediatric follow up clinic from November 5, 2020 to February5, 2021.

1.4.2. Specific Objectives

To determine epilepsy treatment outcome among children at HFSUH pediatric follow up clinic.

To determine factors associated with epilepsy treatment outcome among children at HFSUH pediatric follow up clinic.

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2. LITERATURE REVIEW

2.1. Treatment outcome of epilepsy

Despite the global burden of epilepsy, data about the outcome and associated factors of epilepsy in children is scant.

Retrospective study that was done at child development and neurology unit in the department of pediatrics of Bangabandhu Sheikh mujib medical university in Bangladesh from Januery2004 through December2005 through which 120 patients were studied, of them 79(65.8) were having controlled seizure and 41(34.2) were having poorly controlled seizure. Mean age of the children with controlled seizure and poorly controlled group of children were 79 months and 40.3 months respectively. Focal epilepsy was found in 30 (68%) cases in controlled seizure and in 14 (31.8%) cases of poorly controlled seizure and generalized epilepsy was found in 42 (72%) cases in controlled and in 19 (28.8%) cases in poorly controlled seizure group(Moinuddin, Rahman et al. 2010).

A prospectively study was conducted at the outpatients' services of the child development center in Dhaka Shishu (Children's)Hospital, Bangladesh. Three hundred ninety children (273males, 117 females) aged 2 months to 15 years with newly diagnosed epilepsy were enrolled prospectively at first visit but71 patients have lost follow up. Regular monitoring of antiepileptic drug treatment was continued at least for one year. Good seizure control' was achieved in 168 (53%) while 151(475) were having poor seizure control. Two patients died at 6 months and 17 months after enrolment. The exact cause of death remained unknown (40). Retrospective study in the same area reported freedom from seizures in 53% after appropriate medical treatment for 1 to 3 years(Banu, Khan et al. 2012).

A large population based child cohort was done to provide Contemporary data on short-term seizure outcomes in childhood epilepsy in Norway. The study was based on the Norwegian Mother and Child Cohort Study; a nationwide cohort study of children born from 1999 to 2009. The cohort included 112 745 eligible children aged 3 to 13 years (median age 7 years) at end of follow-up. Of these, 600 were epilepsy cases with at least 1 year of follow-up since epilepsy

onset (median follow-up time: 5.8 years). There were 178 (30%) who had developed drug-resistant epilepsy, 353 (59%) who had been seizure free for ≥1 year, and 69 (12%) with intermediate seizure outcomes(Aaberg, Bakken et al. 2018).

All consecutive cases of newly-diagnosed childhood epilepsy seen over a period of two years in the Pediatric Neurology clinic, University College Hospital, Ibadan, Nigeria were prospectively followed for a period of three years to determine seizure outcomes. Remission was defined as being seizure-free for at least two consecutive years. A total of 170 children were enrolled but 54 defaulted and were excluded from further analysis. Twenty nine (25%) attained remission while 20 (17.2%) showed signs of intractability. The remaining 67 (57.8%) showed some response to anti-epileptic drug therapy (Lagunju and Asinobi 2011).

A hospital-based retrospective cohort study was conducted from October 10/2017 up to October 10/2018at the University of Gondar hospital of which 210 eligible patients with epilepsy were recruited for the study. About half of the respondents were females and the majority was within the age group of 5–10 years. Phenobarbital has been the most frequently prescribed drugs and thirteen percent of patients were in the escalation phase of treatment. Eight percent of the study participants had poor adherence to the treatment regimen. About six percent of the study subjects were suffering from an uncontrolled seizure(Beyene, Ayalew et al. 2020).

A cross-sectional study was conducted on randomly selected epileptic patients to assess treatment outcome and associated factors among epileptic patients on follow up at the neurologic clinic of Ayder comprehensive specialized hospital, Ethiopia. Treatment outcome was measured in terms of seizure control status and seizure frequency. Operationally, the seizure status was considered to be controlled if the patient had not experienced any seizure attacks in the last one year, and not controlled if the patient experienced one or more seizure attacks in the last one year follow up period. Out of the total 270 adult patients included in the study 46.6% participants had controlled seizure. Whereas, 38.5%, 8.8%, 5.9% had experienced seizure attacks 1–5 times, 6–10 times, and greater than 10 times, respectively which shows that that more than half of the epileptic patients had uncontrolled seizure(Niriayo, Mamo et al. 2018).

A retrospective cohort study of 404 newly diagnosed adult epilepsy patients receiving Antiepileptic treatment between May 2010 and May 2015was conducted to assess treatment response and identify prognostic predictors among patients with epilepsy at Jimma university medical center, Ethiopia.

The inclusion criteria were all newly diagnosed epilepsy patients, whose age was ≥18 years and patients who were treated for at least two years. This study showed that, 261 (64.6%) of the patients achieved remission of seizures for at least one year. The remaining 143 patients (35.4%) never experienced remission while continuing treatment(Gurshaw, Agalu et al. 2014).

2.2. Factors associated with epilepsy treatment outcome

A prospectively identified cohort of 613 children with newly diagnosed epilepsy was assembled and is actively being followed to determine seizure outcomes from 16 of the 17 child neurologists practicing in Connecticut during 1993 through 1997 as well as from some selected pediatricians and adult neurologists who indicated that they occasionally cared for children with epilepsy without referral to a child neurologist. Five hundred ninety-four of the original 613 children were followed _2 years (median follow-up, 5 years). Remission occurred in 442 (74%), of whom 107 (24%) relapsed. On multivariable analysis, idiopathic generalized syndromes and age at onset between 5 and 9 years were associated with a substantially increased remission rate, whereas remote symptomatic etiology, seizure frequency, were associated with a decreased likelihood of attaining remission(Berg, Shinnar et al. 2001).

A prospective study was done from July 1st, 2009 to January 31st, 2012 at B.P. Koirala Institute of Health Sciences, Nepal. Children (1 month-20 yr of age) with afebrile seizures presenting to pediatric neurology clinic were studied. Out of 256 patients (male: female ratio 3:2) with afebrile seizures followed up for median duration of 27 (IQR 12-50) months, seizure was poorly controlled in 20% patients. Three factors predicted poor seizure control. They were frequent(≥1 per month) seizures at onset (OR 12.76, 95% CI 1.44-112.73, PPV 25%,NPV 98%); remote symptomatic etiology (OR 3.56, 95% CI 1.04-12.17, PPV 36%, NPV 92%); and need of more than one anticonvulsant drug (poly therapy) (OR 12.83, 95% CI 5.50-29.9, PPV 56%, NPV 96%). The strongest predictor was need of poly therapy(Poudel, Chitlangia et al. 2016).

In the retrospective study done at the neurology unit in the department of pediatrics of Bangabandhu Sheikh mujib medical university in Bangladesh from Januery2004 through December2005 through which 120 patients were studied, of them 79(65.8) were having controlled seizure and 41(34.2) were having poorly controlled seizure. Focal epilepsy was found in 30 (68%) cases in controlled seizure and in 14 (31.8%) cases of poorly controlled seizure and generalized epilepsy was found in 42 (72%) cases in controlled and in 19 (28.8%) cases in poorly controlled seizure group. Univariate comparison between controlled group and poorly controlled group revealed that there was significant association between poorly controlled epilepsy and onset of seizure before 1 year of age ($p<.001$). Initial seizure frequency before treatment (1or more seizure per week) revealed a strong positive association with poorly controlled epilepsy ($p=.0032$)(Poudel, Chitlangia et al. 2016).in this same study Cerebral palsy was present in 38 (31.7%) patients.

