UNIVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

DEPARTMENT OF PSYCHIATRY

DETERMINING TREATMENT LEVELS OF COMORBID PSYCHIATRIC CONDITIONS IN PEOPLE WITH EPILEPSY ATTENDING SELECTED LOCAL CLINICS IN LUSAKA, ZAMBIA.

By

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THE UNIVERSITY OF ZAMBIA LUSAKA

DECLARATION

I, **Lekani Banda Venevivi**, declare that this is wholly my own work, and that the work of others that has been used in this dissertation has been acknowledged and referenced. The work presented here has not been previously presented in whole or in part at this university or any other university for a similar purpose.

Author's Signature: ---------- Full Name: ----------

Supervisor:

I have read this dissertation and approved it for examination.

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CERTIFICATE OF APPROVAL

This dissertation of **Lekani Banda Venevivi** has been approved as fulfilling the requirements for the award of Masters of Medicine in Psychiatry by the University of Zambia.

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Examiner I

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Examiner II

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Examiner III

Head of Department:

Signature ..... Date.....

Dedicated to all those that live with epilepsy and battle comorbidities everyday as they try to attain quality of life

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LIST OF DEFINITIONS, ABBREVIATIONS AND SYMBOLS

BPRS	Brief Psychiatric Rating Scale
cART	Combined Anti-retroviral Therapy
CBZ	Carbamazepine
DSM-IV	Diagnostic Statistical Manual, Fourth Edition
HAART	Highly Active Anti-retroviral Therapy
ILAE	International League Against Epilepsy
MoH	Ministry of Health
PHB	Phenobarbitone
PHSTDA	Primary Healthcare Screening Tool for Depression and Anxiety
PLWE	People Living With Epilepsy
SODVAL	Sodium Valproate
WHO	World Health Organisation

Comorbidity	The presence of one or more additional disorders co–occurring with a primary disease

ABSTRACT

Background- Psychiatric co-morbidities, particularly mood and anxiety disorders, occur more frequently in patients with epilepsy compared to the general population and tend to worsen morbidity and mortality in this group of patients via suicide among other causes. Treatment of these disorders is key to reducing mortality. This study determined the levels of treatment of psychiatric co-morbid conditions in people living with epilepsy attending local clinics in Lusaka province of Zambia and some factors likely to affect chances of being on treatment.

Methodology- This was a cross-sectional study conducted from 5 (five) Health institutions within Lusaka District. Enrolment of participants was from March to September, 2015. The study included participants with epilepsy for over 3 months aged 18years and above. The sample size to estimate the prevalence of psychiatric co-morbidity in epilepsy patients was calculated according to the simple proportion formula developed by Cochran in 1963. The Brief psychiatric rating scale (BPRS) and a self-designed questionnaire for extracting demographics and medical history were administered to patients meeting the inclusion criteria to determine how many needed treatment compared to those that actually were on treatment.

Results- Of the 397(56.7% Male, 43.3% Female) participants enrolled in the study, the majority 308(80%) had only lived with epilepsy for less than 10 years and the mean age of the study participants was 31.29[SD 9.7] years with a rapid drop beyond 34 years of age. Only 14(3.5%) were found to have psychiatric disorders already diagnosed by the local staff and yet the screening with BPRS showed that 158(39.8%) had anxiety symptoms, 156(39.6%) had depressive symptoms and 57(14.4%) had psychotic symptoms. 13(92.8%) of those pre-diagnosed to have psychiatric comorbidity were on treatment. The results revealed that there was a significant association between male gender and psychiatry diagnosis (p=0.017).

Conclusion- The detection and treatment rate of psychiatric comorbid conditions stands at 3.5% of the epilepsy population and with comorbidity prevalence at about 39%, it means that less than 10% of those eligible receive treatment. This low treatment rate may contribute to the poor treatment outcomes (mortality included) beyond 5 years of diagnosis. There was a rapid drop in numbers of participants beyond 35years of age and this would have been due to poor life expectancy in epilepsy. There is need to improve comorbidity screening and treatment as it impacts treatment outcomes.

Key words- Epilepsy, psychiatric co-morbid conditions.

CHAPTER 1: INTRODUCTION

1.1 Background

Epilepsy is a disorder of the brain characterized by an enduring predisposition to generate epileptic seizures, and by the neurobiological, cognitive, psychological, and social consequences of this condition (Fisher *et al*, 2005). The definition of epilepsy requires the occurrence of at least one epileptic seizure. An epileptic seizure is a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain and may present with or without brief episodes of involuntary shaking which may involve a part of the body (partial) or the entire body (generalized) and sometimes accompanied by loss of consciousness, control of bowel or bladder function. This definition is usually practically applied as having two unprovoked seizures more than 24 hours apart (ILAE, 2005).

Epilepsy affects about 50 million people worldwide, and 80% of them live in the developing world. In developed countries, annual incidence is between 40 and 70 per 100 000 people in the general population. In developing countries, this figure is twice as high due to the higher risk of experiencing conditions that can lead to permanent brain damage (WHO, 2012).The prevalence of epilepsy in Africa is estimated to be around 11.29 per 1000 population (Global Campaign Against Epilepsy, 2005). In Zambia, epilepsy continues to be one of the most common non-communicable diseases although the exact prevalence unknown. However, a study in the rural parts of the Southern Province showed a prevalence of 14.5 per 1000, in a catchment area of about 55,000 (Birbeck *et al*, 2004). Epilepsy has continued to be stigmatized and those afflicted by it have been considered to be mentally unwell and are less likely to live a full quality of life (Birbeck *et al*, 2007).

Epidemiologic studies have demonstrated that psychiatric co-morbidities, particularly mood and anxiety disorders, occur relatively frequently in patients with epilepsy compared to the general population (Tellez-Zenteno, *et al.*, 2007). Psychiatric co-morbidities also affect the quality of life and contribute significantly to premature

mortality if not treated and hence their importance (Perrine *et al.*, 1995, Birbeck *et al.*, 2007).

The most frequent psychiatric diagnoses reported in people with epilepsy include psychoses, neuroses, mood disorders (e.g. Depression), personality disorders (DSM-IV axis II disorders), and behavioural problems (Gaitatzis *et al*., 2004)

It is estimated that 20-30% of patients with epilepsy have psychiatric disturbances (Vuilleumier *et al.*, 1998). This is thought to be an underestimation due to low screening for psychiatric conditions. Mbewe *et al.* (2013b), estimated that as many as 49% of people with epilepsy have a comorbid anxiety or depressive disorder.

Despite their relatively high prevalence, psychiatric disorders often remain unrecognized and untreated (Mangrove *at al.*, 2011, Mbewe *et al.*, 2013a). The impact of an untreated comorbid depressive disorder on a patient's quality of life is significant—and can be greater than that of the seizure disorder itself. (Perrine *et al.*, 1995, Lehrner *et al.*, 1999). In caring for people with epilepsy, clinicians often target seizure freedom as their biggest priority. The psychiatric and cognitive disturbances are often ignored, unless they are severe enough to cause major disturbances or disability (Kanner *et al.*, 2009).

Multiple genetic and psychosocial factors determine the risk for the development of either schizophreniform psychoses or major depression in patients with epilepsy. In our setting, poverty and stigma are among the main social risk factors, and behavioural disorders in epilepsy have multiple risk factors and multi-factorial aetiologies (Schmitz, 1999). Factors such as education, employment, poor seizure control, side effects of drugs are some of the determinants for the development of depression for instance (Mensah *et al.*, 2006)

1.2 Statement of the Problem

Treatment of psychiatric comorbidities in epilepsy remains low despite knowing their importance. Psychiatric conditions such as anxiety and depression are more common in people with epilepsy and play an important role in determining the outcome of their

treatment (Tellez-Zenteno *et al.*, 2007, Stefanello *et al.*, 2010, Fazel *et al.*, 2013). Psychiatric co-morbidities also affect the quality of life and contribute significantly to premature mortality if not treated (Perrine *et al.*, 1995, Birbeck *et al.*, 2007). These co-morbid conditions are perceived by the patients to cause more suffering than the epilepsy itself (Lehrner *et al.*, 1999). This is one of the major contributors to reduced life expectancy among people with epilepsy even in Zambia. It is therefore important that co-morbid conditions be treated accordingly in order to improve the quality of life and life expectancy of people with epilepsy.

In one study, it was found that treatment rates were as low as thirteen percent of those detected (Karouni *et al.*, 2013. This may even be lower in our setting considering the human resource challenges). Which means that though a screening tool was introduced to detect these conditions quickly, there may still be under treatment in the Health Centres in Zambia.

Therefore, this study looked into the treatment of co-morbid psychiatric conditions in people with epilepsy at selected health centres within Lusaka; covering the following key areas:

1. Number of those identified,
2. Number of those who received any form of treatment and
3. The factors influencing their treatment.

Information from this study was aimed at helping to strengthen the existing screening and management of psychiatric co-morbidities in epilepsy.

1.3 Study Justification

There have not been many studies focused on treatment rates of all psychiatric co-morbid conditions among people with epilepsy in Zambia. The only major studies on some psychiatric co-morbidity in epilepsy have been those conducted by Mbewe and colleagues since 2007. It should be quickly pointed out that Mbewe and colleagues largely focused on depression and anxiety as the main psychiatric co-morbidities, besides

dealing with stigma related to epilepsy. Considering the key influence the psychiatric co-morbidities have on treatment outcome, it was important that we evaluate and quantify efforts of the health care system at addressing this. This study therefore would bring to light the number of patients receiving acceptable treatment for both the seizures and psychiatric conditions and explore the influence of some factors on treatment access. This would in turn result in a scale up in training of health care personnel in the screening and management of co-morbid psychiatric conditions in epilepsy as suggested by Mbewe *et al.,* (2013c).

1.4 Research Question

The research question focussed upon by this study was: What proportion of patients with epilepsy and psychiatric comorbidity receive appropriate treatment for the comorbid psychiatric condition they manifest?

1.5 Study Objectives

1.5.1 General Objective

The general objective of this study was to determine the levels of treatment of psychiatric co-morbid conditions in People Living with Epilepsy (PLWE) attending local clinics in Lusaka and the factors likely to affect chances of being on treatment.

1.5.2 Specific objectives

The specific objectives were to:

- Use a screening tool to identify psychiatric comorbidity in people with epilepsy.
- Determine the proportion of patients with co-morbid psychiatric conditions receiving treatment for those conditions versus those eligible but not on treatment.
- Determine if patients' clinical characteristics and demographic factors influence treatment or non-treatment of the psychiatric co-morbidities.

