CROSS-SECTIONAL STUDY OF
PSYCHIATRIC MORBIDITY AMONG EPILEPSY PATIENTS

DISSERTATION SUBMITTED FOR PARTIAL FULFILLMENT OF
THE RULES AND REGULATION

DOCTOR OF MEDICINE
BRANCH - XVIII (PSYCHIATRY)

APRIL 2013

THE TAMILNADU
DR.MGR MEDICAL UNIVERSITY,
CHENNAI, TAMIL NADU.

BONAFIDE CERTIFICATE

This is to certify that this Dissertation entitled **"CROSS SECTIONAL STUDY OF PSYCHIATRIC MORBIDITY AMONG SEIZURE DISORDER"** is a bonafide record work done by **Dr. J. VINODH KUMAR** under supervision and guidance, submitted to the Tamil Nadu Dr.M.G.R Medical University for **M.D** Branch XVIII – **Psychiatry.**

Dr.C.P.RABINDRANATH,M.D.,D.P.M.,
Professor & Head of the Department,
Department of Psychiatry,
Madurai Medical college,
Madurai.

Date:

Place:

DECLARATION

I, **Dr. J. VINODH KUMAR,** solemnly declare that dissertation titled **"CROSS SECTIONAL STUDY OF PSYCHIATRIC MORBIDITY AMONG SEIZURE DISORDER"** has been prepared by me. I also declare that this bonafide work was not submitted by me or any other for any award, degree, diploma to any other university board either in India or abroad.

This dissertation is submitted to The Tamilnadu Dr. M.G.R Medical University, Chennai in partial fulfillment of the rules and regulation for the award **M.D degree Branch – XVIII (Psychiatry)** to be held in April 2013.

Place: Madurai, **Dr. J. VINODH KUMAR.**
Date:

ACKNOWLEDGEMENT

I sincerely thank The **Dean,** Government Rajaji Hospital, Madurai Medical College, Madurai for permitting me to do this study.

I sincerely thank **Prof. Dr. C.P. Rabindranath, M.D., D.P.M.,** Head of the Department & Professor of Psychiatry, Government Rajaji Hospital, Madurai Medical College, Madurai who has been a source of inspiration and motivation, for his guidance and help.

I am very grateful to **Prof. Dr.V. Ramanujam, M.D., D.P.M.,** Professor of Psychiatry, **Prof. Dr. T. Kumanan, M.D., D.P.M.,** Professor of Psychiatry, Government Rajaji Hospital, Madurai Medical College, Madurai, for the immense guidance and help throughout this study.

I would like to express my sincere thanks to my Assistant Professors, **Dr.S.John Xaviour Sugadev M.D, Dr.S. Ananda Krishna kumar M.D., D.P.M., Dr. M. Karthikeyan M.D,** and **Dr. G. Amutha M.D,** who had guided me in literature search, developing protocol and helped me in completing this dissertation.

I would like to express my heartfelt thanks to **Prof & HOD, Dr. N. Muthuveeran, MD, DM.** and other Professors of **Department of Neurology** for permitting and guiding me regarding sample collection.

I would like to place on record, my gratitude to Dr.Kannan, statistician for helping me in statistical analysis.

I thank my co post graduates and my juniors for helping me during tough times. I thank all those patients who participated in the study, without whom this study would have been only a dream.

TABLE OF CONTENTS

SL NO.	TOPIC	PAGE NO.
1.	INTRODUCTION	1
2.	REVIEW OF LITERATURE	2-36
3.	AIMS & OBJECTIVES	37-39
4.	MATERIALS & METHODOLOGY	40-46
5.	RESULTS AND INTERPRETATION	47-81
6.	DISCUSSION	82-88
7.	LIMITATIONS	89
8.	CONCLUSION	90

ANNEXURE

- BIBLIOGRAPHY
- PROFORMA AND RATING SCALES
- MASTER CHART
- KEYS TO MASTER CHART
- ANTI PLAGIARISM CERTIFICATE
- ETHICAL COMMITTEE CLEARANCE

ABBREVIATIONS

- AED – Anti Epileptic Drug
- ASEX- Arizona Sexual Experience Scale
- ASWSG- Absence Seizure With Secondary Generalization
- BPRS – Brief Psychiatric Rating Scale
- CPS- Complex Partial Seizure
- CPSWSG- Complex Partial Seizure With Secondary Generalization
- EEG- Electro Encephalo Gram
- FMS- Focal Motor Seizure
- FMSWSG- Focal Motor Seizure With Secondary Generalization
- GAD- Generalized Anxiety Disorder
- GTCS- Generalized Tonic Clonic Seizure
- HAM- A – Hamilton Anxiety Rating Scale
- HAM-D – Hamilton Depression Rating Scale
- MMSE- Mini Mental Status Examination
- MYO- Myotonic
- OCD- Obsessive Compulsive Disorder
- PTSD- Post Traumatic Stress Disorder
- TLE- Temporal Lobe Epilepsy

INTRODUCTION

Epilepsy is a chronic disorder manifest by recurrent, often erratic seizures which may be disconcerting and troublesome to the normal commotion of daily living. There is scant data on psychiatric morbidities like depression, anxiety, psychosis, quality of life, cognitive decline and sexual dysfunction in people living with seizure from low and middle income nations. And in India there is very little data available among psychiatric morbidities and seizure disorders. Irrespective of the socioeconomic states and gender discrepancies all ages of epilepsy patients suffer from psychiatric morbidity. Prevailing family circumstances also do not give much importance for the rising psychiatric morbidity among epilepsy patients. There are huge chances of not addressing their psychiatric issues when they are taking the antiepileptic's for a long time and drugs being collected by their attenders from a very long distance. When psychiatric issues are not addressed adequately, the morbidity of these patients may increase and this may interfere with the epilepsy treatment adherence. Moreover both epilepsy and psychiatric comorbidity can have significant negative impact on disability, quality of life and economic productivity, Stigma and suicide. Discrimination of epileptic patients should be urgently addressed in all workplace. Early recognition and treatment of psychiatric morbidities by involving Psychiatrists as a member of the EPILEPSY TEAM may lead to a better outcome.

REVIEW OF LITERATURE

From the Greek word “EPILEPSIA” Epilepsy derived its name meaning “ a condition of being overcome, seized or attacked” and from the Latin word SACIRE, seizure has been derived meaning "to take possession of".

Hippocrates (460-377 B.C.) First recognized Epilepsy as an organic process of the brain. Since ancient days the relation between depression and epilepsy has been noticed.