To identify early predictive factors of outcome in childhood epilepsy, the case records of all children with new-onset epilepsy presenting to a single neurology practice in India over a 10-year interval were reviewed. Factors predictive of a poor outcome included seizure recurrence in the 6- to 12-month interval after therapy initiation (odds ratio 21.6), more than one seizure type (odds ratio 8.9), and global developmental delay at onset (odds ratio 8.9) Clinical features of the underlying epilepsy and concurrent neurologic conditions were independently associated with intractability and a lower probability of remission(Oskoui, Webster et al. 2005).

A hospital based cross–sectional study was conducted from February 24 to January 9, 2014to assess treatment outcomes and associated factors for poor treatment outcomes among patients taking anti-epileptic drugs at Ambo Hospital, West Shewa, Ethiopia. One hundred thirty two epileptic patients were interviewed and their medical record data was revised. Fifty-nine patients (44.7%) had poor seizure control. Poor treatment outcomes among epileptic patients are associated with level of adherence, number of seizure attacks before anti-epileptic drugs initiations, and age at onset of seizure.

The hospital-based retrospective cohort study which was conducted from October 10/2017 up to October 10/2018 at the University of Gondar hospital of which210 eligible patients with epilepsy were recruited for the study. The Multivariate logistic regression output indicated that the sex of the child and adherence to treatment was significantly associated with treatment outcome. The likelihood of developing a successful treatment outcome in females (AOR = 2.21; 95% CI: 1.11, 4.41) was 2.21 times higher than those within males. The likelihood of developing a successful treatment outcome in patients with excellent adherence (AOR = 4. 51; 95%CI: 1.53, 13.42) was about 4.5 times higher than those with poor adherence(Beyene, Ayalew et al. 2020).

2.3. Conceptual Framework of factors assumed to affect epilepsy treatment outcome among patients at pediatric follow up clinic of HFSUH.

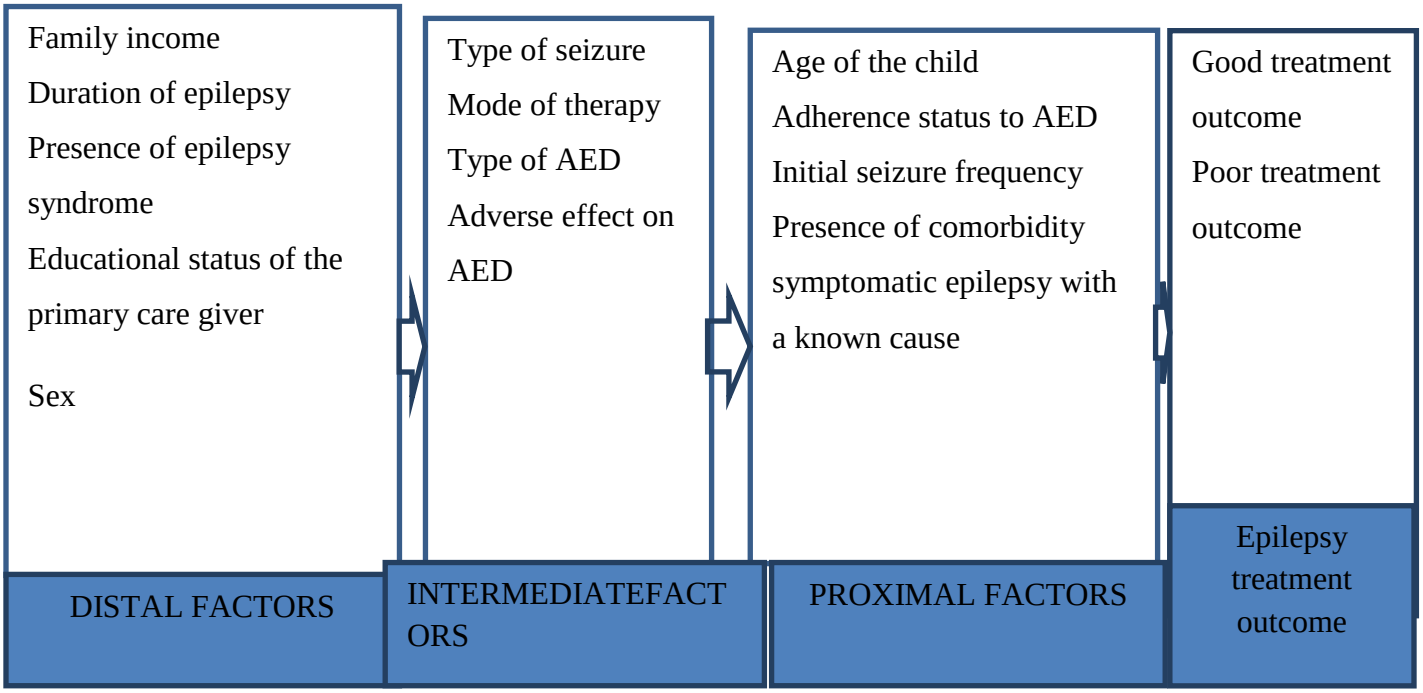

Figure 1 .conceptual frame work showing factors assumed to affect with epilepsy treatment outcome.

3. METHODS AND MATERIALS

3.1 .Study Area and Study period

The study was conducted at HFSUH, which is found in Harar town, Harari region, Ethiopia. Harar is located 525km east of the capital city of Ethiopia, Addis Ababa. There are six hospitals in Harar: one university hospital, one regional hospital, one army hospital, one police hospital, and two private hospitals. In addition, one fistula hospital, eight health centers, 29 private clinics, 26 health posts, and one regional. HiwotFana Specialized University Hospital is one of the hospitals in the city administered under Haramaya University. It serves as the Referral Hospital for the State and East Hararghe.It has four major departments (medical, surgery, pediatrics and gynecology-obstetrics with 33, 42, 50 and 60 beds respectively) and 6 minor departments (psychiatry, dental clinic, radiology unit, dermatology, ophthalmology, and chronic follow-up clinic visit). Department of Pediatrics has six units which include, the Pediatric Intensive Care Unit, ward, Nutritional Rehabilitation Unit, Neonatal Intensive care Unit, Outpatient Department and chronic follow up (Source: verbal communication with the hospital HMIS head).This study was conducted from November 5,2020 toFebruary5,2021.

3.2. Study design

Hospital-based cross-sectional study was used

3.3. Population

3.3.1. Source population

Children with epilepsy who were having follow up at HFSUH pediatric follow up clinic during the study period

3.3.2. Study population

Children between 6months -18y

ears with epilepsy who took AED for 6months and above who were having follow up at HFSUH pediatric follow up clinic during the study period.

4. Inclusion and exclusion criteria

3.4.1. Inclusion criteria

Children with epilepsy who are between 6month and 18 years of age

Children with epilepsy who are between 6moths and18yrs of age who were taking AED for 6moths and above

3.4.2. Exclusion criteria

Children with epilepsy who are <6months of age

Children with epilepsy who are between 6months and 18years who took AED for<6months

3.5. Sample size determination and sampling technique

3.5.1. Sample size determination

All 140 patients who full filled the inclusion criteria during the study period were included.

3.5.2. Sampling technique or procedure

Non-probability convenience sampling technique was used

3.6. Data collection methods

3.6.1. Data collection tool and procedure.

Data was collected by face to face interview: by trained data collectors using semi structured questionnaire from review of previous literatures. The questionnaire was prepared first in English then was translated into local languages (Amharic and Afan Oromo). The data collection instrument was pre-tested before the actual data collection on 5% of the estimated sample size in Dichora hospital and necessary amendment and corrections was made.