CHAPTER 2: LITERATURE REVIEW

2.1 Overview

2.2 Prevalence of psychiatric comorbidity in epilepsy

A number of studies have shown that psychiatric conditions are more common in people with epilepsy than the general public. A large Canadian population based survey found that psychiatric conditions were more prevalent among people with epilepsy compared to the general public. This study found an almost double risk of depression and anxiety in the epilepsy population at 17.4% and 22.4% respectively compared to 10.7% and 11.2% in the non-epilepsy population (Tellez-Zenteno *et al.,* 2007). Table 1 below shows a summary of their findings.

Table 2.1: Psychiatric co-morbidity in people with epilepsy and the general population

Psychiatric disorder	No epilepsy (N = 36,727) (95% CI)	Epilepsy (N = 253) (95% CI)
Major depressive disorder (Lifetime)	10.7 %	17.4 %
Mood disorder (Lifetime)	13.2 %	24.4 %
Anxiety disorder (Lifetime)	11.2 %	22.8 %
Mood/anxiety disorder (12 month)	8.0 %	19.9 %
Panic disorder/agoraphobia (Lifetime)	3.6 %	6.6 %
Panic disorder/agoraphobia (12 month)	2.0 %	5.6 %
Suicidal ideation (lifetime)	13.3 %	25.0 %
Any mental health disorder (lifetime)	20.7 %	35.5 %

Source: Adapted from. Tellez-Zenteno et al, 2007, Psychiatric Co-morbidity in Epilepsy.

Though not much has been done to explore patient factors contributing to treatment, health seeking attitudes of patients determine whether they will receive care. A study

done in Wales, United Kingdom, reported depressive symptoms in 38% of patients with epilepsy. Of those, almost 40% of them said they preferred to deal with the problem themselves than talk to other people about their problem. This meant that their depression went unreported and untreated. Patients also reported that dealing with their problems quickly was more important to them than medication (Margrove *et al.*, 2011). This study showed that despite many of them choosing to deal with their own problems of stress and depression, most still wanted and felt they needed help. Therefore, this attitude similar to a "learnt helplessness" (Maier *et al*.,1976),may also be present in our setting and prevents people with epilepsy from seeking help even when they experience symptoms of depression hence going untreated. People who were hard pressed financially were more likely to be depressed than the affluent (Margrove *et al.*, 2011). In Zambia, most people with epilepsy live in poverty and have poor social support (Birbeck *et al.*, 2007). Such are likely to suffer more depression and get helped the least resulting on ongoing suffering to which no end shall come unless the psychiatric illnesses are addressed actively

In a study titled "Psychosocial issues in people with epilepsy in Togo and Benin", people with epilepsy in Togo and Benin had higher average depression scores (4.4 ± 2.1, 4.7 ± 2.7) than controls (0.5 ± 0.9, 1.4 ± 2.4). They also had significantly higher average anxiety scores (5.3 ± 2.0, 6.2 ± 2.1) than controls (2.5 ± 1.6, 1.6 ± 2.0). This study helps confirm the higher incidence of psychiatric conditions and more intense symptoms in people with epilepsy. They also went on to conclude that, "given that co-morbid conditions affect treatment outcome, it becomes important to screen and treat these psychiatric conditions". This study also highlighted the fact that depression in epilepsy differs in epidemiologic characteristics such as gender distribution and that it was notably higher than initially anticipated compared to the general population (Nubukpo *et al.*, 2004)

Locally, Mbewe *et al.*, 2013, showed that the prevalence of psychiatric conditions in people with epilepsy is as high as 49%. His study also showed that detection rates especially of depression and/or anxiety, were as low as 1%. The study attributed the low detection to poor training of staff at primary health care level and also the lack of quick

and easy screening tools. To this effect Mbewe and colleagues (2013) then worked on a short screening tool to quickly identify anxiety and depression in people living with epilepsy. This tool called Primary Healthcare Screening Tool for Depression and Anxiety (PHSTDA) was validated using DMS-IV criteria. It was able to detect depression and anxiety in up to 53% of the 595 people screened. Of these persons, 73.0% were positive for depression, 23.0% were positive for anxiety. This tool showed that few people with epilepsy and psychiatric comorbidity of depression and/or anxiety were diagnosed. The paper concludes that this step is an important one towards generating a tool that will be used efficiently in our resource constrained health sector that has over-worked staff.

2.2 Impact of psychiatric comorbidity in epilepsy

The impact of psychiatric conditions of epilepsy cannot be over emphasized. A Brazilian study found that as many as one-third of people with epilepsy had suicidal thoughts and that 12% had even attempted suicide at some point in their lives. This study also highlighted the fact that psychiatric conditions contributed to suicidal tendencies. Psychiatric conditions in epilepsy were associated with increased desire to die; a thought which can add to the depression one is experiencing (Stefanello *et al*, 2010). Increased suicidality among patients with epilepsy was originally noted by Barraclough (1987), who reviewed 11 studies and found the rate of suicide attempts in patients with epilepsy and complex partial seizures of temporal lobe origin to be 25 times higher than that seen in the general population. Thus Barraclough plausibly argued that "psychiatric conditions tended to increase the chances for completed suicide" (Barraclough, 1987).

In 2013, Fazel *et al.,* reviewed records and outcomes for those with epilepsy that were born in Sweden between 1959 and 2009 and found that there was a reduced life expectancy for those with epilepsy. However, they found an even higher mortality rate in people that had co-morbid psychiatric conditions. Suicide was more frequent in the epilepsy group. Of those who died from external causes, 75·2% had co-morbid psychiatric disorders. They mentioned that some of these deaths could have been avoided

by appropriate treatment and suggested the need to check the health services' capacity to prevent such deaths (Fazel *et al.,* 2013).

Boer *et al*, (2008) reviewed the burden of epilepsy in Africa. They noted that people with intractable seizures were at constant risk of becoming unconscious, falling and sustaining injuries in public and, social embarrassment. They also state that epilepsy is complicated by the presence of psychiatric disturbances and behavioural problems that often take a greater toll on the quality of life than the seizures.

Similarly, Jilek-Aall, and Rhwiza (1992) conducted a review on the prognosis of patients with epilepsy in Tanzania by looking at their survival rates over a period of 30 years. They found that the mortality rate was higher among people with epilepsy. Of the people followed up, it was found that 110 (67.1%) had died, 18 (11%) could not be traced and only 36 (21.9%) were alive. The findings also show that those that were alive were of normal mental state regardless of the seizure history. This showed that seizure control alone was not the most important factor in the outcome of epilepsy as evidenced by the similarity in mortality rate in the people with untreated epilepsy compared to that of the treated group. Psychiatric co-morbidities in this case could have significantly contributed to mortality as they mention that all survivors, both treated and untreated for epilepsy, had normal mental states.

2.3 Treatment of Psychiatric Comorbidity

While many studies have been conducted to show the prevalence and consequences of psychiatric comorbidities, few have delved into the treatment of these conditions. Some authors have also stated that data on this subject is sparse. Part of the reasons that were given for this were that to date there has been no proper or evidence based way of treating psychiatric comorbidities in epilepsy. In one study, treatment rates of the comorbidities were as low as 13% for pharmacological treatment and other treatment methods were not studied (Karouni *et al.,* 2013).

Though no data are available on patient factors that determine treatment, data available show that there is a general avoidance to prescribe psychotropic drugs by epileptologists and neurologists. Fear of drug interactions is the commonest given reason for this. The lack of data regarding pharmacological treatment in people with epilepsy also adds to the problem. All those that are on treatment therefore use regimen derived from general adult psychiatry a situation that makes neurologists uneasy (Ettinger *et al*., 2007).

From the literature presented, there is a general agreement by all authors that psychiatric conditions greatly influence the outcome of epilepsy. It is also evident that these conditions are overlooked and their impact underestimated. There may then exist an even bigger treatment gap which this study aimed to highlight and address.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Study Setting

This study was conducted at 5 randomly selected institutions within Lusaka which actively offer treatment services for patients with epilepsy from health centre level to tertiary hospital level. Sites were selected by simple lottery and included namely; Chainama Hills Hospital, Levy Mwanawasa Hospital, Chilenje Clinic, Matero Reference Centre and Chawama Clinic respectively. They offer services at different levels of care as ranging from primary to tertiary level services as follows:

3.1.1 Chainama Hospital

Chainama Hills College Hospital is the only tertiary psychiatric hospital in Zambia. It caters for referrals from the entire country for psychiatric conditions. Chainama hosts the largest epilepsy clinic in the country. Despite epilepsy being a neurological condition, it is treated mainly by psychiatrists due to the lack of neurologists and also the commonly associated psychiatric comorbidity. Hospital data show that the hospital handles an average of 200 patients with epilepsy in a month as of the year 2013 and the number may have increased in 2015.

3.1.2 Levy Mwanawasa General Hospital

Levy Mwanawasa General Hospital is the only secondary level hospital in Lusaka District. It handles referrals from primary care level centres for both general and specialist cases. This hospital also houses one of the most active epilepsy clinics in Lusaka. It is the second largest clinic after Chainama hospital that treats epilepsy on an out-patient basis. It caters primarily for the population of the entire Lusaka Province.

3.1.3 Chilenje Clinic

Chilenje Clinic is one of the primary health centres being upgraded to first level hospital status. It caters for a catchment population that is mainly concentrated on the south-

eastern part of Lusaka. It offers first level care and refers to the appropriate higher level of care if need arises. Its proximity to the community makes it a more preferred point of care for many. Records show that this clinic handles about 89 patients with epilepsy on their register.

3.1.4 Matero Reference Centre

Matero Reference Centre is also currently being upgraded to hospital status. It acts as a first level referral centre for a number of clinics in the area. It caters for the population north of Lusaka town centre. Records show it treats about 80 patients with epilepsy quarterly.

3.1.5 Chawama Clinic

Chawama clinic caters for the South-western population of Lusaka. It also handles about 80 patients with epilepsy quarterly according to clinic reports.

3.2 Study Population

The study population consisted patients aged 18 years and older with a clinical diagnosis of epilepsy attending outpatient clinic for their reviews at local clinics. The cut-off age was set at 18years because it is the legal consenting age in Zambia. Children were excluded because the screening tool used was validated for use in adults only, as symptoms may differ in children and younger adolescents.

3.2.1 Inclusion Criteria

The inclusion criteria were:

- Those with epilepsy above the age of 18years and could consent or were accompanied by someone who could consent on the patients' behalf in case of compromised levels of literacy.

- Those coming for review and were on treatment for epilepsy for at least three months

3.2.2 Exclusion criteria

- Any patients below 18years of age
- People with non-epileptic seizures such as Psychogenic Non-epileptic seizures(PNES) or alcohol induced seizure
- Patients presenting to the clinic for the first time despite established clinical history of epilepsy?