Hippocrates and Galen observed that melancholics considered as depressed become epileptics and vice versa happens in later years. Galen also mentioned about seizure and depression in his treatise EPILEPSY and MELANCHOLY.

A seizure is defined as ‘an stereotyped recurrent disruption of behavior, consciousness, emotion, sensation or motor task that on medical grounds is produced due the cortical neuronal discharge’.

Seizures are symptoms of epilepsy but not all people who appear to have seizures are considered to have epilepsy. The term epilepsy is a condition characterized by recurrent epileptic seizures.

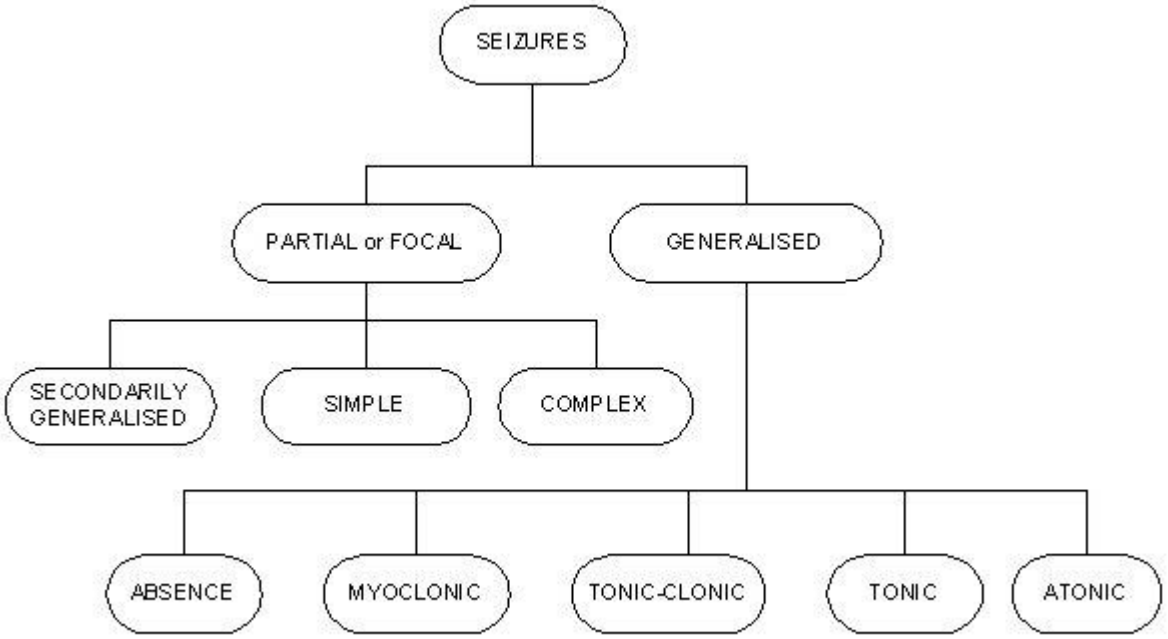
EPIDEMIOLOGY

The overall prevalence of epilepsy in India by a recent Meta analytical published and unpublished studies is around 5.59 per 1000 population and there is no much difference between genders. Worldwide prevalence is 5-10 per thousand population. 0.3–0.5 percent is the incidence of epilepsy noticed for various populations worldwide .1 in every 200 persons in India suffers from epilepsy, but the majority of them remain untreated.

How exactly seizure occurs?

In the brain seizure may be produced as a result of abnormal electrical discharges supposed to originate in brain. The brain cells interconnect by sending electrical signals in a definite pattern these electrical signals become pathological giving rise to electrical storm leading to seizures. These abnormal electrical discharges may be generalized in case of generalized seizures or may be within the specific part of the brain in case of focal seizures.

Seizure is classified as:



International League Against Epilepsy classifies epilepsy as:

I Partial seizures (Focal)

- Simple partial seizures
- Complex partial seizures
- Partial seizures evolving to secondarily generalized seizures

II Generalized seizures

- Absence seizures
- Atypical absence seizures
- Myoclonic seizures
- Clonic seizures

- Tonic seizures
- Tonic–clonic seizures
- Atonic seizures

III Unclassified epileptic seizures

Proportion of incidence cases according to seizure subtypes:

- Complex partial 36%
- Simple partial 8%
- Partial unclassified 7%
- Myoclonic 3%
- Absence 6%
- GTCS 23%
- Other generalized 14%
- Unclassified 3%

Partial seizures

Simple partial seizures

The characteristic feature of simple partial seizure is consciousness is not impaired. The patient remembers the event and can respond during the seizure event.

Motor seizures

Motor seizures are described by confined stiffening or shaking of the extremity or face on the affected sides of the body parts.

Somatosensory or special sensory seizures

This type can occur in any sensory modality such as unpleasant smell metallic taste, flashes of light, abnormal sensation and electrical feelings in touch.

Autonomic seizures

These include changes in abdominal viscera chest heart or breathing rates. These are relatively common these may include pupil dilation, sweating, salivation, piloerection, urinary incontinence.

Seizures of psychic type

Here the individual may complain of depression, loosing control, anxiety or altered perceptions such as dejavu and jamais vu.

Complex partial seizures

Are the most commonly seen seizure sub types encountered in clinical practice with children and adults. All patients have impaired consciousness either not responding to commands or responding in a peculiarly slow manner. Patient has automatisms characterized by facial frowning, gesturing, lip smacking, chewing , snapping fingers, repeating sayings. A complex partial seizure doesn’t last longer than three minutes, post ictal confusion lasting for fifteen minutes or less.

Secondary generalized seizures

Partial seizures many times can progress to generalized seizures known as secondary generalization. The patient may sometimes experience a partial seizure before it becomes generalized.

Generalized seizures

May be tonic, tonic clonic, atonic, myoclonic and absence.

Absence seizures

Absence seizures may be classified as true or typical absence previously called as petit mal or atypical absence.

Usually lasts between three to twenty seconds characterized by sudden detoriation in awareness and responsiveness. The patient regains awareness after the seizures stops. There is no aura or postictal confusion noticed. The characteristic EEG abnormality seen is 3HZ spike and wave discharge.

Atypical absence

Age of onset is before 5 yrs, less abrupt onset or cessation of tone than typical absence. It is of longer duration association with generalized seizure type and mental retardation.

Myoclonic seizures

Characterized by sudden brief shock like contractions lasting less than 350 milliseconds. The shock like contractions may be confined to face, trunk, or one or more extremities or it may be generalized.