In addition to that pertinent information was abstracted from medical records.

3.6.2. Data collector.

Data was collected in three months by two BSC nurses with experience in data collection and one resident was used as supervisor.

3.7. Variables

3.7.1. Dependent variables.

Treatment outcome of children with epilepsy

3.7.2. Independent variables.

Socio-demographic characteristics (sex, weight, age)

Educational level of the primary care giver

Adherence status to antiepileptic drugs

Initial seizure frequency before treatment

Type of seizure

Mode of therapy (number of anti-epileptic drugs)

Presence of Adverse effect on AED

Presence of symptomatic seizure with a known cause

Presence of epilepsy syndrome

Presence of comorbidity

3.8. Operational definitions

Seizure: is a transient occurrence of signs and/or symptoms resulting from abnormal excessive or synchronous neuronal activity in the brain(Swaiman, Ashwal et al. 2017).

Epilepsy: Two or more unprovoked seizures occur in a time frame of >24 hours(Swaiman, Ashwal et al. 2017).

Epilepsy syndrome. Is a disorder that manifests 1 or more specific seizure types and has specific age of onset and a specific prognosis (Swaiman, Ashwal et al. 2017)

Treatment outcome: Patients who had seizure free for six or more were considered to have good treatment outcome. While patients with poorly controlled epilepsy were to considered to have poor treatment outcome (Moinuddin, Rahman et al. 2010).

Poor controlled epilepsy: One or more seizure per month over a period of 6 months or more and who had experienced trials of at least two different AEDs at optimum doses alone or in combination with adequate compliance (Moinuddin, Rahman et al. 2010).

Partial seizure control: Defined as more than fifty percent reduction of frequency of seizure (Moinuddin, Rahman et al. 2010).

Complete seizure control: Defined as complete remission of seizure for six months or more (Moinuddin, Rahman et al. 2010).

Symptomatic seizure with a known cause: defined as seizure/epilepsy that follows an injury (head injury, CNS infection, stroke, brain tumor, and surgery) to the brain known to be capable of causing epilepsy (Kliegman, Behrman et al.)

Adherence to AEDs- has been defined in terms of agreement between the patients/care givers and behavior of taking medication and the clinician prescription. High adherence is considered if the patient score 0/8, medium adherence if score is 1-2 and low adherence if score is >2, according to the morisky 8 item medication adherence questionnaire (Sackett 1976).

3.9. Data quality control

To make the data valid and reliable; the semi structured questionnaire was pre-tested on 5% of individuals from Dichora hospital. The data collection team was trained on data collection process and one resident was trained on supervising the overall process. The data collection process was closely monitored by the principal investigator to ensure the completeness, accuracy, and consistency of data collection.

3.10. Methods of data analysis.

After data collection was complete, the data was edited and coded for processing and analysis. Data processing and analysis was done using Epidata 8and SPSS statistical software version 20. Bivariate analysis was performed to assess the factors associated with treatment outcome of epilepsy using Pearson's Chi-square test, while controlling the effects of other characteristics; multiple logistic regressions was used to assess a possible relationship between Treatment outcome and associated factors. The result was presented in the form of tables to describe the study population. The degree of association between dependent and independent variables was

assessed using odds ratio with 95% confidence interval and every variable with P-value <0.05 in the multivariate logistic regression was considered as having statically significant.

3.11. Ethical Consideration

Before starting the data collection process, the study protocol will be approved by the Haramaya University College of Health and Medical Sciences, the Institutional Research Ethics Review Committee (IHRERC). Official letters of co-operation was submitted to HFSUH and concerned bodies to obtain their co-operation and consent in facilitating the study. Voluntary, written and signed consent was obtained from the hospital head. Information on the study was explained to the participants, including the procedures, potential risks, and benefits of the study. The respondents were informed of their right to refuse or decline participation in the study at any time. Informed, voluntary, written and signed consent was obtained from all caregivers or parents before the study. Participants' confidentiality of information was assured by excluding names and identifiers in the questionnaire.

3.12. Information Dissemination.

The study will be presented to Haramaya University, College of Health and Medical Science School of Medicine. The hard copy will be available in the library of Haramaya University, College of Health and Medical Science for postgraduate students as well as for other concerned readers. The finding of this study will be disseminated through presentation, publication, and distribution to relevant bodies

4. Result

4.1. Socio demographic characteristics of patients with epilepsy at HFSUH pediatric follow up clinic.Harar Ethiopia 2020.

The study included 140 patients with epilepsy and socio demographic characteristics as shown in table1 shows that More than half (69.3%) were male and most (70%) were in the age group of 1-10years.The Most common age at onset of epilepsy was 1-5years 72(52.4%) and most of the patients 75 (53.6%) were taking AED less than two years. According to the socio demographic characteristics of the primary care givers of children with epilepsy, mothers were reported to be primary care givers in 102(72.9%) and father only in 20(14.3%) as shown in tabe1.Majority of the care givers were married 75% and 50% of the primary care givers were below high school educational status and more than half 54.3%were having less than 1500birr per month.

Table4.1. Socio demographic characteristics of patients with epilepsy at HFSUH pediatric follow up clinic.Harar Ethiopia 2020.

Variable	Frequency(N)	Percentage (%)
Sex of the child		
Male	97	69.3
Female	43	30.7
Age of the child		
6-12months	4	2.9
1-5years	55	39.3
5-10years	43	30.7
10-15years	32	22.9
15-18 years	6	4.3
Residence		

Urban	68	48.6
Rural	72	51.4
Primary care giver		
Mother	102	72.9
Father	20	14.3
Brother	7	5
Sister	7	5
Other(uncle,aunt,grand parent	4	2.9
Marital status of the primary care giver		
Single	7	5
Married	105	75
Divorced	16	11.4
Widowed	12	8.6
Educational status of the primary care giver		
Less than high school	69	49.3
High school	50	35.7
College and above	21	15.0
Family in come		
>1500 birr	64	45.7
</=1500	76	54.3

4.2. Epilepsy treatment out come and associated factors at HFSUH pediatric follow up clinic.Harar Ethiopia 2020.

According to this study as shown in table 2, Ninety-two (65.7%) patients had generalized epilepsy, 42(30%) had focal epilepsy and the remaining 6(4.3%) had unknown onset epilepsy. One hundred ten (78.6%) received monotherapy with phenytoin being the most commonly prescribed monotherapy and most 65(46.4%) of the patients were poorly adherent to their medication and only one (0.7%) patient was having adverse effect on AED.

When we see the status of seizure control, complete seizure control was observed in 57(40.7%), partial control in 67(47.9%) and poor control in 16(11.4%).More than half (60.7%) of the study subjects had more than one seizure per week before initiation AED.

Of the total 140 study subjects about 13(9.3%) had known cause for epilepsy with pyogenic meningitis and stroke 5(3.6%) each being the most commonly identified causes. Likewise comorbidity and epilepsy syndrome was identified in15 (10.7%) and 10(7.1%) patients respectively.

Table4.2.Epilepsy treatment out come and associated factors at HFSUH pediatric follow up clinic.Harar Ethiopia 2020.