3.3 Study Design

This was a cross-sectional study design.

3.4 Sample Size Calculation

The sample size to estimate the prevalence of psychiatric co-morbidity in epilepsy patients was calculated according to the simple proportion formula developed by Cochran in 1963.

The formula is as follows:

$$n = \frac{Z^2 \times P \times Q}{L^2}$$

Where: n = required sample size, Z = Z value for a given confidence level, P = known or estimated prevalence, Q = (1-P), and L = allowable error. In this study a 95% confidence level with allowable error of estimation of 0.05 was used. The prevalence was known from the study conducted by Mbewe *et al.*, (2013b) which was reported as 49.0%. Therefore, n = $1.96^2 \times 0.49 \times 0.51/0.05^2$ =384. Thus, our sample size was calculated to be 384 patients. There was a more than 100 percent acceptance rate and a total of 397 patients were enrolled successfully. The over enrolment was to allow for error in case

some mistakes were made during the enrolment but on data entry only few had errors resulting in only 3 questionnaires being invalid 2 being due to underage participants and 1 with incomplete details

3.5 Sampling Method

Random Sampling was used to select study participants. Patients in each health centre register were assigned numbers on pieces of paper which were then picked by an independent person from an opaque plastic bag. If the number represented a client who did not meet the criteria, another number was drawn instead. The selected clients were then be targeted for enrolment on the given review date when they visited the centre. An allowance of an extra 10% was made in order to allow for those that may have missed their review day or were lost to follow. The sample size in each health centre was proportionate to the epilepsy patient population that each of the clinics serves according to the numbers in the registers. This made sure that patients in each health centre had an equal chance of representation and also avoided selection bias. The figures on which the proportionate sampling figures were based were from the completed annual reports for the year 2013 as those for 2014 were not yet compiled and finalised by the time of collecting data.

Table 3.1: Proposed sampling frame

Health Centre	Epileptic patient Numbers	Proportion % (N=551)	Number to be sampled (proportion x sample size)
Matero	80	14.5	56
Chilenje	89	16.2	62
Chawama	82	14.9	57
Levy Mwanawasa	100	18.1	70
Chainama	200	36.3	139
TOTALS	**551**	**100.0**	**384**

For those that met the criteria, written consent was sought and the study explained to the participants. A review on the patient record was done to see if the patient was already diagnosed with a psychiatric co-morbid condition. If already diagnosed with a psychiatric condition, the screening tool was then administered for anxiety, depression and psychosis to confirm the completeness diagnosis. The file review also checked if at all the treatment being received by the patient for the comorbidity was correct according to standard treatment guidelines for non-epilepsy patients. Methods accepted as treatment were pharmacotherapy or psychotherapy or both. For those who were not already diagnosed, the screening tool was applied to check for co-morbid conditions of interest and thereby determine the treatment gap. The data were collected using the Brief Psychiatric Rating Scale (BPRS) for diagnosing psychiatric conditions and a self-made screening questionnaire for collecting the patients' socio-demographic information.

3.5.1 Screening tools

The following tools were used in this study:

3.5.1.1 Brief psychiatric rating scale (BPRS)

The Brief psychiatric rating scale (BPRS) is a widely used instrument for assessing the positive, negative and affective symptoms of individuals who have psychotic disorders. It is administered by a clinician who has knowledge concerning psychotic disorders. It consists of 18 symptom constructs and takes an average of 25 minutes to administer. It covers behaviour over the previous 2-3 days and severity of symptoms is rated from 0-7 with 0 meaning no symptom and 7 being severe. Higher scores signify severe disease (Appendix 1).

3.5.1.2 Questionnaire

A self-made questionnaire was administered to consenting patients meeting the inclusion criteria. This tool collected data on the demographic, social economic status, as well as patient history from the treatment record (Appendix 2).

3.6 Data Management

3.6.1 Data Collection

Data were collected by trained research assistants using the two screening tools. These were nurses and clinical officers who had psychiatry experience.

The screening tools were coded and kept anonymous to protect participants' details. Data were entered into EPI-INFO using Make view and the Enter data software.

3.6.2 Data Analysis

The data collected were checked for completeness, and then exported to SPSS version 18 where they were analysed in two stages. In first stage, univariate analysis was done to obtain, counts, percentages, and measures of central - tendency. This was then followed by bivariate analysis using the chi-square to come up with associations between our variables of interest (i.e. gender, marital status, medication received and clinic attended) on one hand and the dependent variable (i.e. Treatment of comorbidity) on the other. No further multi-variate analysis was engaged.

The level of significance was set at $p \leq 0.05$ for all statistical analyses. All confidence intervals were at 95% level.

3.7 Ethical Consideration

Voluntary Participation

Participation in this study was entirely voluntary. If potential participants chose not to consent, nothing changed about the care they received from their respective health centres. Patients were also free to change their mind[s] later and stop participating, even if they agreed earlier, and this would still have been of no consequence on their treatment.

Benefit to the participant

While participating in the study, the participants that were diagnosed to have any of the conditions screened for were referred to the local clinical staff for treatment and, the Head of Department of Psychiatry at the University of Zambia was consulted for input in the care of their further treatment. This was part of the immediate benefit of their participation. The long term benefit was the improved quality of life due to treatment of the comorbidities discovered.

Benefit to the Community

The benefit of this study to the community was, improved screening for patients attending clinic and increased treatment for psychiatric comorbidities, which would result in reduced burden on the care-givers. The community would also benefit from this group being more productive and ultimately contributing to national development.

Risk and Discomfort

The risk to the participant was minimal as there were no invasive procedures. No adverse emotions were reported during the study.

Confidentiality

The information collected from this research project was kept confidential. It was not shared with or given to anyone except to the principal researcher

Ethical Approval

This study had ethical approvals from Excellence in Research and Science Converge Institutional Review Board (ERES IRB). Further clearance was sought from The Ministry of Health and Individual institutions involved.

CHAPTER 4: RESULTS

4.0 Overview

This chapter presents the results of the study. The main objective of the study was to determine the levels of treatment of psychiatric co-morbid conditions in people living with epilepsy attending local clinics in Lusaka and some factors affecting it. The specific objectives of the study were:

1. Use a screening tool to identify psychiatric comorbidity in people with epilepsy

2. Determine the proportion of patients with co-morbid psychiatric conditions receiving treatment for those conditions versus those eligible but not on treatment

3. To determine if patients' clinical characteristics and demographic factors influence treatment or non-treatment of the psychiatric co-morbidities.

4.1 Biographical characteristics of the patients

Three hundred and ninety- seven patients were involved in this study (Table 4.1). Two hundred and twenty-five (56.7%) were males while 172 (43.3%) were females. The youngest patient was 18 years while the oldest patient was 67 years. The mean age in years was 31.2[S.D ±9.7]. Forty-two (10.6%) patients were aged below 21 years, 171 (43.1%) patients were aged 21-30 years, 120 (30.2%) were aged 31-40 years, 46 (11.6%) were aged 41-50 years, and 18 (4.5%) were aged above 50 years. Two hundred and eleven (53.1%) patients were single, 134 (33.8%) were married, 17 (4.3%) were separated, 21 (5.3%) were divorced, and 14 (3.5%) were widowed. Twenty-eight (7.1%) patients had no formal education, 144 (36.3%) had primary education, 180 (45.3%) had secondary education, and 45 (11.3%) had tertiary education. One hundred and eighty-three (46.1%) patients were unemployed, 87 (21.9%) were self-employed, 50 (12.6%) were in formal employment, 65 (16.4%) were in informal employment, and 12 (3.0) were not assessed.

Table 4.1: Demographic Characteristics of Patients

Variable	Values	Frequency (n=397)	Percent (%)
Sex	Male	225	56.7
	Female	172	43.3
Age	<21 years	42	10.6
	21-30 years	171	43.1
	31-40 years	120	30.2
	41-50 years	46	11.6
	>50 years	18	4.5
Marital status	Single	211	53.1
	Married	134	33.8
	Separated	17	4.3
	Divorced	21	5.3
	Widowed	14	3.5
Highest education attained	None	28	7.1
	Primary	144	36.3
	Secondary	180	45.3
	Tertiary	45	11.3
Employment status	Unemployed	183	46.1
	self-employed	87	21.9
	Formal employment	50	12.6
	Informal employment	65	16.4
	not assessed	12	3.0

4.3 Medical History and other related issues

Table 4.2 shows the clinics the patients were attending to obtain epilepsy care. One and hundred and forty-two (35.8%) patients were attending Chainama Hospital, 71 (17.9%) were attending Levy Mwanawasa Hospital, 63 (15.9%) were attending Chilenje Clinic, 61 (15.4%) were attending Chawama Clinic, and 60 (15.1%) were attending Matero Clinic.

Table 4.2: Distribution of patients by clinic

Health Centre	Frequency (n=397)	Percent (%)
Chainama	142	35.8
Levy Mwanawasa	71	17.9
Chilenje	63	15.9
Chawama	61	15.4
Matero	60	15.1
Total	**397**	**100.0**

Figure 4.1 shows the number of years lived with epilepsy since diagnosis. The graphs shows that majority of the patients (80%) were diagnosed in the recent past ten years. The median number of years lived with diagnosed epilepsy was 5 (IQR=2-9) as in Figure 4.1. This showed that the majority were only recently diagnosed.

Figure 4.1: Number of years lived with Epilepsy

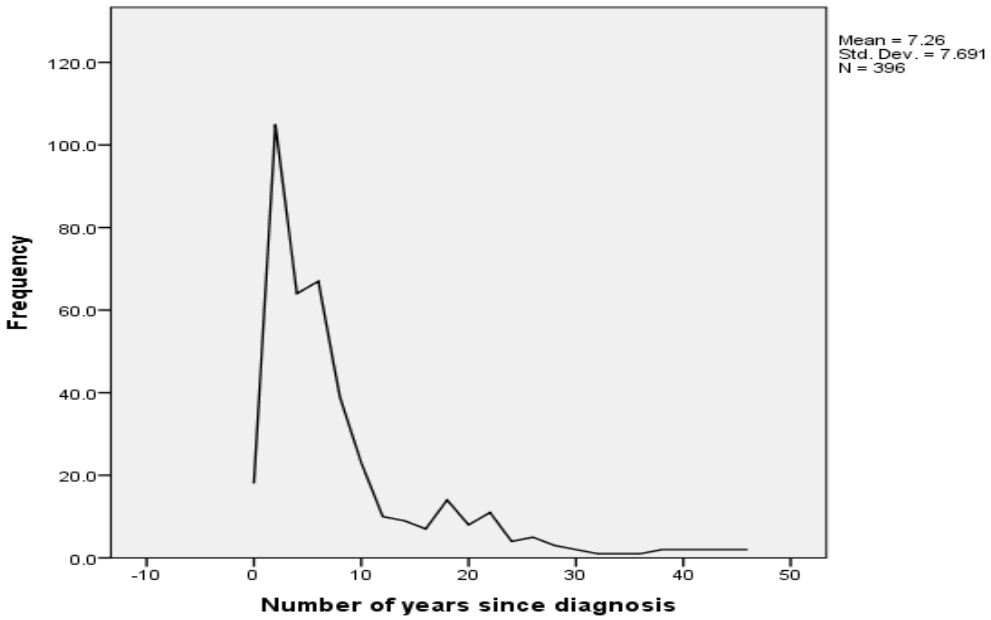


Table 4.3 shows that 210 (52.9%) patients were on Carbamazepine alone, 73 (18.4%) were on Carbamazepine combined with Phenobarbital, 38 (9.6%) were on Phenobarbital alone, 29 (7.3%) were on Sodium Valproate and 16 (4.0%) were on carbamazepine combined with sodium Valproate. There were 8 patients (1.0%) on ARVs and antiepileptic drugs. Six took carbamazepine with ARVs, one took Levitiracetam with ARVs and 1 took Phenobarbitone with ARVs.