Atonic seizures

In atonic seizure there is abrupt onset of postural tone with loss of consciousness. The duration of seizure is between five seconds to sixty seconds. These are rare and usually confined to childhood.

Tonic seizures

These are usually brief lasting less than sixty seconds characterized by sudden onset of increased tone in extensor muscles manifesting as flexion and extension of upper and lower limbs.

Tonic clonic seizures

Formerly called as grand mal epilepsy consists of two phases; tonic phase characterized by loss of consciousness occurring simultaneously with onset of generalized stiffening of extensor or flexor muscle groups. Clonic phase occurs after the tonic phase and involves generalized jerking of the muscle groups.

Classification of psychiatric symptoms and syndromes according to Fenton.

<u>Brain disorder causing epilepsy</u>

- West syndrome
- Specific epileptic syndromes
- Epilepsy with continuous spike-and-wave during slow-wave sleep
- Lennox–Gastaut syndrome

- Progressive myoclonic epilepsies
- Learning disability
- Cognitive and behavioural indices of other acquired causes of epilepsy

Ictal

1. Aura
2. Automatisms
3. Non-convulsive status epilepticus
4. Postictal
5. Delirium
6. Psychosis

Interictal psychiatric disorders

1. Mood disorder
2. Personality disorder/behavior disorder
3. Dissociative seizures
4. Schizophrenia-like psychosis
5. Dementia

What are the contributing factors in the relationship between epilepsy and behavioral disorders? What are the mechanisms?

1. Genetic predisposition
2. Common neuropathology
3. Ictal or subictal neurophysiologic effects
4. Developmental disturbance
5. Secondary endocrinologic dysregulations
6. Independent primary psychiatric illness
7. As a result of medical or surgical treatment
8. Secondary epileptogenesis
9. Alteration of receptor sensitivity
10. Hypometabolism surrounding the seizure focus
11. Consequence of psychosocial burden of epilepsy

Epilepsy verses Depression

Amongst the epileptic patients depression is the most common comorbidity noticed. Depending upon the methodological approaches for studies related to depression and epilepsy the life time prevalence varies in the range between 8 to 48% . The perpetuating factors in a seizure disorder patient for the development include poor seizure control, suicidal behavior, poor quality of life, chronic medical illness, effect of antiepileptic medication, perception of stigma etc. In

developing countries like India there is very few community study regarding psychiatric morbidity and epilepsy.

Now recently according to some researchers the prevalence of depression in seizure is as high as 55% in most epilepsy clinics are overloaded with referrals from various departments so due to time constraints most of the neurologists only emphasis upon the seizure control they never ask few clinching questions regarding psychiatric manifestations and this is how psychiatric co morbidity is missed.

Depression in seizure disorder can aggravate seizures since depression as such can cause sleep disturbance and sleep disturbance and circadium rhythm disturbance increases seizure frequency so it is essential to actively treat depression. When we miss depression patient may end up in complete suicide. In many primary health centers and general practionaires the knowledge about seizure and depression is poor and many general practionaires fear treating depressed epileptic patients and they are reluctant since antidepressants decrease seizure threshold and worsen epilepsy.

Researchers also started to become aware about the incidence of depression among epilepsy when compared to other chronic medical disorders. According to the research done in Sweden & US people with depression have a three to seven times higher risk of developing seizure disorder. Dr Andres Kanner states that there exist common pathological mechanisms between these two and DEPRESSION AND EPILEPSY IS A TWO WAY STREET.

Studies on rats that are genetically vulnerable to seizures by Kanner found that there is abnormal secretion of neurotransmitters serotonin and norepinephrine GABA and dopamine. Similar abnormalities were found in depressed individuals.

Epileptic Patients with psychiatric history of depression may respond to seizures with medication or surgery Kanner reports this recent data from his study on ninety epileptic patients who suffered from depression and did not respond to either medications nor surgery.

How is Depression and seizure interrelated?

As discussed above the prevalence of depression is more in epilepsy than that of general population

Pre ictal depression : here the symptoms of depression occur just prior to the onset of the seizure its transient and the patient mood reverts back to normal as soon as the seizure disappears.

Post ictal depression: here the symptoms of depression occurs after the onset of seizure usually the symptoms of depression is brief lasting for several hours to two maximum weeks.

Inter ictal depression: this is more important since the symptoms of depression occurs between seizures it's of chronic duration and not affected by seizure

control. Here the patient may typically present with sad mood, easy fatigability hopelessness and worthlessness.

Other factors contributing for depression may include:

1. Family history and genetic vulnerability here whenever there is genetic vulnerability and positive family history the epileptic patient may suffer from depression.
2. Depression may occur secondary to head injury, CNS infection or after a cerebrovascular accident. These traumatic brain injuries may subject the person to depression.
3. Antiepileptic drugs sometimes cause depression particularly the barbiturate group and use of polytherapy is a risk factor for the development of depression.
4. As such seizure affected individuals may feel ashamed feel frustrated that they are not able to remain as others in workplace driving etc. They feel they are grouped out from normals.

Temporal Lobe Epilepsy and Depression:

Depression in TLE is very common compared to other type of depression. Seizure is considered as refractory if patients do not get adequate seizure control with two antiepileptic drugs in mono or polytherapy with adequate doses not associated with unacceptable side effects.

How to recognize depression??

Not every person affected by depression will manifest with low mood anhedonia hopelessness or worthlessness most would have mild to moderate depression and few of the patients would have atypical symptoms. Few may exhibit irritability anger outbursts difficulty in concentrating and somatic complaints. Its always vital for a clinician to ask few simple open ended questions like, How are u feeling ? How about your future prospects towards life?? And allowing the patients to speak freely and make us understand their exact problems. Rather than asking yes or no questions. Can use various screening questionnaires for depression.

Anxiety in Seizure Disorder:

Recently clinicians recognized the importance of psychiatric morbidities in people living with epilepsy. Anxiety disorders are the second most frequent comorbidity in epilepsy most of the times they remain undiagnosed and untreated. In a Canadian population based study the life time prevalence of anxiety disorder in epilepsy is 22.8% compared to 11% study in non-epileptic subjects.

Anxiety can be seizure related or interictal. Asking few open ended questions about patient's wellbeing we can diagnose the symptoms of anxiety screening questionnaires like PRIME-MD may be helpful. Phobic disorders are more

common in epilepsy such as agoraphobia and social phobia due to poor seizure control and drug compliance. Anxiety is also one of the dominant symptom of adjustment disorders in patients diagnosed as epilepsy during the initial stages. HAM-A scale is very helpful in diagnosing anxiety in clinical settings.