Variable	Frequency(N)	Percentage (%)
Type of seizure in patients		
Generalized onset	92	65.7
Focal onset	42	30
Unknown onset	6	4.3
Mode of therapy		
Monotherapy	110	78.6
Dual therapy	26	18.6
Poly therapy	4	2.9
Type of monotherapy prescribed		
Phenytoin	67	47.9
Phenobarbitone	15	10.7
Valproate	17	12.1
Carbamazepine	11	7.9
Seizure control status		
Complete seizure control	57	40.7
Partial seizure control	67	47.9
Poor seizure control	16	11.4
Age at onset of epilepsy		
<1year	20	14.3
1-5years	72	51.4
>5years	48	34.3

Level of adherence		
High level of adherence	49	35
Medium level of adherence	26	18.6
Low level of adherence	65	46.4
Initial seizure frequency before AED		
<=one per week	55	39.3
>one per week	85	60.7
Symptomatic seizure with known cause		
Yes	13	9.3
No	127	90.7
Cause of symptomatic seizure with a known cause		
Pyogenic meningitis	5	38.5
Tuberculoma	1	7.7
Stroke	5	38.5
Head injury	2	15.4
Epilepsy syndrome		
Yes	10	7.1
No	130	92.9

Identified epilepsy syndromes		
Doose syndrome	6	60
Benign child hood epilepsy with Centro temporal spikes	2	20
Lennox-gastuat syndrome	1	10

Landau-kleffner syndrome	1	10
Duration of epilepsy since initiation of AED		
<2years	75	53.6
2-4years	42	30
>4years	23	16.4
Presence of adverse effect on AED		
Yes	1	0.7
No	139	139.3
Identified adverse effect on AED		
Gum hyperplasia	1	O.7
Presence of comorbidity		
Yes	15	10.7
No	125	89.3
Identified comorbidity		
Cerebral palsy	5	3.6
Developmental delay	12	8.6
Microcephaly	6	4.3
Other#	6	4.3

#Neurocutaneous syndrome, Meningomycele, ADHD

4.3. Factors associated with epilepsy treatment outcome among epileptic children at HFSUH pediatric follow up clinic.Harar Ethiopia, 2020/2021

4.3.1Bivariate and multivariate analysis

In the bivariable analysis, residence, educational status of the primary care giver, family income, type of seizure, type of monotherapy, level of adherence, initial seizure frequency before initiation of AED, symptomatic seizure with a known cause, presence of comorbidity and developmental delay were found to be candidates for multiple regression. In the multivariable analysis only the educational status of the primary care giver ,the type of monotherapy ,level of adherence and initial seizure frequency before initiation of AED were significantly associated with epilepsy treatment outcome at p.vale of <0.05.

Children with epilepsy whose primary care givers were having educational status of less than higher school was associated with poor outcome of epilepsy while those with phenobarbitone monotherapy were 86% protective of having poor outcome (AOR=0.14, 95% CI:0.001-0.552),Children with epilepsy with higher level of adherence were 91% protective of having poor outcome (AOR=0.09, 95%CI: 0.01- 0.102) and those with seizure frequency greater than one per week before initiation of AED were associated with poor outcome.

Table.4.3.bivariate and multivariate analysis of factors associated with epilepsy treatment outcome at HFSUH pediatric follow up clinic.Harar Ethiopia, 2020.

Variable	Treatment out come					
	Good outcome N (%)	Poor outcome N (%)	COR(95%CI)	P.value	AOR	P.Value
Residence						
Urban	34(59.6)	34(41.0)	0.469(0.236-0.933)	0.031	1.724(0.308-9.543)	0.53
Rural	23(40.4)	49(59.0)	1.00	1.00	1.00	1.00
Educational status of the primary care giver						
Less than higher school	26(45.6)	43(51.8)	1.00	1.00	1.00	1.00
High school	19(33.3)	31(37.3)	2.205(0.818-5.946)	0.118	0.321(0.39-2.617	0.288
College and above	12(21.1)	9(10.8)	2.175(0.772-6.129)	0.141	0.43(0.03-0.602	**0.019**
Family monthly in come						
>1500birr	35(61.4)	29(34.9)	0.338(0.168-0.67)	0.02	(1.131(0.171-7.469	0.899
<1500birr	22(38.6)	54(65.1)	1.00	1.00	1.00	1.00
Type of seizure in patients						
Generalized onset	46(80.7)	46(55.4)	0.315(0.138-0.709)	0.05	1.394(0.261-7.437)	6.97

Focal onset	10(17.5)	32(38.6)	1.00	1.00	1.00	1.00
Unknown onset	1(1.8)	5(6.0)	1.562(0.163-14.995	0.699		
Type of Monotherapy						
Phenytoin	31(64.6)	36(58.1)	0.419(0.120-2.017)	0.324	0.142(0.10-1.957)	0.145
Phenobarbitone	10(20.8)	5(8.1)	0.136(0.24-0.78)	0.026	0.14(0.001-0.552)	**0.023**
Valproate	4(8.3)	13(21.0)	1.219(0.215-6.9221)	0.823	0.129(0.004-7.752)	0.234
Carbamazepine	3(6.3)	8(12.9)	1.00	1.00	1.00	1.00
Level of adherence						
High level of adherence	41(71.9)	8(9.6)	0.2(0.06-0.61)	0.00	0.09(0.01-0.102)	**0.00**
Medium level of adherence	10(17.5)	16(19.3)	0.163(0.51-0.515)	0.02	0.48(0.005-0.449)	0.08
Low level of adherence	6(10.5)	65(46.4)	1.00	1.00	1.00	1.00
Initial seizure frequency before AED						
<=one per week	46(80.7)	9(10.8)	0.29(0.11-0.76)	0.00	0.64(0.14-0.296)	**0.00**
>one per week	11(19.3)	74(89.2)	1.00	1.00	1.00	1.00
Symptomatic seizure with known cause						

Yes	3(5.3)	10(12.0)	1.00	1.00	1.00	1.00
No	54(94.7)	73(88.0)	2.466(0.647-9.392)	0.186	6.902(0.342-139.394)	0.208
Comorbidity						
Yes	2(3.5)	13(15.7)	1.00	1.00	1.00	1.00
NO	55(96.5)	70(84.3)	0.329(0.88-1.223)	0.097	0.00	1.00
Developmental delay						
Yes	1(1.8)	11(13.3)	1.00	1.00	1.00	1.00
No	56(98.2)	72(86.7)	0.266(0.56-1.261)	0.095	0.00	1.00

5. Discussion

In this stud we assessed epilepsy out treatment and associated factors in HFSUH pediatric follow up clinic. We identified, being on phenobarbitone monotharapy, educational status of the primary care giver, level of adherence of AED and higher seizure frequency before initiation of AED were factors more likely to be associated with epilepsy treatment outcome.

Our finding revealed that more than half (59.3%) of children with epilepsy had uncontrolled seizure and this is against the study done Gonder,Ethiopia(Beyene, Ayalew et al. 2020) which shows 82% of patients were having controlled seizure, this variation could be explained due to difference in the definition of controlled seizure between the two studies(3months Vs. 6months in our study). But our study is favor of the study done ayder comprehensive specialized hospital(Niriayo, Mamo et al. 2018) which shows more than half (53.4) of patients had uncontrolled seizure and also in line with the study done in Addis Ababa Tikur anbessa specialized hospital which shows about two-third(65.6%) of the study participants had uncontrolled seizure(Nasir, Yifru et al. 2020).

Our study shows that children with higher level of adherence were more protective of having poorly controlled seizure and this consistent with study done Gonder Ethiopia(Beyene, Ayalew et al. 2020) and Ayder comprehensive specialized hospital hospital(Niriayo, Mamo et al. 2018) and Nigeria(Ipingbemi 2015). Our study shows that children whose primary care givers has educational status of less than higher school were associated with poor outcome of epilepsy and this in favor of the study done in Turkey(Korkmaz, Erdem-Uzun et al. 2020)and Thailand(Paschal, Mitchell et al. 2016). The possible explanation is because of people with low level of education may be non-adherent to medication.