Table 4.3: Pharmacological History

Medication	Frequency	Percent
Carbamazepine	210	52.9
Carbamazepine/ Phenobarbital	73	18.4
Phenobarbital	38	9.6
Sodium Valproate	29	7.3
Carbamazepine/ Sodium Valproate	16	4.0
Phenobarbital/ Sodium Valproate	3	.8
Carbamazepine/ Moduretic	3	.8
Carbamazepine/ Atripla	6	1.5
Carbamazepine/ Nifedipine	2	.5
Aluvia/Levitiracetam	1	.3
Carbamazepine/Atripla/ Nifedipine	1	.3
Carbamazepine/ Daonil	1	.3
Carbamazepine/ Enalapril	1	.3
Carbamazepine/ Amitriptyline	1	.3
Carbamazepine/ Flouxetine	1	.3
Carbamazepine/ Phenobarbital/ Haloperidol	1	.3
Carbamazepine/ Phenobarbital/ Moduretic	1	.3
Carbamazepine/ Sulbutamol	1	.3
Phenobarbital/ Atripla	1	.3
Total	390	98.2
Nil	7	1.8
Total	**397**	**100.0**

Other physical conditions found in respondents included hypertension, asthma and diabetes. Table 4.4 shows the classes of medicines taken by the participants in the control or treatment of the various conditions

Table 4.4: Class of treatment given to patients

Treatment	Drugs	Yes	Percent
Anti-hypertension drugs	Moduretic	5	1.3
	Enalapril	1	.3
	Nifedipine	2	.5
Epilepsy drugs	Carbamazepine	317	79.8
	Phenobarbitone	117	29.5
	Sodium valproate	44	11.1
	Levitiracetam	1	.3
Psychiatry related drugs	Haloperidol	5	1.3
	Fluoxetine	1	.3
	Amitriptyline	2	.5
Anti-asthma	Sulbutamol	1	.3
Anti-diabetic	Daonil	1	.3
ARVs	HAART	8	2.0

The majority 317(79.8%) of patients took carbamazepine both as a stand-alone therapy or in combination with another antiepileptic drug for the control of epilepsy. The most common combination of anti - epilepsy drugs was Carbamazepine with Phenobarbital which was found in 74(18.7%) of the patients. Eight patients (2.0%) were on antiretroviral therapy for the treatment of HIV in combination with antiepileptic drugs and 8(2.1%) patients took antihypertensive drugs.

Of all 397 participants, 14(3.5%) were found to have psychiatric disorders already diagnosed by the local staff. In the rest no diagnosis of psychiatric comorbidity had been made prior to the screening as shown in Figure 4.2.

Figure 4.2: Psychiatric Diagnosis already made

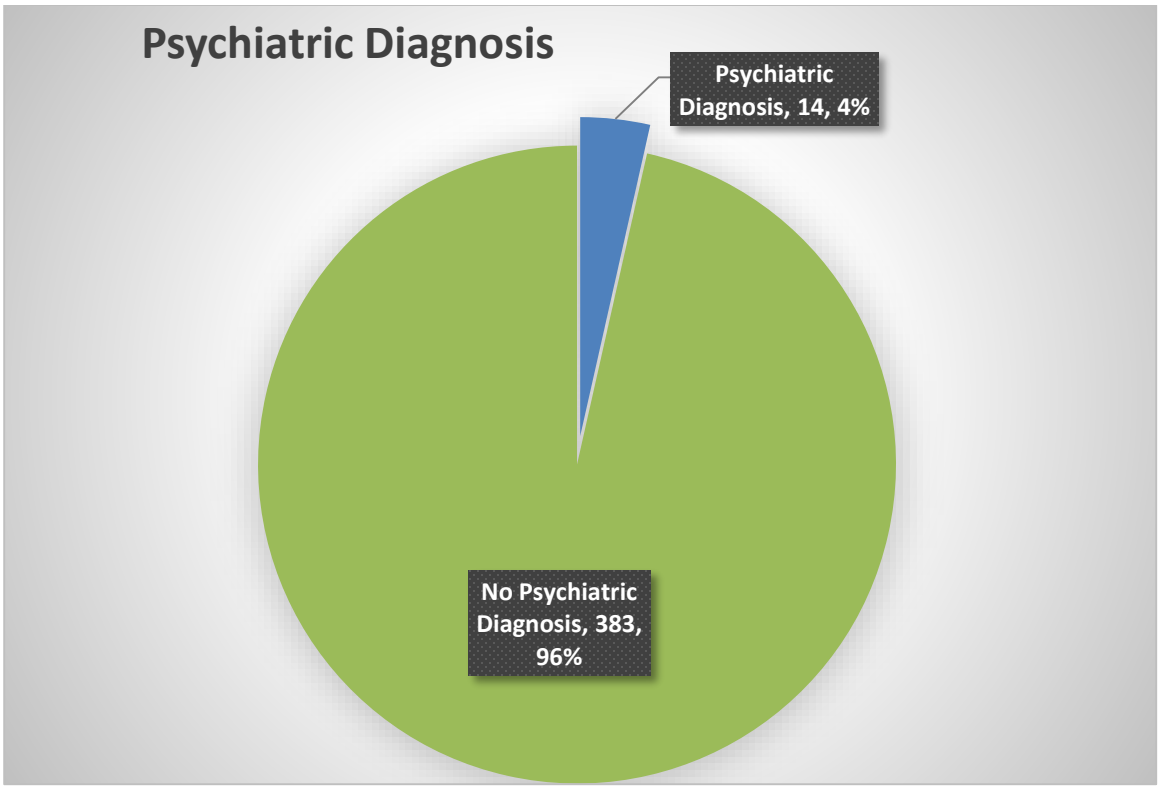
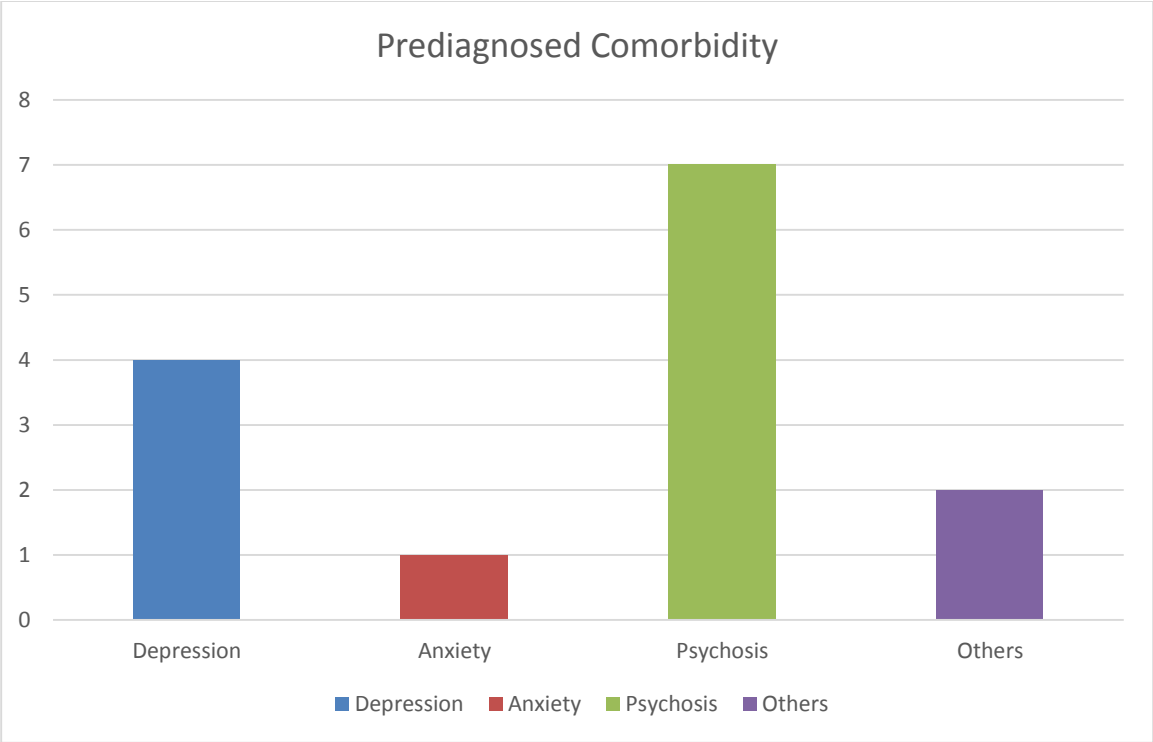


Figure 4.3 shows that 7 patients out of the 14 already diagnosed with a comorbidity suffered from a psychotic disorder representing 50%, making it the most commonly detected comorbidity. Anxiety was detected in one respondent, depression in 4 patients and another 2 respondents suffered from psychiatric conditions other than those of interest. Both of those classified as 'other' diagnoses suffered from alcohol abuse related disorders

Figure 4.3: Distribution of comorbid conditions already diagnosed



Thirteen of those pre-diagnosed to have psychiatric comorbidity were on some form of treatment. Only one had a mention of a possible psychiatric disorder without a treatment plan outlined in the file. Figure 4.4 shows the distribution of the treatment access.

Pharmacotherapy was used in all the treated patients. However, 6 patients received combined psycho-pharmacotherapy. No patient was treated with psychotherapy alone (Figure 4.4).