How anxiety is related to epilepsy?

Any serious medical illness can make people anxious after diagnosis. Anxiety can be related to epilepsy in more specific ways i.e. as a reaction to diagnosis, reaction to epilepsy, and sometimes as a result of antiepileptic medications.

Stefan Beyenburg.,et al (2007) in a review article states that 50 to 60% of patients with seizure can have various psychiatric manifestations including depression and anxiety. So far most of the studies have discussed the relationship between depression and epilepsy, very few studies have highlighted anxiety in epilepsy. Anxiety in epilepsy may be ictal, postictal, and interictal. It is important for a clinician to discriminate different indices of anxiety.

Anxiety in ictal phenomenon:

In case of temporal lobe seizure with an connection of amygdala it can present as an isolated aura producing the patient to experience fear/panic.

Anxiety in postictal phenomenon:

It can present as altered sensorium or reduced orientation soon after recovery from a seizure.

Anxiety in interictal phenomenon:

Here due to an alteration response, a seizure fear, a result of antiepileptic medications has an indirect relationship on epilepsy.

Risk factors associated with anxiety:

Seizure frequency is one of the important risk factors since higher the seizure frequency makes the individuals perception of danger (eg.falling or dying). First onset epilepsy in later life may be a risk factor to develop anxiety.

Temporal lobe epilepsy as such is a risk factor for anxiety its incidence is less in generalized seizures some studies tells that it is also more common in frontal lobe epilepsy.

In patients with chronic refractory seizures higher rates of anxiety has been reported. Last but not least perceived stigma itself is a risk factor since majority of the patients affected with epilepsy are young individuals.

Neurobiological mechanisms:

Amygdala is an important structure found to produce anxiety symptoms in temporal lobe seizure since it is liable for relaying and processing of emotional inducements from various sources to limbic and other cortical structures. Therefore amygdala is vital for generation of autonomic, affective, cognitive, and endocrine mechanisms of the anxiety symptom.

Phenomenology of anxiety symptoms in epilepsy

GAD and epilepsy:

Anxiety is free floating persistent for at least 6months associated with somatic and vegetative symptoms. Anxiety can occur secondary to investigations for any serious physical disease. In seizure disorder EEG, CT, MRI are commonly done investigations. After diagnosing seizure anxiety may persist if there is future seizure, dread of disease progression or dread of specific complication.

Panic attack and panic disorder:

Patients with epilepsy have a 6 times higher prevalence of panic attacks as that of general population ie 15-30% and 5-21% prevalence of panic disorders in seizure disorder patients. Prevalence of panic disorder is only 3.5% in general population. Amongst the types of anxiety disorder panic is most common to be encountered, the so called ictal fear.

Jose augusto bragatti.,et al.(2011) in their prevalence study of psychiatric co-morbidity in TLE patients in southern brazil population they analyzed 166 patients regarding psychiatric symptoms through the SCID. The overall prevalence of psychiatric morbidity was 63.9 % ie 160 patients amongst them mood disorders were 48.2% ie 80 patients , anxiety disorders were 30.7% ie 51 patients , 14% had psychotic disorders ie 14 patients and the remainder 4.8%

had substance abuse ie 8 patients. Their results happen to agree with literature data which is around 10-60% of mental disorders in epileptic patients.

Sabrina stefanello., et al. (2011) depression and anxiety in a community sample in brazil in their cross sectional study evaluated 153 epileptic patients. Their objective was to estimate the frequency of anxiety, depression, social and psychiatric characteristics in epileptic individuals using semi structured interview and psychiatric evaluation. Subjects with anxiety and depression compared to those without. They found the prevalence of depression was 20.4% and anxiety was 39.4% they concluded that there is a need for recognition and treatment of mental disorders in epilepsy because of high prevalence rates of depression and anxiety.

Brandt., et al. (2010) Anxiety disorders in epilepsy a forgotten psychiatric co-morbidity piloted a prevalence study of individuals with refractory focal epilepsy including a sample size of 97 out patients using anxiety section of SCID I sample consisting of males 41.2% , 42.3plus or minus13.2 yrs mean age and 26.9 plus or minus14.2 years being the mean epilepsy duration. They found 19.6 % had anxiety disorders (social phobia was 7.2%, specific phobia was 6.2%, panic disorder was 5.1 %, GAD was 3.1%, GAD NOS 2.1%, OCD 1% and PTSD 1%). They concluded that people with shorter seizure duration P value being 0.084 and younger age P value being 0.078 are more vulnerable to have anxiety disorders. People with chronic refractory focal epilepsy anxiety

disorders are more frequent and clinicians should be more careful in assessing anxiety in epilepsy.

Ettinger et al. assessed 775 patients suffering from epilepsy in community settings compared with 395 asthmatics and 362 control healthy groups. 36.5% among epileptics were depressed compared to 27.8 asthmatics and 11.8 healthy controls.

He also observed nearly 39% epileptic patients had never been evaluated for psychiatric symptoms.

H A Ring, M R Trimble, J Moriarty (1998) assessed 60 patients with intractable epilepsy for temporal lobe surgery with PSE and other ICD and DSM diagnostic criteria's 6 weeks prior to surgery and 6 weeks and again 3 months post operatively about 50% those with no psychopathology prior to surgery developed symptoms of depression and anxiety.45% of all patients were found to have emotional incontinence. At the end of 3 months emotional liability and anxiety features diminished whereas depression persisted.

Sigurjon B Stefansson, Elias Olafsson , W Allen Hauser.(2012) Assessed 344 epileptic patients in ice land receiving disability benefits psychiatric morbidity such as depression anxiety and psychosis were present in 35% when compared to controls of 30%. The study concluded that there is no significance difference

between the epileptic group and people with other disabling somatic group regarding the prevalence of psychiatric disorders.

Eleonora Borges Gonçalves, Fernando Cendes. (2011) In their study group 25 refractory epileptics were chosen among them 16 were women and 9 were men among them 68% had depressive disorder i.e. 17 of 25 had depression amongst the 17 the duration of epilepsy were longer. The outcome of their study was psychiatric comorbidity was common and often it is under diagnosed in epileptic patients.

Jacoby et al. (1996) assessed seizure free individuals over 2years. The prevalence of depression amongst seizure free individual was only 4% compared to the general population. Pond, Bidwell. (1960) assessed 245 patients among them 29% had psychiatric manifestations and 7% of the total already had psychiatric treatment. Edeh , Toone. (1987) surveyed 88 patients 48% were having significant mental illness and 31% had a history of psychiatric referral.