Our study which shows that patients with phenobarbitone monotherapy were 86% protective of having poor outcome is not consistent with the study done in Shambu- general hospital north west Ethiopia (Dugassa 2017)which shows among 123 patients on phenobarbitone monotherapy only 9.8%have response to initial dose while 90.2% have no response to initial therapy of phenobarbitone. Possible reason of the difference is, our study is conducted among child hood epileptic patients while the latter is conducted among adult epileptic patients. But this needs further study to verify.

Our study shows that children with seizure frequency greater than one per week before initiation of AED were associated with poor outcome of epilepsy is favor of the study done in Bangladesh(Moinuddin, Rahman et al. 2010) and Turku University hospital south western Finland(Sillanpää 1993).

6. Limitation of the study

The cross sectional nature of the study may not provide adequate evidence of causality regarding seizure control status and its associated factors

Small sample size because of short study period and less number of patients were coming to follow up clinic possibly because of covid19 issues.

Lack of imaging modality like EEG and other neuro imaging to identify specific seizure type and etiology.

7. Conclusion and Recommendation

7.1. Conclusion

Our finding revealed that more than half of patients have uncontrolled seizure.

Phenobarbitone monotherapy and high level of adherence were potentially protective factors of poor treatment outcome; therefore particular consideration should be given.

Primary care giver with less than higher school educational status and higher initial seizure frequency before initiation of AED were predictors of poor treatment outcome and should be focused before initiation of AED.

7.2. Recommendations

Ministry of Health, Regional Health Bureau and Health care providers

Bring to the hospital appropriate imaging modality like EEG and neuroimaging

Care givers should be continuously counseled on proper treatment adherence to improve epilepsy treatment outcome.

Care givers with low educational status should get special attention regarding their children's epilepsy treatment outcome.

For Researchers

Further research with large sample size and long term prospective study and appropriate study design should be conducted.

Another study on factors associated with AED adherence should be conducted

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7. ANNEXES

ANNEXES I: Information Sheet and Informed voluntary Consent form for Hiwot-Fana Specialized University Hospital Administration.

How are you?
My name is……..I am working as data collector for the study being conducted in this hospital by Dr.Mohamed who is studying for his specialty in Pediatrics and Child Health at the School of Graduate Studies in the College of Health and Medical Science of the Haramaya University. I kindly request you to lend me your attention to explain about this study.

The Study Title: The study title of my thesis is Treatment outcome and associated factors of epilepsy among children at pediatric follow up clinic, of Hiwot Fana Specialized University Hospital.

The purpose/Aim of the Study: The purpose of this study is to establish a local hospital based information on the treatment outcome and associated factors of epilepsy among patients having follow up at pediatric follow up clinic at Hiwot Fana Specialized University Hospital. The finding of this study will provide up-to-date information for the health professionals working in Hospital. Moreover, the main aim of this study is to write a thesis as a partial fulfillment of Clinical specialty certificate in Pediatrics and Child Health.

Procedure and Duration: I will interview the parents or children with epilepsy at pediatric follow up clinic at HFSUH using a semi structured questionnaire to provide me with pertinent data that is helpful for this study .there are 24 questions to answer. The interview on each patient will take about 20 minutes

Risk and Benefit. The risk of participating in this study is very minimal. But the findings from this research may reveal important information for the hospital.

Confidentiality. The information that will be provided will be kept confidential. There will be no information that will identify the participants in particular. The finding of the study will be general for the study community and will not reflect anything particular of individual person. The questionnaire will be coded to exclude showing names. No reference will be made in oral or written reports that could link participants to the research.

Rights .You have, a full right to permit or not for this research to be done in this hospital. If you decide to permit you have again the right to stop the study any time without providing written or oral warning.

Contact Address: If you have any questions or inquiries about the study any time you can contact me by using my mobile phone number: 0915218589 / Dr.Mohamedsaleye and/or E-mail: mohamedsaleeye114@gmail.com or the Institutional Health Research Ethics

Review Committee of the College of Health and Medical Sciences using their office phone number: +251-254-662-011 or P.O.Box: 235, Harar, Ethiopia

ANNEXES II: Participant information sheet and informed voluntary consent form of patients (Ages < 18 years) to be signed by the parents/caregivers.

My name is…….. I am working as a data collector for the study being conducted in this Hospital byDr. Mohamed who is studying for his specialty in Pediatrics and child health at Haramaya University, the college of health and medical science. Your childis selected to be participant in this study. I kindly request you to lend me your attention to explain you about the study and the child's participation.

1. The study/project title: The study title of my thesis is Treatment outcome and associated factors of epilepsy among children having follow up at pediatric follow up clinic of HiwotFana specialized University Hospital, Eastern Ethiopia, 2020.

2. Purpose/aim of the study: The objective of this study is to establish local hospital based information on the Treatment outcome and associated factors of epilepsy among children having follow up at pediatric follow up clinic of HiwotFana Specialized University Hospital (HFSUH), Harar, eastern Ethiopia and the finding of this study can be used as a guide for health care providers and health institution to take the appropriate intervention. It will be also used for the regional health bureau and respective woreda health offices to plan and set strategies and expand services about health information dissemination. Moreover, the aim of this study is to write a thesis as a partial requirement for the fulfillment of specialty of pediatrics and child health.

3. Procedure and duration: I will ask you questions about your child that will help us to know the treatment out come and associated factors of epilepsy. This procedure will take you about 20 minutes. Therefore, I kindly request you to spare me this time.

4. Risks and benefits: The risk of being participating for your child in this study is very minimal; but only taking few minutes from your time. There would not be any direct payment for participating in this study. But the findings from this research may reveal important information for the local health planners.

5. Confidentiality: The information that we will collect from this study will be confidential. There will be no information that will identify your child or yourself in particular. The findings of the study will be general for the study community and will not reflect anything particular of individual persons or housing.

The data that we gather from the measurements will exclude showing names. No reference will be made in oral or written reports that could link participants to the research.

6. Rights: Participation for this study is fully voluntary. You have the right to declare to allow your child to be involved in this study or not. If you would allow your child for this study, you have the right to withdraw him/her from the study at any time and this will not label you/your child for any loss of benefits which you/your child otherwise are entitled. You do not have to answer any question that you do not as well.

7. Contact address: If there are any questions or enquires any time about the study or the procedures, please contact: Principal investigator: mobile phone +251915218589, Email: Mohamedsaleeye114@gmail.com, Institutional health research Ethics Review committee (IHRERC): office phone 0254662011 or P.O.Box 235, Harar-Ethiopia.

8. Declaration of informed voluntary consent: I have read/ was read to me the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw my child from the study at any time or not to answer any question that I don't want. Therefore, I declare my voluntary consent to allow my child to participate (be involved) in this study with my initials (signature).

Name and signature of parent/guardian: _____Date: _____

Name and signature of Data Collector: _____Date: _____

ANNEXES III: Afan oromo version Participant Information and informed voluntary consent form of patients (Ages < 18 years) to be signed by the parents/care givers

Akkam jirtan.Maqaan Koo_____jedhama. Ani raga qo'anno sassaabduu/aa barataa digrii lammaffaa fayyaa da"imaani fi ijoole , Yuniversitii Haramayaa. kan tahee Dr.Mohamedin kan geeggeeffamuun kan sassabu yoo tahu. Mucaan keessanis garee qo'annoo keenyaa taatee waan filatamteef waa'ee qo'annoo kanaa isinif ibsuuf gurra fi qalbii keessan akka naaf ergiftan kabajaan isiin gaafadha.