Figure 4.4: Treatment types and Levels of Comorbidities

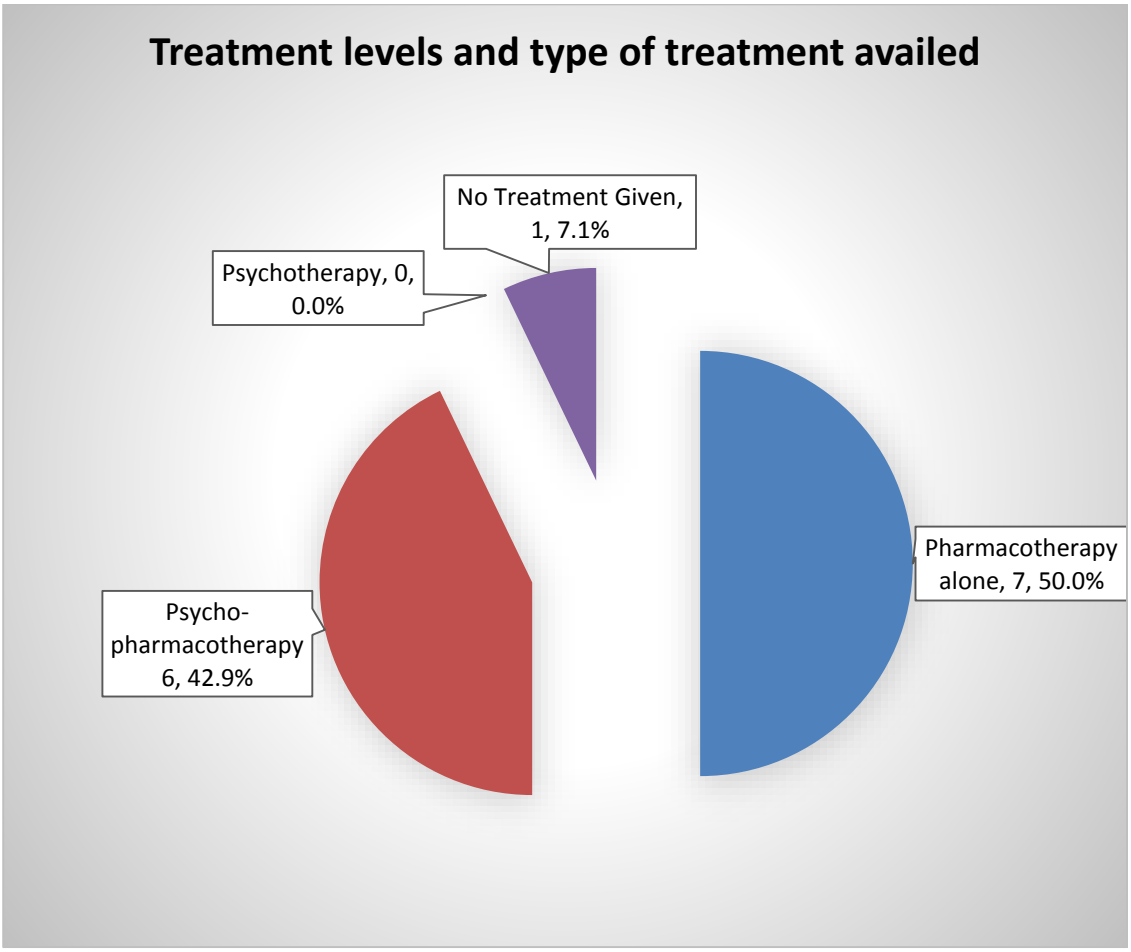


Table 4.5 shows the summary of screening results from the Brief Psychiatric Rating Scale (BPRS). They are presented in the order of appearance in the tool. Results were grouped to three categories as follows: Mild (BPRS score 2-3), Moderate (BPRS score 4-5) and severe (BPRS score 6-7)

Table 4.5: BPRS Score Summary

BPRS Rating	not present		Mild		moderate		severe		Total	
	freq	**%**	**freq**	**%**	**freq**	**%**	**freq**	**%**	**freq**	%
Somatic concern	306	77.3	82	20.7	8	2.0	0	0.0	396	**100**
Anxiety	239	60.2	123	31.0	27	6.8	8	2.0	397	**100**
Emotional withdrawal	285	71.8	90	22.7	21	5.3	1	0.3	397	**100**
Conceptual disorganisation	353	88.9	40	10.1	4	1.0	0	0.0	397	**100**
Guilt feelings	271	68.6	93	23.5	31	7.8	0	0.0	395	**100**
Tension	305	77.0	66	16.7	23	5.8	2	0.5	396	**100**
Mannerisms and posturing	362	91.4	31	7.8	1	0.3	2	0.5	396	**100**
Grandiosity	372	93.9	19	4.8	3	0.8	2	0.5	396	**100**
Depressed mood	240	60.6	99	25.0	50	12.6	7	1.8	396	**100**
Hostility	351	88.4	37	9.3	9	2.3	0	0.0	397	**100**
Suspiciousness	340	85.6	52	13.1	4	1.0	1	0.3	397	**100**
Hallucinatory behaviour	361	90.9	22	5.5	13	3.3	1	0.3	397	**100**
Motor retardation	358	90.2	31	7.8	5	1.3	3	0.8	397	**100**
Uncooperativeness	380	95.7	12	3.0	5	1.3	0	0.0	397	**100**
Unusual thought content	374	94.2	15	3.8	8	2.0	0	0.0	397	**100**
Blunted affect	371	93.5	23	5.8	3	0.8	0	0.0	397	**100**
Excitement	379	95.5	11	2.8	5	1.3	2	0.5	397	**100**
Disorientation	387	97.5	9	2.3	1	0.3	0	0.0	397	**100**

Freq-Frequency, % - percentage

When symptoms were grouped by the psychiatric condition they represent, anxiety was reported by 158(39.8%) of the respondents. Of these, 123(31.0% of the total) reported having mild anxiety, 27(6.8%) had moderate anxiety and 8(2.0%) had severe anxiety (table 4.6).

Table 4.6: Anxiety Symptoms among Patients

BPRS Rating	No symptoms		Mild		Moderate		Severe		Total	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Somatic concern	306	77.3	82	20.7	8	2.0	0	0.0	396	**100.0**
Anxiety	239	60.2	123	31.0	27	6.8	8	2.0	397	**100.0**
Tension	305	77.0	66	16.7	23	5.8	2	0.5	396	**100.0**

n-Frequency, % - percentage

Tension as a feature of anxiety that is observed by the examiner was found in 91(33.0%) of the respondents. The distribution of severity of tension was as follows: 66(16.7% of the total population) had mild, 23(5.8%) had moderate and 2(0.5%) had severe tension. The prevalence of anxiety in this population therefore ranged from 33.0-39.8%.

Table 4.7 shows the distribution of depressive symptoms from the screening tool. Depressed mood was reported in 156(39.4%) of the respondents with 99(25.0%) reporting a mildly depressed mood, 50(12.6%) moderately depressed and 7(1.8%) being severely depressed. Guilt feelings which are an accompanying feature of depression were found in 124 respondents with 93(23.5%) and 31(7.1%) being mildly and moderately depressed respectively. Emotional withdrawal was present in 112(31.4%) of the respondents. Distribution for emotional withdrawal was 90(22.7%), 21(5.3%) and 1(0.3%) for mild, moderate and severe respectively. Motor retardation was less common and found in 39(9.8%).

Table 4.7: Depressive Symptoms

BPRS Depressive Symptoms	No symptoms		Mild		Moderate		Severe		Total	
	n	%	n	%	n	%	n	%	n	%
Emotional withdrawal	285	71.8	90	22.7	21	5.3	1	0.3	397	**100.0**
Guilt feelings	271	68.6	93	23.5	31	7.8	0	0.0	395	**100.0**
Depressed mood	240	60.6	99	25.0	50	12.6	7	1.8	396	**100.0**
Motor retardation	358	90.2	31	7.8	5	1.3	3	0.8	397	**100.0**

n-Frequency, % - percentage

Table 4.8 shows the frequency of distribution of psychotic symptoms. Suspiciousness was the most prevalent symptom found 14.4% of the population and distributes as 52(13.1%), 4(1%) and 1(.3%) for mild, moderate and severe suspiciousness respectively. The least common psychotic symptom was hallucinatory behaviour which was found in 9.1% of the population

Table 4.8: Psychotic Symptoms

Psychotic Symptoms	No symptoms		Mild		Moderate		Severe		Total	
	n	%	n	%	n	%	n	%	n	%
Conceptual disorganisation	353	88.9	40	10.1	4	1.0	0	0.0	397	**100.0**
Hostility	351	88.4	37	9.3	9	2.3	0	0.0	397	**100.0**
Suspiciousness	340	85.6	52	13.1	4	1.0	1	0.3	397	**100.0**
Hallucinatory behaviour	361	90.9	22	5.5	13	3.3	1	0.3	397	**100.0**
Uncooperativeness	380	95.7	12	3.0	5	1.3	0	0.0	397	**100.0**
Unusual Thought content	374	94.2	15	3.8	8	2.0	0	0.0	397	**100.0**
Blunted affect	371	93.5	23	5.8	3	0.8	0	0.0	397	**100.0**

n-Frequency, % - percentage

Cochrane's alpha was conducted to test for reliability of the analysis. The results indicated a very high level of reliability (α=.861).

4.3 Tests of Association

Chi Square tests were conducted to determine patients' clinical characteristics and demographic factors influence treatment or non-treatment of the psychiatric co-morbidities. The tests were conducted at a significance level of 0.05. Tables 4.9 to 19 present the results. Tests were conducted on the following associations:

1. An association between gender and psychiatry diagnosis
2. An association between marital status and psychiatry diagnosis
3. An association between gender and medical history

The results (Tables 4.9 and 4.10) revealed that there was a significant association between gender and psychiatry diagnosis (χ^2=5.711, p=0.017). These findings tend to suggest that more male patients had a psychiatric diagnosis than female patients.

Table 4.9: Association between gender and psychiatric diagnosis

			Psychiatric diagnosis		Total
			Yes	No	
sex	Male	Count	13	212	**225**
		Expected Count	8.5	216.5	**225.0**
	female	Count	2	170	**172**
		Expected Count	6.5	165.5	**172.0**
Total		Count	15	382	**397**
		Expected Count	**15.0**	**382.0**	**397.0**

Table 4.10: Association between gender and psychiatric diagnosis

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	5.711[a]	1	.017	.030	.013	
Continuity Correction[b]	4.512	1	.034			
Likelihood Ratio	6.545	1	.011	.017	.013	
Fisher's Exact Test				.017	.013	
Linear-by-Linear Association	5.696[c]	1	.017	.030	.013	.011
N of Valid Cases	397					

a- 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.50. b- Computed only for a 2x2 table. c- The standardized statistic is 2.387

The results in this study suggest that there was no association (χ^2=.001, p=0.972) between marital and undergoing psychiatric diagnosis by health centre staff (Table4.11 and 4.12).