Seizure and Suicide

In people with epilepsy completed suicide is the most common mode of deaths than the general population i.e. 5% of suicide deaths compared to 1.4% normal deaths. Various contributing factors have been associated with suicide namely

1. Inadequate seizure control

2. Difficulties at work and social related problems
3. Younger males
4. Personality disorders
5. Complex partial seizures
6. Easy access to large quantities of antiepileptic drugs
7. Long duration of seizures

The common mode of attempt in epileptic patients has been drug over dosages i.e. 80-90%. Columbia university researchers in 2005 reported that suicidal thoughts and behavior are at increased risk in patients who later developed epilepsy. The study also came out with an conclusion that between epilepsy and suicide there exists a complex relationship. Researchers also think that suicide depression and seizures are due to a similar underlying brain dysfunction.

Marco Mula,Gail S Bell, Josemir W Sander,(2010) In their 17 year study on suicide and epilepsy in a sample consisting of 20,000 people 2.3% ie 492 had seizure disoreder when compared to 0.7% control in that those with seizures were four times as likely to have psychiatric disease.

Nested case control study done at Stockholm county hospital between 1980 to 89, 26 patients who committed suicide were matched with 171 patients from the same population they observed a 9 times greater increase in risk of suicide associated with mental illness.

Mainio A, Karvonen K, Alamäki K Hakko H, , Räsänen P Särkioja T.(2007) A sample size of 1,877 committed suicide in finland between 1988-2002 were assessed regarding epilepsy and seizures. 1.3% were found to be hospital treated epileptics and among them epilepsy was diagnosed 8.8 years before suicide and depression was diagnosed 1year after the diagnosing seizure.

X. Wen , K.J. Meador, D.W. Loring , S. Eisenschenk , R. Segal a, A.G. Hartzema.(2010) in a prospective cohort of 163 epilepsy patients on antiepileptic drugs at the florida university between 2006 to 2008 significant difference was found in patients who took same AED'S for long years considered as no AED change group.

Christensen J, Vestergaard M, Mortensen PB, Sidenius P, Agerbo E.(2007) in their case control study identified 21,169 cases of suicide and controls of 423,128 patients among them 2.3% ie 492 individuals had epilepsy compared with 0.74% i.e. 3,140 controls suggesting three times higher risk.

Does Schizophrenia and seizures have strong link??

Researchers from china medical university hospital, Taichung collected data from Taiwan national health insurance data base assessed sixteen thousand patients with seizures and schizophrenia from 1999 to 2008 they came out with 5,195 patients with schizophrenia and 11,527 with seizures between 1999 to 2008. This sample group was compared with other groups with same sex and

age with no seizures and schizophrenia 6.99/1000 person years was the incidence of seizures compared to 1.19/1000 that of control group 3.53 / 1000 was the incidence of schizophrenia compared to 0.46/1000 in control groups.

Researchers also stated that schizophrenia levels were marginally higher with males than that of females with seizures. This is due to common pathophysiology such as environmental factors and genetic vulnerability.

Another controversial researcher's conclusion is that schizophrenic patients are at high risk of acquiring seizures since there exists bi-directional relationships between schizophrenia and seizures.

Schizophrenia-like psychosis:

Epilepsy and psychosis dates back to the studies if Slater et al.(1963) who described the diagnosis of schizophrenia in 69 seizure disorder patients. Sachdev (1998), lancman (1999) also reported the coexistence of schizophrenia in epilepsy.

Mendez et al.(1993) in his study compared epileptic patients and migraine patients he took 1611 epileptic patients and 2167 migraine patients he found 9.25% had psychosis in that 4.72 % was schizophrenia like psychosis. Only 1.06% had psychosis in migraine sample.

Stefansson et al .(1998) in Iceland among disability claimants compared 241 patients with seizures along with 482 subjects with non- neurological

disabilities. The prevalence of schizophrenia like psychosis was higher ie 3% compared to the non-epileptic group of 0.6%.

Psychological anguish in Seizure:

Factors are several that cause emotional anguish in a seizure disorder patient. Seizure activity , poor drug compliance, poor seizure control , increased seizure frequency besides kindling phenomenon are the contributing factors along with this adjustment disorders, social isolation side effects of antiepileptic medications adds on to the psychiatric morbidity. In developing countries like India there is limited knowledge about seizure with decreased level of literacy and improper health care system. Three quarters of 50 million people live in developing countries like India ninety four percent amongst them are undertreated. Several studies suggests that stigma and negative attitudes towards epilepsy is more in developing countries compared to developed countries.

The common mental responses among epileptic patients include:

1. Social humiliation after a seizure when frothing and incontinence occurs
2. Dread of unexpected seizure
3. Feelings of hostility at social situations and work
4. Accidental injury
5. Women would be scared of intentional injury or theft during a seizure
6. Vulnerability to sexual assault in case of females.

Najam-us Sahar.(2012) assessed 50 epileptic patients from Pakistan out of which 70% showed psychological distress and in people with uncontrolled seizures the psychological distress was 100% he also noticed that 74% of were unmarried and unemployed.

Aziz, Akthar et al. from Pakistan found that epileptic patients had difficulties in carrying out daily day today activities and they were in confusion whether to marry or not and beget children. Hence it is utmost importance to in assessment of social and psychological wellbeing in seizure disorder patients.

Hypergraphia in Epilepsy:

Hypergraphia is an extensive and compulsive writing tendency sometimes coupled with hyposexuality and hyper religiosity described by Waxman and Geshwind in 1974. Hypergraphia is a characteristic behavior pattern seen during the interictal phase of TLE. The mechanism which hypergraphia occurs as put forth by Waxman and Geshwind is due to the deepening of emotional responses in a TLE patient with preserved intelligence. Bear described the sensorylimbic hyperconnection which forms an underlying mechanism of hypergraphia. Blumer et al, assumed that hypo metamorphosis and hyperemotionality are the two important factors associated with hypergraphia in epileptic patients.

Hypergraphia is often associated with right sided non-dominant temporal lesions; Roberts et al, and Trimble et al, suggested that disturbance of the right

hemisphere function leads to an alteration of the writing process. Hermann et al considered hypergraphia to be multifactorial and emphasized the importance of using a standardised interview method for its assessment.

Takehiko okamura et al, in his study of hypergraphia in epileptic patients brought a conclusion that hypergraphia reflects changes in emotional receptiveness secondary to organic temporal lobe injuries.