1. Mata-duree qo'annichaa: bu'aa yaala dhukubaa gagabaafi wantotataa dhukuba gagabaa wajiin waal qabatan HFSUH ti kutaa hordofii dhukuba da'iimaniiti

2. Kaayyoo qo'annichaa: Argannoon qorannoo kanaa waajjiira fayyaa nannoofis tahee dhaabbiileen fayyaa ni gargaara. Kana malees biiiroon eegumsa fayyaa naannichaa fi godinaa karoora baafatanii tajaahila kanneen haawaasaa biraan gahuuf ni gargaara.

3. Adeemsaa fi yeroo fudhatu: Hirmaachuuf fedhii qabdu yoo tahe waa'ee mucaa keessanii gaffiiwwan garaa garaa qo'annoo kanaaf qopha'an isiniifan dubbisa. Baay'inni gaaffii daqiiqaa 20 ol isinitti hin fudhatuu kanaafuu akka na caqastan sin gaafadha.

4. Faayidaa fi miidhaa qo'anichaa: Rakkinni qo'annoo kana keessatti hirmaachuu mucaa keessaniin quunnamu baay'ee xiqqaa yoo tahu, innis yeroo keessan muraasa (daqiiqaa 20) qofaa fudhachuu taha. Qo'annoo kana irratti hirmaachuun mucaa keessaniif kaffaltiin kaffalamu tokko iyyuu hin jiru. Garuu bu'aan qo'annoo kanaa ragaawwan haarawaa naannoo keessaniifi qooda fudhattootakan biroof ni argamiisa.

5. Iccitii eeguu: Odeeffannoon isin waa'ee mucaa keessanii nutti himtan hundi isaanii iccitiin kan eegamee fi gaaffiin enyuummaa mucaa keessan maqaan ibsu kan hin jiree dha. Argannoon qo'annaa kanaa hawaasa ,qo'annaa kana irratti hirmaatan akka walii galaatti kan ibsu yoo tahu, karaa kamiinuu dhimma nama dhunfaa hin calaqqisiisu. Haala kamiinuu namoota dhunfaa qo'annaa waliin walqabsiisuuf afaaniiniis tahe barreeffamaan ragaa hin waamsiifnu.

6. Mirga: Hirmaannaan mucaan keessan qo,annoo kana keessatti gootu guutuummaan guutuutti fedhii irratti kan hundaa'e. Mirga hirmaachuu fi hirmaachuu dhiisuu ni qabdu. Hirmaachuuf yoo murteessitan, mirga yeroo barbaaddanitti qo'annoo kanaa keessaa bahu yommuu qabaattan kana gochuu keessaniifis faayidaan isiin argachuu qabaattanii dhabdan tokko iyyuu hin jiru. Gaaffii deebisuu hin barbaadne deebisuufis hin dirqamtan.

7. Teessoo qo'ataa: Gaaffii yookiin qeeqa qo'annoo kana ilaallatuu kamiifuu, teessoo armaan gadiin gaafachuu fi quunnamuu ni dandeessu.

-Teessoo

 Qo'ataa muummee: Dr.Mohamed , lakk. bilbila mobayilii: +251915218589 yookiin e-mayilii, Mihamedsaleeye114@gmail.com

 Haramay yuniversititi, Waajjira dhimma naamusaa qo'annaa fayyaa dhaabbatichaa (IHRERC) lakk. Bilbilaa 025-466-20-11 Yookiin lakk.Poostaa 235, Harar.

8. Unkaa walii galtee fedhii irratti hundaa'ee:

Unkaan walii galtee hirmaattoota kanaa dubbifameera/ dubbiseera.Kaayyoo qo'annichaa, deemsiisaa, faayidaa fi midhaa, dhimmi iccitii eeguu, mirga hirmaachuu fi teessoon qo'ataa illee natti himamee jira. Wanta ifaa hin taane akkaan gaafadhuuf carraan naaf keennamee jira.Akkan yeroo barbaade qo'annicha addan kutee bahuu dandahu yookiin gaaaffii deebisuu hin barbaannee deebisuu hin dirqamnes natti himameera.Kanaafuu, akkan qo'annaa kana irratti feedhii kootiin hirmaachuu mallattoo koo kan armaan gadiin kanan mirkanneessa.

Maqaa fi mallatoo maatii/Eegduu _____//_____

Maqaa fi mallatoo odeeffannoo sassaabdu/a_____//_____

ANNEXES IV: የጥናቱተሳታፊዎችመረጃመስጫናፈቃደኝነትመጠየቂያቅፅ (በአማርኛ)

ስሜ_____እባላለሁ።

እኔበሀረማያዩኒቨርሲቲበህጻናተስፔሻሊስትየሚያጠናውዶ/ርመሐመድየሚያጠናውጥናታዊምርምርበመረ ጃሰብሳቢነትእሰራለሁ።ልጅሽበጥናቴውስጥእንዲካተትአስረድቼሽፍቃደኝነትሽንእጠይቅሻለሁ።

1.**የጥናቱርዕስ:**በ2020በህይወትፋናስፔሻላይዝድዩኒቨርሲቲሆስፒታልምስራቅኢትዮጲያውስጥ Treatment outcome and associated factor of epilepsy among children at pediatric follow up clinic

2.**የጥናቱዓላማ:የጥናቱዓላማ**በሐረርምስራቅኢትዮጲያበህይወትፋናስፔሻላይዝድዩኒቨርሲቲ በህጻናትክፍልያለውየሚጥልበሽታክትትልሁኔታዎችንማወቅይመለለከታል።ይህንምማወቅለሆስፒታሉጥቅ ምንያስገኛል።ይህምሆስፒታሉበህጻናት ክፍል ያለው የሚጥል በሽታ ክትትል ውስጥ ችግሮችንበመለየት የተከረስትራቴጂዎችንለማውጣትለመተግበርይጠቅመናል።በተጨማመሪይህጥናትለክልሉጤናቢሮእናለወ ረዳጤናሴክተሮችስጋርበመሆንግንዛቢለማስጨበጥ ያስችላል።ከዚህበተጨማሪየጥናቱአላማበህጻናትክፍል ፔሻሊስትሰርተፊኬትለማግኘትየሚዘጋጁየስፔሻሊስትማሟያፅሁፍነው።

3.**የጥናቱሁደትጊዜ፡**እኔጥያቄዎቹንበማንበብእርሶደግሞለጥያቄዎቹመልስበመስጠትለ20 ደቂቃዎችአብረንእንቆያለን፡፤የጥያቄዎቹባዛት24ነውስለዚህእኔጥያቄዎቹንአብረሽን/ከንየምትሰጭኝን/ ጠንን መልሶችበቦታቸውእመልሳሉ።

4.**ጥቅምናጉዳት:**ይህጥናትየርሰዎንየተወሰነሰዓትከመሻማትበቀርየሚያመጣዉብዙየሚባልጉዳትየለም።በ ጥናቱስለተሳተፉየሚያገኙትቀጥተኛየሆነጥቅምየለም።ነገርግንየጥናቱዉጤትበአካባቢዉበጤናዙሪያለሚሰ ሩድርጅቶችጠቀሚየሆኑመረጃዎችንይሰጣል።

5.**ምስጢራዊነት**:

የሚሰጡትመረጃምስጢራዊነቱየተጠበቀነዉ።በመጠይቁምዉስጥየርሰዎንማንነትበተለየሁኔታየሚጠይቅ ጥያቄየለም።የጥናቱምዉጤትጥናቱለተካሄደበትአካባቢጠቅለልያለመረጃየሚሰጥሲሆንየአንድንግለሰብወ ይንምቤትማንነትየሚያንጸባርቅአይደለም።ጥናቱምበምንምዓይነትመልኩበቃልምይሁንበጹሁፍየጥናቱን ተሳታፊማንነትበሚሳዉቅሁኔምታምሳሌአድርጎአያቀርብም።

6.**የተሳታፊዉመብት:**በጥናቱመሳተፍሙሉበሙሉበፈቃደኝነትላይየተመሰረተነዉ።በጥናቱየመሳተፍም ሆነያለመሳተፈመብትአለዎት።ለመሳተፍፈቃደኛከሆኑደግሞበማንኛዉምሰዓትየማቆምወይንምመመለስያ ልፍለጉትንጥያቄያለመመለስመብትአለዎት።በማንኛዉምሰዓትጥናቱንቢያቆሙትበተለየመልኩየሚፈረጁ በትነገርየለም።

7.**የበለጠመረጃማግኘትካሰፈለገዎ:**ጥናቱንየተመለከተማንኛዉምዓይነትጥያቄወይንምአሰተያየትካለዎ ትበሚከተሉትአድራሻዎችመረጃማግኘትይችላሉ።የጥናቱባለሙያ:ስም፡ዶ/ርመሐመድ.ስ.ቁጥር፡+2519152 18589ኢ.ሜይል፡mohamedsaleeye114@gmail.comበሐረማያዩኒቨርሲቲየህክምናትምህርትቤትየጥናትና ምርምርየስነ-ምግባርክትትልኮሚቴስ. ቁጥር፡ 0254662011ፖ.ሳ.ቁጥር፡ 235፤ሐረር

8.**በፈቃደኝነትላይየተመሰረተ: በዚህጥናትለመሳተፍመወሰንንየሚገልጽመግለጫ**

ይህየስምምነትመግለጫበሚገባተነቦልኛል።እኔምየጥናቱንዓላማበሚገባተረድቻለሁ።ጥቅምናጉዳቱን፤ም ስጢራዊነቱን፤መብቴንእንዲሁምጥናቱንየተመለከቱጥያቄዎችናአስተያየቶችካሉኝማንንመጠየቅእንደምች ልተገንዝቤአለሁ።ግልጽያልሆኑነገሮችንእንድጠይቅእድሉተሰጥቶኛል።በጥናቱሂደትልጄን በማንኛውምሰዓትከጥናቱማስወጣትእንደምችልናመመለስያልፈለጉትንጥያቄያለመመለስመብትእንዳለኝ በሚገባተነግሯኛል።ስለሆነምበዚህምክንያትልጄበጥናቱ ሂደትእንዲሳተፍመፍቀዴንበፊርማዬአረጋግጣለሁ፡

የተሳታፊውስም……..... ፊርማ……

መጠይቁንያስሞላዉሰዉ…… ፊርማ……..

SEMI STRUCTURE QUESTIONNAIRE

A.Socio demographic characteristic of patients with epilepsy

1. Sex of the child

A. male	B.Female

2. Age of child

A.6months -12months	B. 1year-5years	C.5-10years	D.10-15years	15years-18years

3. Residence

A.Urban	B.Rural

4. Primary care giver

A. Mother	B.Father	C. Brothers.	D.Sister	E. Other specify)

5. Marital status of the primary care giver

A.single	B.Married	C.Divorced	D.Widowed

6. Educational status of the primary care giver

A.Less than higher school	B.Higher school	C.college and above

7. Monthly income (in Ethiopian Birr).

A.<1500	B.>1500

B. Treatment outcome and associated factors of patients with epilepsy

8. Type of seizure in patients with epilepsy

1.Focal onset	2.Generalised onset	3.Unknown onset

9. Mode of therapy

1.Monotherapy	2.Dual therapy	3.Poly therapy

10. Specify if monotherapy----------

11. Type of combination therapy if above Monotherapy----------

12. Seizure control status

1.Complete seizure control	2.Partial seizure control	3.Poor seizure control

13. Age at onset of epilepsy

A.<1year	B.1-5years	C.>5years

14. Level of adherence to AED

A.High level of adherence	B.Medium level of adherence	C.Low level of adherence

15. Initial seizure frequency before initiation of AED.

A.</=one per week	B.>one per week

16. Does the patient have symptomatic epilepsy with a known cause?

1.Yes	2.No

17. If yes on question 16 specify----------

18. Does the patient have epilepsy syndrome?

1.Yes	2.No

19. If yes on question18 which epilepsy syndrome----------

20. Duration of epilepsy since initiation of AED

1.<2years	2.2-4yrars	3.>4years

21. Does the patient have adverse effect on AED?

1.yes	2.No

22. If yes on Question 21 what type of adverse effect

1.Behavioral abnormality	2.Gum hyperplasia	3.Skin rash	4.Ataxia	5.Other(specify)

23. Does the patient have any comorbidity?

A.Yes	B.No

24. If yes on question 23. What type of comorbidity

A.Cerebral palsy	B.Gobal developmental delay	Autism/attention deficit hyper activity dis order	Other(specify)

GAFFI QORANNOO YAALAMAA DHIBEE GAGGABAA FI BU'AA ISAA HOSPITAL HIWOT FANA SPECIALIZED UNIVERSITY HOSPITALATTI KUTA DAIIMA KILINKA NERVE KESSATTI ADEMSIFAMU

A.SOCIODIAMOGRAPHIC DHUKKUBSATA DHUKKUBSATAA GAGGABA

1.Salaadaiima

1. dhiraa	*2.dhalaa*

2. UmuriiDaiima

1.6-12 Baatii	*2.1-5 Wagga*	*3.5-10 Wagga*	*4.10-15Wagga*	*5.15-18 Wagga*

3. Iddoojireenyaa

1. Magaala	*2. Baddiyyaa*

4.Gargarsaajalqabaanamakennuf

1.Haadha	*2.Abbaa*	*3.Obbollessa*	*4.Obbolletti*	*5.kan biraa*

5.Bultiiqabaa?

1.Kan hinfuune	*2.Kan fudhee*	*3.kan hiikee*	*4.kan jalaaduee*

6 .Sadarkaabarumsaanamagargaruu

1.sadarka lammafagadi	*2. sardarkalammaf*	*3.kollejji fi isaaol*

7. GaliiMatii(Ethiopian birr)

1.<1500	*2.>1500*

B.YAALUMSAA DHIBEE GAGGABAAFI BU'AA ISAA FI RAKKOO ISAAN WALQABATEE

8.Gosadhibeegaggaba

1.gama tokko	2.gamaa hundaa	3. hinbekaamuu

9. Halaadawaaittifudhaatumu

1.Gosaa tokko	2.Gosaa lamaa	3.Hedduu yknbaayee

10.Yoogosaatokkota'eeaddabaasii----------

11.Yoogosaatokkooltaeeaddabaasii----------

12. dhaabachuugaggabaaa

Gutummandhabaachu	Mursaadhaabachuu	Gonkumaadhabachuudhisuu

13.Umuriigaggabujalqabee

<Waggatokko	Wagga 1-5	>Wagga 5 ol

14.Sadarkaadawaaittifudhaatuu

Sirrittiikanfudhaatu	Jiddugaleessankanfudhatuu	Seeraankanhinfudhaanne

15. lakofasaagaggabbajalqabaaosoodawaagaggabaahineegaliin

1.<=1/torbaantokkokessatti	>1/torbaantokkokessatti

16. Dhukkubsaatanmallattoogaggabaqabasabaabahinbekaamneen

1.Eyyani	2. lakki

17. Yoodeebiinkeegaafii 16ffarrattieeyyanijetteeaddabaasi----------

18. Dhukkubsataan epilepsy syndrome niqaba?

1 eeyyani	2. lakki

19. yoodeebiinkeegaffii 18ffaarratti eeyyanijetteibsi----------

20.hagaadhibeengaggabairratureeosoodawaahineegaliin

1. wagga 2 gadi	2.wagga 2-4	3.wagga 3 oli

21.dhukkubsataanmidhaadawaagaggabaanwalqabateeqaba?