Table 4.11: Association between marital status and psychiatric diagnosis

			PSYCHIATRIC DIAGNOSIS		Total
			yes	no	
marital status	Single	Count	10	253	**263**
		Expected Count	9.9	253.1	**263.0**
	married	Count	5	129	**134**
		Expected Count	5.1	128.9	**134.0**
Total		Count	15	382	**397**
		Expected Count	15.0	382.0	**397.0**

Table 4.12: Association between marital status and psychiatric diagnosis

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.001[a]	1	.972	1.000	.606	
Continuity Correction[b]	.000	1	1.000			
Likelihood Ratio	.001	1	.972	1.000	.606	
Fisher's Exact Test				1.000	.606	
Linear-by-Linear Association	.001[c]	1	.972	1.000	.606	.218
N of Valid Cases	397					

a- 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.06. b- Computed only for a 2x2 table. C- The standardized statistic is .035.

There was a significant association between gender and medicines received (χ^2=12.293, p=0.031) (Tables 4.13 and 4.14). These findings tend to suggest that more male patients were put on Phenobarbital than female patients and that more female patients were put on Sodium Valproate and Carbamazepine/Sodium Valproate combination than male patients.

Table 4.13: Medication history and sex

Medical history	Frequency	sex		Total
		male	female	
Carbamazepine	Count	120	90	210
	Expected Count	119.0	91.0	210.0
Carbamazepine/ Phenobarbital	Count	38	35	73
	Expected Count	41.4	31.6	73.0
Phenobarbital	Count	27	11	38
	Expected Count	21.5	16.5	38.0
Sodium Valproate	Count	12	17	29
	Expected Count	16.4	12.6	29.0
Carbamazepine/ Sodium Valproate	Count	6	10	16
	Expected Count	9.1	6.9	16.0
Others	Count	18	6	24
	Expected Count	13.6	10.4	24.0
Total		Count	169	390
		Expected Count	169.0	390.0

Table 4.14: Chi-Square Tests for Medication history and sex

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	12.293[a]	5	.031	.030		
Likelihood Ratio	12.577	5	.028	.031		
Fisher's Exact Test	12.192			.031		
Linear-by-Linear Association	.073[b]	1		.813	.408	.026
N of Valid Cases	390					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.93.

b. The standardized statistic is -.270.

CHAPTER 5: DISCUSSION

5.0 Overview

This chapter will discuss the results of the study presented in chapter 4. The results are discussed in relation to the research question which states: What proportion of patients with epilepsy and psychiatric comorbidity receive appropriate treatment for the comorbid psychiatric condition they manifest?

5.1 Summary of the findings

Findings show that only 3.5% of those attending clinics had been pre-diagnosed with psychiatric comorbidities. Screening using symptoms as outlined in the BPRS showed prevalence ranges of 33% to 39% for anxiety, 23.5 to 39.4% for depression and 9.1% to 14.4% for psychosis. This shows that treatment levels as well as detection for the comorbidities is quite low. Low treatment levels of these comorbidities results in poor treatment compliance, which leads to frequent relapses which in turn causes chronicity of the disease. This results in to further stigmatisation of the patient thereby starting a viscous cycle as stigma increases psychiatric comorbidity. This may contribute to the relatively shortened lifespan as shown by the sharp decline in numbers for ages greater than 34 years. Males were more likely to be diagnosed with a psychiatric comorbidity than females. No statistically significant association was made between treatment of comorbidities and other associated factors as numbers on treatment were too low to provide meaningful statistical information.

5.2 Demographic Characteristics

5.2.1 Sex Distribution of the sample

More males (56.7%) took part in the study than females(43.3%) compared to the general population in the country that has a distribution of 50.1% female and 49.9% male (ZDHS,2014). There is no fixed gender predominance to epilepsy in general and different studies report different gender distribution. Our study found that males were more likely

to have a psychiatric diagnosis than did the female participants (χ^2=5.711, p=0.017). While other factors may be at play, such as substance abuse in which is more common in males, it is also possible that female participants were less likely to be develop comorbidity as more females were on Carbamazepine and Sodium Valproate compared to the males who were more likely treated with Phenobarbitone (Table 4.13). Sodium Valproate and Carbamazepine are associated with positive psychotropic effects as compared to Phenobarbitone and result in better mood out comes (Ketter *et al.,* 1999). Alcohol abuse, especially in withdrawal, is associated with increased tendency to have a seizure and also causes lower anti-epileptic drug concentration in the blood due to enzyme induction. This in turn results in poor seizure control (Gordon *et al.,* 2001).

5.2.2Age Distribution

The youngest patient was 18 years while the oldest patient was 67 years. While the mean age was 31.29 years; the mode was 23 years while the median age was 29 years. The majority (43.1%) patients were aged 21-30 years, 120 (30.2%) were aged 31-40 years. The number of respondents beyond the age of 35 drops rapidly such that the bulk of the age group 31-40 was composed mainly by those younger than 35 years of age. This raises concern as epilepsy is a lifelong diagnosis and incidence increases with age, we expect the larger population to be composed of the older patients (Wallace *et al.,* 1998). This coupled with the time lived with the diagnosis of epilepsy may be pointing to a shortened life span in this group. There is also a poor survival rate beyond 5 years of diagnosis which psychiatric comorbidity will contribute significantly to. These results are comparable to a Swedish study which found that life expectancy for those with comorbidities was drastically shortened compared to both the general population and those with epilepsy without the psychiatric comorbidity (Fazel *et al.,* 2013). Mortality rates in such comorbid states was also demonstrated in a study done in Tanzania in which almost 70% of the participants had died by the end of a 30 year period with a further 11% being lost to follow up. This study also demonstrated that a normal mental state was associated with a better survival rate even with poor seizure control and that most of those that had died were associated with a poor mental state (Jilek-Aall *et al*., 1992).

5.2.3Marital Status

The majority (53.1%) of the participants in this study were single despite being from the age group that is legally allowed to marry in Zambia (i.e. 18 years and older). Married participants accounted for 33.8% and 3.5 were widowed. The country statistics show marital status among adult citizens to be 36.0% single, 55.5% married and 2% widowed. A further 6.1% were either divorced or separated (ZDHS, 2014). It is worth mentioning that the demographics given in the ZDHS included people aged 16years who are not legally of marrying age but still had more married people than our study population. This can be indicative of the social stigma still attached to epilepsy in which people are told not to marry people with epilepsy. It results in a higher number of people not getting married (Birbeck *et al*., 2004).

In our study, marital status was not found to influence the diagnosis of psychiatric comorbidity (χ^2=.001, p=0.972. This turned out different from expectation as most people who are married have a significant other who would easily bring any mental changes to the attention of a health care provider. However, studies have shown that marriage is protective to developing psychiatric comorbidity and hence may have resulted in less married people developing a psychiatric comorbidity (Schmitz, 1999).

5.2.4 Education Status

Education status in the general population is reported as 6.1% have no education at all, 43.2% have primary education, 44.3% have secondary education and 6.5% have tertiary education (ZDHS, 2014). These were comparable to the findings of our study. While this may show equal opportunity to get educated with the non-epilepsy population, it is also borne in mind that most of the people sampled has lived with epilepsy for an average of 5 years only in which time most had already become adults. The results could be different if younger participants were allowed in the study as this would include those sent away from school due to their epilepsy (Birbeck *et al.*, 2004).

5.2.5 Employment

All the respondents in our study were of employable age. However, while unemployment in the general population stands at 30.0% (ZLFS, 2012), it was found to be at 46.1% in the respondents. More of the population with epilepsy was unemployed. This contributes to development of comorbidities such as depression in which there is a sense of learnt helplessness (Mensah *et al*., 2007). In the general population, 44.2% of the employable age group are self-employed. In the epilepsy population only 21.9% were self-employed and this reflects on the ability to earn an income and live independently (ZLFS, 2012). This could show the differences in opportunities which the two populations have. This lack of opportunities is further reflected by informal unpaid employment such as family members working as housekeepers where only 16.4 % of our respondents were engaged in such opportunities while the general population has 34.8% of such workforce. Even while they are not paid to carry out such work, the fact that they are contributing to the household tends to confer dignity than where one is totally dependent on others. This study also shows the fact that even among fellow family members, people with epilepsy are less likely to be employed than those without epilepsy. An interesting finding was that rates of formal employment were comparable for the epilepsy and general population at 12.6% and 11.4% respectively (ZLFS, 2012).

5.3 Epilepsy History

5.3.1 Years lived with epilepsy

In this study, the majority of the people has lived with epilepsy for less than 10 years. In fact, the number of years lived with epilepsy sharply dropped beyond 5 years. Other studies suggest mortality is highest in the early years of diagnosis and declining the longer one lives with epilepsy (Cockerell *et al.,* 1994). Our study shows the opposite and can imply that the acute needs such as seizure control are well dealt with by practitioners but the long term complications such as the comorbidities are not well dealt with and result in poor treatment outcomes including mortality (Kanner *et al.,* 2009). This is a serious

source of concern as it raises questions about the survival rate for people with epilepsy. The impact of psychiatric comorbidities in this case cannot be undermined. Of the age groups enrolled into the study, the largest (43.1%) were aged 21 to 30 years. The sharp decrease in the population above the age of 34 can be due to premature mortality due to psychiatric comorbidity (Fazel *et al.*, 2013). This is a serious finding as we expect the prevalence of epilepsy to rise with age and ultimately result in a lot more older people with epilepsy.

5.3.2 Antiepileptic drug usage

Carbamazepine is the most commonly used drug (79.8%) both as a stand-alone therapy and in combination with another. The use of carbamazepine alone may have the benefits of being a mood stabilizer to the patient and this property is shared by sodium valproate and Lamotrigine (Ketter *et al.,* 1999). The most common combination of antiepileptic drugs was carbamazepine with Phenobarbital which was found in 74(18.7%) of the patients. This combination is associated with poor epilepsy control as the two drugs interact by means of liver induction resulting in the faster elimination of each other and thereby decreasing the therapeutic effect (David *et al.*, 2009, p368). Further, polypharmacy is directly linked to increased psychiatric comorbidity and worsens the outcome of treatment (Harden, 2002). Therefore, some of the respondents in our study may have been suffering from iatrogenically induced psychiatric comorbidity based on drug choice and drug combinations. This calls for improved practice as evidence has existed for many years that polypharmacy is more harmful than monotherapy except in few resistant cases where combination may be necessary (Shorvon *et al.*, 1977).