A. K. Dasgupta .(1998) assessed the prevalence of epilepsy, reproductive rate and neuropsychiatric manifestations in a sample size consisting of 30 post traumatic seizure patients amongst them post traumatic epileptic group had lower fertility rate compared to the control groups which were non post traumatic epilepsies. Study also conclude that there is an association between severity of seizures and fertility rates.

COGNITIVE IMPAIRMENT IN EPILEPSY

Cognition denotes to high-order progressions which primarily involves the cortical brain structures to sequence adaptive behavior, memorize information, to solve problems, and focus attention.

There exists a complex relationship between epilepsy and cognition which is unknown.

Though few factors are clearly involved ie aetiology, CNS side effects of antiepileptic drugs, seizure activity. The relationship between seizure and

cognition impairment and the harmful effects of the antiepileptic drugs are established through studies.

Memory impairment, psychomotor speed, attention deficits and word-finding problems are the most common cognitive dysfunctions associated with seizure disorder. There are about 30% people with cognitive dysfunctions connected to epilepsy.

Age Effects

Earlier age of onset epilepsy is usually associated with more widespread and significant cognitive problems. This may be due to the result of seizures on the developing brain, the increasing effects of seizures over time, or a mixture of both. There is inadequate information about effects of seizures in old people, but large numbers of generalized convulsions can result in cognitive decline. Cognitive deterioration was related with the duration of seizure, as well as the frequency of both generalized and focal seizures.

Cognitive Effects of Antiepileptic Drugs (AEDs)

Many causes pay to cognitive dysfunction in people with epilepsy including the source of the seizures, length and frequency of seizures, and damage resulting from the seizures.

Yet, use of AEDs and their effects is important because it is something that can be changed. The cognitive functions utmost frequently affected by AEDs are attention, memory, psychomotor speed, and double processing tasks.

The risk of cognitive effects of AEDs is increased by:

• Higher doses and blood levels

• More than one medication

• Initial dose and increasing the dosage rapidly

• Age

The risks of AED-induced cognitive side effects vary across AEDs.

AEDs with the least cognitive side effects are:

1. gabapentin
2. levetiracetam
3. lamotrigine
4. tiagabine

AEDs with intermediate degree of cognitive effects are:

1. carbamazepine
2. phenytoin

3. oxcarbazepine

4. valproate.

The AEDs with the worst cognitive side effects are:

1. benzodiazepines

2. phenobarbital

3. topiramate.

Cognitive Aspects of Epilepsy and Employment:

People with epilepsy and cognitive impairments may experience challenges on the job from possible discrimination issues to learning, memory and attention problems that may affect performance and quality of work. People with well-controlled seizures and no other neurological complications may have close to expected occupation rates. Nevertheless, surveys suggest that at least 1/3rd of people with epilepsy think that their epilepsy is a major reason for employment problems, underemployment, unemployment, and lack of advancement.

People with active seizures that affect consciousness have restricted job opportunities since they cannot drive, operate heavy equipment, or work at heights. The key to working successfully with epilepsy and cognitive issues is educating your employer and co-workers about your seizure type and any

reasonable accommodations that may be needed in order for you to perform well at your job.

Cognitive impairment is the most common comorbid disorder in epilepsy (Aldenkamp and Dodson 1990; Dodson and Pellock 1993). Memory disturbances, mental slowing, and impaired attention are the most commonly reported cognitive disorders (Dodson and Trimble 1994; Aldenkamp et al. 1995).

Ozlem Aksoy OZMENEK, et al.(2008) in their study on The part of event related potentials in assessment of minimum cognitive dysfunction in epileptic patients by obtaining p300 latencies, the study results were p300 were longer in epileptic patients when compared to control groups ($p<0.05$) this made them conclude that P300 latencies has a vital role in evaluating minimum cognitive dysfunction in seizure disorder individuals on antiepileptic drugs.

Albert P. Aldenkamp, (2006) Cognitive diminishing in epilepsy states that cognitive dysfunction develops secondary to seizure. Memory impairment, mental slowing, and attention impairment are the most common cognitive disturbances associated with seizure. Cognitive dysfunctions are multifactorial including the effect of antiepileptic medications. Vagus nerve stimulation is helpful in improving cognitive dysfunctions.

Kimford J. Meador, (2005) cognitive dysfunctions of seizure and its treatment; a sample size of 425 patients were assessed for cognitive function out of which learning difficulty was noticed in 44%, slow thinkers were 45%, 59% had trouble with sedation, and 63% thought that the antiepileptic drugs are affecting their activities and to achieve their goals.

Schouten, et al.(2002) Learning and memory difficulties in school age children with seizure; on 72 epileptic children were assessed for their cognitive abilities when they were recently diagnosed as seizure disorder and repeat testings were done afer 3 and 12 months children had working memory problems and that correlated with seizure frequency and seizure free states.

Seidenberg, Pulsipher and Hermann. (2007) on their longitudinal studies found that epilepsy induced cognitive impairment is not static its progressive over due course and in chronic epileptics cognition impairment is more.

SEIZURE AND SEXUAL DYSFUNCTION

Sexual desire and sexual arousal problems are estimated about one third among people living with epilepsy.

Among neurological disorders, in epilepsy sexual dysfunction is more common

Psychological, neurological, and endocrinological dysfunctions are the causative factors amongst epileptic patients with sexual dysfunction. Since

epileptic patients have low self-esteem they consider themselves to be physically un attractive and restrict in social and other activities.

Since sexual activity may cause exertion and hyperventilation which in turn would precipitate seizure activity many people with seizure disorder avoid sexual activity.

Another contributing factor for sexual dysfunction in seizure disorder is the presence of depression and anxiety which in turn may lead to decreased sex drive. Studies among men and women show that women have more sexual dysfunction than men due to various reasons.

Seizure frequency also is one of the contributing factors for sexual dysfunction Antiepileptic drugs can have an impact on sexual dysfunction, many AED'S increase the levels of hormones which in turn suppresses sexual activity. Since most of the antiepileptic drugs are enzyme inducers the levels of androgen fall and which in turn can cause sexual dysfunction.

Anti-epileptic medicines deteriorate the condition, usually through hormonal properties on the hypothalamic–pituitary–adrenal (HPA) axis. This is principally factual of the hepatic-enzyme-inducing antiepileptic drugs carbamazepine, phenytoin and sodium valproate. Lamotrigine, do not induce hepatic enzymes so this appears to be safe and never causes sexual dysfunction.