1.eeyyani	2.lakki

22. Yoodeebiinkeekangaffi 21 ffaaeeyyanjettemallattooakkamiqaba?

1.Behevioural abnormality	2.Irgeen dhidhitauu	3.Mallootoogoggarrattiwaabahuu	4.Gatantaru	5.other (ibsi)

23.dhukkubsataandhibeegaggabanalaadhibeebiraaqaba?

1 eeyyani	2. lakki

24. yooeeyyanjettegaffi 23 ffaarrattidhibeegosaaakkamiqaba?

1.Cerebral palsy	2.global developmental delay	3.autis/attention deficit hyperactivity disorder	5.others (ibsi)

የአማርኛ መረጃ መሰብሰቢያ የቃለ መጠይቅ ፎርም

በሃረማያ ዩኒቨርሲቲበሀጻናትህክምናትምህርትክፍልተከታታይህክምና የሚያደርጉህሙማን ላይ“treatment outcome and associated factors among children at pediatric follow up clinic”በሚል ርዕስ ጥናት ለማጥናት የታዘጋጀ መጠይቅ::

1. ስለ ማህበራዊ ሁኔታ መረጃ		
ቁ 1	ጾታ	1.ወንድ 2.ሴት
ቁ 2	እድሜህ/ሽ	_____አመት
ቁ 3	መኖሪያ ቦታ	1.ከተማ 2.ገጠር
ቁ 4	የታማሚው ተንከባካቢ	1.እናተ 2.አባት 3. እህት 4.ወንድም 5. ሌላ
ቁ 5	የተንከባካቢ የትዳር ሁንታ	1.ያላገባ 2.ያገባ 3.የፈታ 4.የሞተበት
ቁ 6	የታማሚው የትምህርት ሁንታ	1.የመጀመሪያ ደረጃ ትምህርትና ከዛ በታች 2.ሁለተኛ ደረጃ ትምህርት 3.ኮሌጅ/ዩኒቨርስቲ
ቁ 7	በአማካይ የወር ገቢዎ	_____ብር

ክፍል 2፡ treatment outcome and associated factors of patients with epilepsy		
ቁ 8	የሚጥል በሽታ አይነት	1. ፎካል 2.ጀነራላይዝድ 3 አናውን አንሰት
ቁ 9	የመዳኒት አሰጣጥ ሁነታ	1. አንድ አይነት መዳኒት 2. ሁለት አይነት መዳኒት 3. ብዙ አይነት መዳኒት
ቁ 10	አንድ አይነት መዳኒት ከሆነ መዳኒቱን ይግለጹ	_____

ቁ 11	ከአንድ አይነት መዳኒት በላይ ሚወስዱ ከሆነ መዳኒቶቹን ይግለጹ	----------
ቁ 12	የበሽታው ቁጥጥር ሁንታ	1.ሙሉ በሙሉ 2.በከፊል 3.ከቁጥጥር ውጪ
ቁ 13	በሽታው የጀመረበት እድሜ	1.ከ 1 አመት በታች 2.ከ 1 – 5 አመት 3.ከ 5 አመት በላይ
ቁ 14	ከመዳኒቱ ጋር ያለው ቁርኝነት ደረጃ	1.በጣም ጥሩ 2.መካከለኛ 3.ዝቅተኛ
ቁ 15	የበሽታው ብዛት መድሀኒት ከመጀመሩ በፊት	1.በሳምንተ 1 ወይም ምንም 2.ከ 1 በላይ
ቁ 16	ከሌላ ህመም ተያያዥነት ያለው የሚጥል በሽታ አለ?	1.አዎ 2.የለም
ቁ 17	ቁ 16 አዎ ከሆነ አይነቱ ይገለጹ	----------
ቁ 18	ታማሚው epilepsy syndrome አለወይ?	1.አዎ 2.የለም
ቁ 19	ቁ 18 አዎ ከሆነ አይነቱ ይገለጹ	----------
ቁ 20	የበሽታው ቆይታ መድሀኒተ ከጀመረ በሓላ	1.ከ 2 አመት በታች 2.ከ 2 – 4 አመት 3.ከ 4 አመት በላይ
ቁ 21	የመድሀኒቱን የጎኒዮሽ ጉዳት አለወይ?	1.አዎ 2.የለም
ቁ 22	የ ቁ 21 መልስ አዎ ከ ሆነ የግለጹ	----------
ቁ 23	ሌላ ተጨማሪ ተጌዳኝ ህመምአለበዎት?	1. አዎ 2. የለም
ቁ 24	የ ቁ 23 መልስ አዎ ከ ሆነ የትኛው በሽታ?	1..Cerebral palsy 2Gobal developmental delay 3.ADHD 4.Other(specify)

CURRICULUM VITA

Personal Details

Name: Mohamed saleyema,alin

Place of Birth: Godey

Nationality: Ethiopian

Marital status: Married

Age: 29years

Health status: Physically, psychologically and mentally well being

Contact Details

Address: Harar

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Personal profile

Iam motivated, committed and well-disciplined person with his work. I have the capacity to engage Positive attitudes in working with diverse**.**

Educational backround

- 2018-2020GcSpecialty certificate in Pediatric and Child health Haramaya university (ongoing)
- 2010-2017Gc The degree of doctor of medicine Haramaya university
- 2004-2009GcGodey secondary and preparatory school
- 1998-2003Gc Sayid Mohamed abdilahasan primary school

LANGUAGES

Language	**Speaking**	**Listening**	**writting**	**Reading**
Somali	**Fluent**	**Fluent**	**Fluent**	**Fluent**
English	**excellent**	**excellent**	**Excellent**	**Excellent**
Amharic	**Good**	**Good**	**Poor**	**Poor**
Afan Oromo	**Poor**	**Poor**	**Poor**	**Poor**

REFERENCE

No	Name	Title	Place of work	Contact Phone
1	Dr.Hanan Abdurrahman	Lecturer	Haramaya university	+251912066070
2	Dr.Mohamed Omer	General practioner	Dagahbur city administration	+25915211717

Approval sheet
HARAMAYA UNIVERSITY
POST GRADUATE PROGRAM DIRECTORATE

I hereby that certify that I have read and evaluated this proposal entitled Treatment outcome and associated factors of epilepsy among children at Hiwot fana specialized university hospital pediatric follow up clinic,Harar Ethiopia prepared under my guidance by Mohamed saleye

I recommend that it can be submitted as fulfilling the proposal requirement.

1. Hanan Abdurrahman (MD, Assistant professor) _____ _____
   Mojar advisor Signature Date

2. Tasfaye Assebe (PHD. Assistant professor) _____ _____
   Co-Advisor Signature Date