Another finding of note was that there was a higher chance of a female being on sodium valproate compared to a male. This raises serious concern on the selection of drugs by practitioners. While it is accepted that valproate is associated with a lower incidence of mood disorders and has positive psychotropic effects (Ketter *et al.,* 1999) it is strongly associated with birth defects when used in women of child bearing age (David *et al.*, 2009, pp367-370). Valproate is also associated with polycystic ovaries and

hyperandrogenism in women which may make them socially disadvantaged as they may be infertile or have facial hairs coupled with scalp hair-loss (Taylor *et al.*, 2010, p 125) which makes them less attractive and ultimately reduce their chances for marriage. This is particularly important because there is already stigma associated with epilepsy which results in sufferers being shunned for marriage and marriage is an important milestone for our culture. This study therefore brings to light the need for proper training of staff to use drugs judiciously and also to seek specialist input before initiating some of the available medicines to prevent causing future damage to an already difficult life.

5.3.3 Comorbid Physical Conditions

Eight respondents (2%) were known to be HIV positive and on antiretroviral medicines. These patients took normal doses of both antiretroviral drugs and no dose adjustment was made in view of possible drug to drug interactions. Current first line cART regimen encourage use of single dose Atripla which contains Tenofovir, Emtricitabine and Efavirenz. Neverapine is sometimes used as a substitute in those who develop mental disturbance while on Efavirenz (ZCGTPHIV, 2013). This too is known to interact with antiepileptic drugs. Carbamazepine reduces the Efavirenz concentration in the blood by about 36% and reduces the half-life of Nevirapine by almost 20 hours (Birbeck *et al.*, 2012). Phenobarbitone, another commonly used drug, is associated with decreased blood concentrations of most antiretroviral medicines (Birbeck *et al.*, 2012). Such interactions can result in treatment failure for HIV resulting in death (Okulicz *et al.*, 2011)

Antiretroviral drugs have also been known to decrease the concentration of antiepileptic drugs in the blood. For instance, Efavirenz can decrease carbamazepine levels by close to 30% thereby increasing chances of poor seizure control (Birbeck *et al.*, 2012)

A further 8(2%) of the respondents were hypertensive on with 5 out of the 8 being on Moduretic. Diabetes and asthma were found in one responded apiece. These conditions are an important finding as both are chronic and are both associated with depression and can worsen an already existing psychiatric comorbidity (Semple *et al.*, 2006).

5.4 Psychiatric comorbidity

5.4.1Depression

Only 4 (1%) of the study population was being treated for depression. The screening tool revealed that depressive symptoms were present in 28-39% of the respondents. The prevalence of depression in this study is comparable to rates found in the developed world and also from a study done in Togo and Benin where they got a prevalence rate around 29% (Nubukpo *et al.,* 2004).This means that a larger proportion of depressed people with epilepsy do not receive any treatment at all. This finding is similar to a Norwegian study which generally found lower treatment rates of psychiatric conditions in the epilepsy population as compared to the general population despite psychiatric conditions being more prevalent in the epilepsy group (Karouni *et al.,* 2013). The most prevalent symptom was depressed mood which is an important requisite in the diagnosis of depression. The majority of the respondents had mild to moderate depression which is treatable by psychotherapy and therefore eliminates the worries about drug interactions. Depression also causes decreased productivity thereby starting a vicious cycle. In this study, there is a sharp decline of age at around 34years instead of steadily increasing prevalence with age. The drop may be explained by untreated comorbidity and resultant death. This can also be shown by the rapid drop in terms of years lived with epilepsy beyond 5 years. This compares to a Swedish study in which there was an increased mortality rate in those people who had epilepsy. In their study, the median age of death was 34.5 years (IQR 21.0- 44.0) and of these deaths, there were high odd of suicide but even those that died from external causes, 75.2% had psychiatric disorders with a strong association to depression (Fazel *et al*., 2013). The fact that the majority of people with depressive symptoms are not being treated is a serious matter that needs urgent attention if we are to improve the survival rate in epilepsy.

5.4.2 Anxiety

Our study has a prevalent of anxiety symptoms ranging from 23.0 to 39.8% with only one being treated for anxiety. This prevalence is higher than other studies. A British study found a prevalence of 20.5% and this study found an association between anxiety with depression and was also linked to higher rates in the unemployed (Mensah *et al*., 2007). Our population was largely unemployed and may explain the higher prevalence of anxiety. Our prevalence is however lower than that of a study in Togo and Benin where the prevalence of anxiety among PLWE was found to be at 66.0% and 84.1% respectively. This study also noted the higher severity of symptoms in the epilepsy group than the controls (Nubukpo *et al*., 2004). African studies including ours may have higher prevalence rates due to the factors attributed to such as stigma, poverty, unemployment and drug side effects which result from a restricted variety of medicines available to treat epilepsy. The low treatment levels for anxiety also call for serious attention as anxiety limits the quality of life and is a serious cause of morbidity. It can limit one's ability to engage with the environment in order to earn a meaningful living.

5.4.3Psychotic disorders

Psychotic symptoms were present in the range 9.1% to 14% of the participants. However, only 7(1.8%) of the population was detected and on treatment. Psychosis in epilepsy can be preictal, postictal or interictal depending on whether it happens just before the seizure, just after the seizure or in the interval between seizures where the patient is seizure free respectively. Research shows that interictal psychosis may mimic schizophrenia (Sachdev, 1998). However it is also known that psychosis due to epilepsy such as interictal psychosis has a more benign course and responds more favourable to even low doses of antipsychotics than schizophrenia or other primary psychotic disorders (Tadokoro *et al*., 2007). It therefore becomes important to treat this psychosis as it is much easier to treat with low doses with good outcome. Psychosis tends to cause people not to fit into the community well and as a result this treatment increases the stigma and reduces their productivity. In this study, there were more people with psychosis being

treated than any other psychiatric disorder. This is because psychosis tends to cause suffering and disturbance to the community and the family rather than depression and anxiety where the patient suffers internally.

5.5 Study Limitations

1. This study did not use the full diagnostic criteria for the named illnesses but instead relied on eliciting symptoms. These symptoms can overlap over various conditions and this could have made it easy to miss out other conditions once the set for the interest conditions are met.
2. The fact that specific dosing of the various drugs taken was not recorded, we missed an opportunity to generalise our comments on dosing tendencies among practitioners which can also influence comorbidity.
3. Though we did not control for confounders, the presence of physical illness such as diabetes, HIV/AIDS and hypertension may have contributed to the prevalence depression being higher as these diseases also are associated with psychiatric manifestations with depression being common
4. The exclusion of those younger than 18years from the study means that those conditions occurring in adolescents and children were left out.
5. We did not screen for pregnancy in our respondents in order to see drug selection for special populations

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The treatment and detection levels of psychiatric comorbidity in epilepsy in Lusaka District stand at 3.5% of the epilepsy population. The prevalence of anxiety disorder in our study ranged from 23% to 39.8% while that of depression ranged from 28% to 39%. The least prevalent of the three conditions of interest was psychosis which had a prevalence range of 9.1% to 14%. Therefore, less than 10% of those eligible actually get treatment. Psychosis was the most commonly diagnosed condition with 7(50%) of those pre-diagnosed having psychosis. This low treatment is despite the knowledge that psychiatric conditions are commoner in epilepsy. Pharmacotherapy is the most widely used means of treatment with all those diagnosed with a comorbidity being on some medication. No isolated use of psychotherapy was found. Being male was associated with a higher chance of being diagnosed with a comorbidity and marital status played no role in the diagnosis. There remains a big possibility that as a result of this poor treatment rate, there is a high mortality and a poor survival rate in the Lusaka epilepsy population as demonstrated by the results of this study.

6.2 Recommendations

All health care staff involved in the management of epilepsy should be trained in the management of psychiatric comorbidities

Protocols should be developed by psychiatrist in collaboration with neurologists to guide drug choice for those in whom comorbidities are found

Training in simple non-pharmacologic management of comorbidities, such as psychotherapy, should be conducted to expand the scope of treatment available for these conditions as part of refresher training programs and Continued Medical Education seminars

The Mental Health Unit at the Ministry of Health must quickly issue reminders to all health practitioners about the dangers of Sodium Valproate in women of childbearing age.

All patients with epilepsy should be routinely screened and treated for psychiatric comorbidities

Associations and organizations that provide support and advocacy for people with epilepsy should include comorbidities on their agenda as theses seem to affect quality of life more than the seizures themselves

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Appendix 1: Information Sheet

University of Zambia

School of Medicine, Department of Psychiatry

Title: An Evaluation Of The Treatment Of Co-morbid Psychiatric Conditions in People with Epilepsy Attending Local Clinics in Lusaka

SECTION A: INFORMATION SHEET (for men and women >18 years old)

I am Dr Lekani Banda, working for The University of Zambia, School of Medicine. You are invited to participate in a research project focused psychiatric conditions in epilepsy. The purpose of the research is to determine the burden of these conditions and the treatment being offered. This disease condition is of interest because psychiatric conditions worsen the burden of epilepsy and reduce the quality of life. You have been selected because you have been attending clinic for epilepsy and have been randomly selected among those that meet the entry criteria into the study. The research will involve answering questions in a questionnaire and giving a history of your symptoms. Before you decide, you can talk to anyone you feel comfortable with. There may be some words that you do not understand, please feel free to ask me for clarification.

Purpose

To evaluate the treatment of psychiatric illnesses in people who are living with epilepsy.

Participant selection

We are inviting you to take part in this research because it is important that we know what symptoms you may be experiencing and what treatment has been made available to you.

Voluntary Participation

Your decision to participate in this study is entirely voluntary. It is your choice whether you want to take part or not. If you choose not to consent, nothing will change. You may

also choose to change your mind later and stop participating, even if you agreed earlier, and nothing will change.

Procedures and Protocol

You are invited to participate in a research study by taking part in an individual interview. This information will help us understand your experiences from a personal perspective. We will look at your hospital record to know what has been done for you by the health Centre staff and then ask you to answer some questions in the questionnaire and screening tools.

Risk and discomfort

The possibility of risk is minimal; all we ask for is for you to answer some questions and allow us to look at your hospital records. By participating in this research it is possible you may experience some discomfort in form of increase stay at the health Centre and extra questions

Benefit

There may not be any benefit for you directly now but by allowing your participation will help us find the answer to the research question. Your participation in this study will help us understand how to control epileptic seizures and manage psychiatric conditions occurring with the epilepsy in the future and used to influence policy formulation.

Confidentiality

The information that we collect from this research project will be kept confidential. The information about you and your condition that will be collected from the research will be put away and no-one but the researchers will be able to see it. All information on your file will have a number on it instead of a name. Only the researcher will know what the number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except to the principal researcher.