Electrical discharges in localized areas of brain in case of focal seizures of temporal and frontal lobes can leads to sexual dysfunction reason are unknown During an epileptic seizure patients will have elevated levels of prolactin which is produced by the pituitary gland this has been associated with decreased sexual arousal and desire leading to sexual dysfunction.

Normal sexual functioning is an important aspect of life so treating sexual dysfunction is more important to promote a positive and satisfying independent life style. So treatment of sexual dysfunction will include both psychological and pharmacological.

An approach to a patient with sexual dysfunction will include early detection of sexual problems in vulnerable groups ie patients with uncontrolled seizures, longer duration of seizure disorder and polytherapy. Effectively screening the sexual problems, a psychiatric referral and minimizing enzyme inducing drugs for seizure control will help improve patient’s quality of life.

Miia Artama, J.I.T.Isojärvi and A.Auvinen. (2006) In their cohart study on epileptic patients on oxcarbazepine, carbazepine , and sodium valproate found that reproductive rate was lower in patients getting antiepileptic drugs when compared to the controls which included non epileptic group they also found a significance difference in people taking oxcarbazepine.

Herzog et al, (1986a b;Isojärvi et al., 1990, 1993; Mikkonen et al., 2004) antiepileptic use may be associated with reduced fertility since AED'S may affect reproductive endocrine functions and these alterations may result in reduced fertility.

Artama ,et al.(2004) there is lowered birth among epileptics on antiepileptic drugs. Dansky et al.,(1980); Schupf and Ottman, (1994, 1996); Jalava and Sillanpää, (1997). There is decrease in birth rates even with married epileptic individuals.

Menstrual disorders attributing to ovulatory dysfunction in women with epilepsy are more common than in general population. (Herzog et al. 1986a; Isojarvi et al., 2005). Long time use of antiepileptic drugs which are enzyme inducing in patients with epilepsy may result in increased serum concentrations of sex hormone binding globulin which in turn will lead to reduced bioactive serum testosterone, thus affective reproductive functions (Isojarvi., 2005). (Røste et al., 2003; Isojärvi et al., 2004). Sperm motility may be reduced after AED intake and also reduction in testicular volume is observed on people with AED'S.

Birth rate among patients seizure disorder (Webber et al., 1986; Jalava and Sillanpää, 1997; Olafsson et al., 1998; Wallace et al., 1998; Artama et al., 2004), concluded that among seizure disorder with AED'S birth rate is few. (Jalava and Sillanpää, 1997). In their small sized sample studies about fertility

rate among seizur disorder found low birth rates among patients on antiepileptic drugs.

Coping With Epilepsy

The treatment plan for epilepsy should include educational, emotional, and social interventions. Seizure disorder patients can be best treated by a epilepsy team consisting of a neurologist, psychiatrist and a social worker. If an epileptic patient has a difficulty in workplace, school settings, interpersonal relationships or a daily day today activities it is essential for the patient who is suffering from seizure disorder to address his problem and seek help from the epilepsy team.

Early intervention will allow the epileptic team to understand and compact with the deleterious effects of seizure disorder. Tension management will aid patients preserve a positive physical, mental, and mystical attitude towards life. Neurologists, frequently incline to concentrate on seizure control, psychiatric comorbidities are mostly undervalued and untreated. Identifying psychiatric problems is one important aspect that needs further improvement.

Epilepsy and psychiatry has a close association due to its protracted history. The older method of seizure care is to concentrate only on the seizures and its management. Treating only seizures that contributes only to a small proportion of individual’s life will not define many psychological problems that may have an influence on the quality of life in seizure disorder patients.

What role does a neurologist play in management of epileptic patients with psychiatric comorbidity??

Most of the neurologists often focus on seizure control they never concentrate on the symptoms of anxiety or depression so the mindset should change and they should screen for the symptoms for psychiatric comorbidities in seizure clinics.

Once the symptoms are made out the following doubts arises

Whether the symptoms occur due to seizure perse preictal, ictal, and post ictal stages of seizure?

Whether the symptoms are due to antiepileptic drugs?

Does the patient have any positive family history of psychiatric illness or did he receive any psychiatric treatment in the past?

Concentrating only on seizure control which occupies only a small part of patients life is not going to address other issues so effective psychiatric intervention is mandatory which includes psychological, social and medical management.

AIM

To study the psychiatric morbidity among epilepsy patients attending epilepsy clinic in neurology department.

OBJECTIVES

1. To assess the level of psychiatric morbidity such as depression, anxiety, psychosis, cognitive impairment and sexual dysfunction among epilepsy patients.

2. To study the prevalence and the relationship with any specific seizure sub-types.

3. To determine the Correlation between seizure frequency, seizure duration and abnormal EEG finding in psychiatric co-morbidities among epilepsy patients.

4. To screen for cognitive dysfunction and sexual dysfunction among epilepsy patients.

5. To assess the quality of life among these patients.

HYPOTHESIS

- Psychiatric morbidity has high prevalence among epilepsy
- Psychiatric morbidity among epilepsy patients is determined by seizure duration, seizure type, seizure frequency and standard of living
- Among seizure types psychiatric morbidity is more common among complex partial seizure.
- Quality of life is poor among people with psychiatric morbidity
- Prevalence of sexual dysfunction is high among seizure disorder
- Cognitive impairment is seen among epilepsy patients
- There is no much difference in the prevalence of psychiatric morbidity between male and females
- Epilepsy patients with abnormal EEG have more psychiatric morbidity
- People with epilepsy are vulnerable to develop depression and people with depression have high risk to develop seizures.

Type of study: Cross-sectional study

Period of study: May 2012 to November 2012

Place: Department of Neurology

Government Rajaji Hospital Madurai

INCLUSION CRITERIA

1. Male and female patients attending the epilepsy clinic Neurology department, Government Rajaji Hospital, Madurai with a definitive diagnosis of Seizure disorder based on clinical semiology, EEG, and neuroimaging
2. Participants between 16-50 years of age
3. Willing to provide informed consent for the interview
4. patients whose last duration of seizure was > 7days

EXCLUSION CRITERIA

1. Patients with other co-morbid physical illnesses such as diabetes, hypertension, ischemic heart disease, hypothyroidism
2. Patients with known psychiatric illness before the onset of EPILEPSY
3. Un-cooperative patients
4. Refusal to participate in the research
5. Refusal to provide informed consent for assessment

METHODOLOGY

After obtaining the ethical committee approval the samples for the study design was chosen from patients attending epilepsy clinic, department of Neurology, Rajaji Government Hospital Madurai. Sample size consisted of 100 seizure disorder patients .These Patients were selected by random sampling with the help of the staff of Department of Neurology and those who satisfied the inclusion and exclusion criteria were chosen as for study group.