Sharing of Results

The knowledge that we get from this study will be shared with you before it is made widely available to the public. Confidential information will not be shared. There will be small meetings in the health centres and these will be announced. Afterwards, we will publish the results in order that other interested people may learn from our research.

Right to Refuse or Withdraw

You do not have to agree to take part in this research if you do not wish to do so and refusing to will not affect you. You may stop from participating in the research at any time that you wish.

Who to Contact

If you have any questions you may ask them now or later, even after the study has started. If you wish to ask questions later, please contact me on:

Dr Lekani Banda Venevivi, School Of Medicine, Department of Psychiatry Box 50110, Lusaka.Cell-0977-824110. E-mail: venevivi@gmail.com

This proposal has been reviewed and approved by the ERES Convene IRB, which is a committee whose task it is to make sure that research participants are protected from harm. They can be contacted visiting the ERES Converge IRB office at the following physical address:

33 Joseph Mwilwa Road
Rhodes Park
Lusaka
Email eresconverge@yahoo.co.uk
Phone +260 955 155633

Appendix 2: Consent Form

I have been invited to participate in this research of psychiatric co-morbidities in epilepsy. I have read the foregoing information, or it has been read to me and I have understood it. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I will receive no payment for participating in the study. I know that my participation is anonymous and have access to the data and records at any time. I know that I can stop my participation in this study at any time. I consent voluntarily to answer the questionnaire and for my file to be examined for this study.

Print Name of Participant: _____

Signature of Participant: _____

Signature of Researcher or Research Assistant: _____

Date: _____

Day/month/year

Thumbprint of Participant

Appendix 3 Information sheet in Chi Chewa

Zo dziwa musana zomere kuyankha mafunso (information sheet)

Ndine Lekani Venevivi. Ndine mwana wa skulu pa University of Zambia, ku maphunzilo yaumoyo na mankhwala. Takupemphani kuti mutengeko mbali kumafunso omwe tifuna kudziwa pamatenda amtima kapena misala muli aja anthu adwala matenda akhunyu. Lingo lake nu ziwa ngati anthu adwala aya matenda alu landila thandizo kapena mankwala othandizila kuti matenda amtima kapena misala asapitilile pasogolo. Matenda amisala amalengesa munthu kunkhala umoyo osafikapo kulingana na phindu ya umunthu ali ense. Mwasankhidwa kopanda kudzwiwa chilichonse paimwe, ndiponso mwamwai chabe pali aja anthu akwanilisa zofunikila kuyankha aya mafunso. Takupemphani kuti muyanke aya mafunso mu choonadi. Ziwani kuti muli ndi ufulu wokana kuyankha aya mafunso ndipo mukakana, kulibe chilli chonse choipa chiza satapo monga kusapasiwa thandizo ku chipatala. Ngati muli nama funso, mufuse kopanda mantha kapena manyazi. Mau ena anga nkhale achilendo koma munkhale omasuka kufunsa pomwe simunamvetse.

Phindu yamafunsoyo

Tifuna uziba thandizo ipelekedwa ku anthu adwala matenda amisala ndi mtima pamwamba pa matenda akhunyu.

Kasankhidwe ka oyankha mafunso

Oyankha mafunso ni aja ali na zaka 18 zobabwa ndipo ankala alikubwela kuchipatala kuka tenga makhwala akhunyu pa myezi itatu kupita pamwamba.

Ufulu otenga mbali

Muli ndi ufulu osankha kuti mutengeko mbali kapena yayi. Kulibe kakhamizo yotengako mbali ndipo mukakana kutengako mbali, palibe chati chisinthe monga kusapasiwa mankhwala kapena thandizo. Ndiponso mungasinthe nzelu paliponse mwafunila kuti muleke kuyankha mafunso aya.

Zofunikila ndi zo chitika.

Chofunikila kwainu nuyankha chabe mafunso omwe takonzekela mu choonadi. Kulibe kutengewa magazi kapena kugwiliwa pathupi munjila ili yonse. Ngati nizotheka, tizapempha ku onako mu buku lanu la kuchipatala lomwe mutengelapo mankwala kuti tiziwe mankwala omwe mulalandila.

Zitetezo

Chifukwa ni mafunso chabe, zitetetezo ni zochepekela ndipo tikhulupila kuti sikuzankhala zoipoa zili zonse zinga chitike chifukwa chotenga mbali mu mafunso aya. Koma kapena mungankhale nthawi italiko kupambana masiku onse kapena munga mve khumudwa kumtima pomwe mafunso alufunsiwa.

Ubwino otengako mbali

Ubwino otenga mbali niwakuti kapena ngati muli namatenda omwe sanaziwike kumbuyo uku, apa lomba tinga ziwe nopeleka thandizo. Kuyankha kwanu kuzati thandize kuziwa ngati matenda aya niyo chuluka kapena yayi. Ndipo, tizaziwanso njira imene ingati thandize kupeleka thandizo ku anthu alu vutika naya matenda. Matenda aya ama chepesa umoyo no chosa phindu pa umoyo.

Chisinsi

Zonsezo zokambika mu ma funso aya zizankala zachisinsi ndipo kulibe ena anthu asafunikila aza ziwa zimene mwati uza. Pazipepala zanu, sitiza lembapo zina koma nambala chabe kuti kusankhale ulionse aza ziba kuti ndinu munapasa mayanko ayo. Mapepala aya, yazankhala mo khomewa kuti anthu asa zionapo.

Kukuziwtsani pazotuluka mumafunso.

Zotulukamo muma funso aya tizakuziwisani anthu ena asana ziwe. Koma ziwani kuti zinthu zachisinsi siziza ulutsiwa. Zinthu monga maina, matenda kapena madandaulo achisinsi onse sazaulutsidwa. Ikatha nchito iyi, zotulukamo ziza lembewa muma buku

ama phunzilo ndiposo ziza thandiza boma kudziwa njila yo konzelamo zinthu zine zimene siziyenda bwino muka samalidwe ka anthu adwala matenda akhunyu.

Ofunsa zapadela

Ngati muli na funso kapena dandaulo imbilani lamya kapena kulemba kalata kwa

Dr Lekani Banda Venevivi, School Of Medicine, Department of Psychiatry Box 50110, Lusaka.Cell-0977-824110. E-mail: venevivi@gmail.com

Oyanganilapo pa nchito iyi kuti anthu achingilindwa ku zozunza kapena zo safunikila ni a

- ERES Converge IRB
  33 Joseph Mwilwa Road
  Rhodes Park
  Lusaka
  Zambia
  email to eresconverge@yahoo.co.uk
  +260 955 155633 +260 955 155634

Appendix 4: Consent Form in Chi Chewa

Lamulilo kapena chizomerezo

Napemphewa kutengako mbali mu mafunso aya yomwe akonza ofunsa pa matenda amisala kapena mtima mu anthu adwala matenda a khunyu. Na welenga zomwe zalembedwa pamwamba olo andi welengera ndipo namvetsa. Nafunsa mafunso onse omwe ninali nayo ndipo nakhutira ndima yankho yonse. Sindizalandira malipilo ali onse poyankha mafunso aya. Ndiziwa kuti mayanko yanga yazankhala ya chinsinsi ndipo zonena zanga siziza ulusidwa kwa ena munjira inga ziwike kuti ndine nina nena. Ndili ndi ufulu olekeza kuyanka pali ponse nafunila. Ndazomereza kuti ofunsa anga penyemo mukati mwa buku langa la ku chipatala.

Dzina lanu: _____

Chikwalakwala olo Signature: _____

Signature of Researcher or Research Assistant: _____

Siku: _____

Day/month/year Thumbprint of Participant

Appendix 5 Questionnaire

Date :		Interviewer: .....
Hospital:		ID/Code:
Department:		……..

A: PATIENT-SOCIO DEMOGRAPHICS

Name: ……..……..……..

Age: ……..…….……

Sex: ……M……F……..…..…..……

Marital Status : (1) Married (2)Unmarried (3)Divorced (4) Separated (5)Widowed

Education Attained: (1) None (2) Primary (3) Secondary(4) Tertiary

Employment Status : (1) Unemployed (2) Informal (3) Self-Employed (4) Formal.

B.PATIENT HISTORY

Residential Area: .....

Clinic Attended: .....

Year of Diagnosis: .....

Other Diagnosis: .....

Medication History: .....

.....

Psychiatric diagnosis Yes No

If yes state whether

1. Anxiety 2. Depression 3. Psychotic disorder 4. Other specify below

.....

Treatment Yes No

If yes circle applicable choice(s) A. Pharmacological B. Psychotherapy

Move to rating Scales

Appendix 6 : Brief Psychiatric Rating Scale (BPRS)

Patient Name _____ today's Date _____

Please enter the score for the term that best describes the patient's condition.

0 = Not assessed, 1 = Not present, 2 = Very mild, 3 = Mild, 4 = Moderate, 5 = Moderately severe, 6 = Severe,
7 = Extremely severe

☐	**1. SOMATIC CONCERN** Preoccupation with physical health, fear of physical illness, hypochondriasis.
☐	**2. ANXIETY** Worry, fear, over-concern for present or future, uneasiness.
☐	**3. EMOTIONAL WITHDRAWAL** Lack of spontaneous interaction, isolation deficiency in relating to others.
☐	**4. CONCEPTUAL DISORGANIZATION** Thought processes confused, disconnected, disorganized, and disrupted.
☐	**5. GUILT FEELINGS** Self-blame, shame, remorse for past behavior.
☐	**6. TENSION** Physical and motor manifestations of nervousness, over-activation.
☐	**7. MANNERISMS AND POSTURING** Peculiar, bizarre, unnatural motor behavior (not including tic).
☐	**8. GRANDIOSITY** Exaggerated self-opinion, arrogance, conviction of unusual power or abilities.
☐	**9. DEPRESSIVE MOOD** Sorrow, sadness, despondency, pessimism.
☐	**10. HOSTILITY** Animosity, contempt, belligerence, disdain for others.
☐	**11. SUSPICIOUSNESS** Mistrust, belief others harbor malicious or discriminatory intent.
☐	**12. HALLUCINATORY BEHAVIOR** Perceptions without normal external stimulus correspondence.

13. MOTOR RETARDATION

Slowed, weakened movements or speech, reduced body tone.

14. UNCOOPERATIVENESS

Resistance, guardedness, rejection of authority.

15. UNUSUAL THOUGHT CONTENT

Unusual, odd, strange, bizarre thought content.

16. BLUNTED AFFECT

Reduced emotional tone, reduction in formal intensity of feelings, flatness.

17. EXCITEMENT

Heightened emotional tone, agitation, increased reactivity.

18. DISORIENTATION

Confusion or lack of proper association for person, place or time.