Patients were explained about the nature of the study and were motivated to participate in the detailed clinical psychiatric evaluation, after getting informed consent. Patients were interviewed, details of socio-demographic profile were collected followed by thorough evaluation of mental status including detailed physical examination. Following which rating scales were administered.

The following tools were used to evaluate the patients.

MATERIALS USED

A) SEMI STRUCTURED PROFORMA

B) M.I.N.I PLUS

C) HAMILTON RATING SCALE FOR ANXIETY (HAM-A)

D) HAMILTON RATING SCALE FOR DEPRESSION (HAM-D)

E) BRIEF PSYCHIATRIC RATING SCALE (BPRS)

F) MINI MENTAL STATUS EXAMINATION (MMSE)

G) ARIZONA SEXUAL EXPERIENCE SCALE (ASEX)

H) WORLD HEALTH ORGANIZATION QUALITY OF LIFE (WHO QOL) BREF

SEMI STRUCTURED PROFORMA

Proforma include personal, socio demographic details, diagnosis, EEG and Radio imaging findings, seizure duration, frequency, drug history, compliance, family history, and other relevant details necessary for the study design.

M.I.N.I PLUS NEUROPSYCHIATRIC INTERVIEW

It is a short structured clinical interview which has 20 separate modules for each disorder and is used to diagnose axis I disorders according to DSM IV or ICD 10 developed by Sheehan et al. It has been validated and reliability has been studied in comparison to the SCID-P (abbreviated as structured clinical Interview for DSM IV) and the CIDI (Composite international Diagnostic Interview) which is a structured discussion established by the World Health Organization for untrained interviewers for ICD-10. It has a high inter-rater reliability and validity. It is a clinician administered scale and can be completed within 15minutes. M.I.N.I. Plus is allocated into modules recognized by letters with each letter agreeing to a diagnostic category. There are screening questions corresponding to the main criteria at the commencement of each diagnostic component except for psychotic illness. Diagnostic box at the end of each module is given to indicate whether diagnostic criteria are met or not.

MINI MENTAL STATE EXAMINATION

Mini–mental state examination (MMSE) or The Folstein test is a thirty opinion inquiry form introduced by Folstein et al in 1975 used as a detective tool for cognitive impairment. It is very often used to detect dementia in addition to evaluate the depth of cognitive decline and to track the sequence of cognitive decline in an patients over time and serves as an effective way to monitor an person's reaction to treatment.

It is operational as a detecting tool aimed at cognitive decline with old age, hospitalized adults. It is also used as a exploration instrument for screening cognitive decline in epidemiological works and follow cognitive variations in clinical trials. It has 11-questions which measures 5 zones of cognition including orientation, registration, attention, and calculation, recall and language. Extreme tally is 30, a score of 23 or lower is indicative of cognitive impairment. It takes around 10 minutes to administer and is easy to use repeatedly and routinely.

It relies primarily on verbal response and reading and writing and as a result certain group of people performs poorly even when their cognition is intact. They include patients who are blind and deaf, intubated, have low English literacy or those with other communication disorders.

WORLD HEALTH ORGANISATION QUALITY OF LIFE SCALE-BREF SCALE

It is a 26-item form of the WHOQOL-100 based on a four domain structure which includes physical, psychological, social and environmental wellbeing. The aspects are defined as person's aspects of life that have contributed to an individual's quality of life. Among 26 items, 24 adds up the 4 areas of physical health (7 items), psychological health (6 items), social relationships (3 items) and environmental (8 items) and the rest 2 items measure overall QOL and general health. It uses a Likert type five point scale to assess the patient's response, 24 of 26 questions are used to calculate. Raw scores on each domain are converted to transformed scores using an algorithm, first alteration changes scores to range from 4-20 similar with WHOQOL-100 and next transforms to 0-100 scale. All 4 areas establish good internal constancy and test-retest dependability. Good construct validity is demonstrated by the physical and psychological domains.

HAMILTON RATING SCALE FOR DEPRESSION:

Read condensed as HAM-D, consists of several item questionnaire used to assess depression and as a tool to evaluate recovery from depression. It was devised by Max Hamilton in 1960. The rating scale is intended for adults and used to grade the severity of depression. Initially and now said to be the gold standard in assessing depression on clinical grounds. It was criticized by many

researchers since it emphasis more on insomnia than the suicidal ideas or gestures. The original version consisted of 17 items (HSRD-17) the recent version consists of 21 questions.

Scoring patterns:

0-7 = normal score

8-13 = mild depression

14-18 = moderate depression

19-22 = severe depression

≥ 23 = very severe depression

HAMILTON RATING SCALE FOR ANXIETY

Abbreviated as HAM-A, consists of several item questionnaire used to assess anxiety and as a tool to evaluate recovery from anxiety. It was devised by Max Hamilton in 1959. It was the one amongst the few rating scales to be published; it remains the widely used and well-validated tool by psychiatrists. It must be applied by a skilled clinician. The time taken to administer is 10 to 20 mins, rater must select the probable replies to each question by questioning the patient and by detecting the patient's symptoms. The HAM-A inquiries 14 constraints, each point is recorded on a five item scale, ranging from zero absent to four severe. Sensitivity: 85.7percent Specificity: 63.5 percent. A full score of 0-17 is reflected to be mild, 18-25 mild to moderate, and 26-30 moderate to severe.

Brief Psychiatric Rating Scale:

Is considered to be one of the oldest rating scales to measure psychosis it was first published in 1962. The brief psychiatric symptom scale is an exclusive 24 item symptom severity scale for psychosis.it is routinely used as a part of clinical psychiatric interview where the physician makes observations based on the several symptomatic criteria's and it also depends upon the patient self-report for other criteria

How to interpret??

Rate items 1 to 14 based on patients self-report during the psychiatric mental status examination. If the symptoms are not assessed mark as NA, items 7 12 and 13 are also rated on patients observed behavior during the psychiatric interview. Rate items 15 to 24 based on the patients speech, behavior and expressions during the psychiatric interview.

The Arizona Sexual Experience Scale (ASEX)

Arizona Sexual Experiences Scale (ASEX) is a five itemed inventory which mainly concentrates and quantifies sex interest, stimulation, vaginal lubrication, penis erection, capability to reach orgasm, and gratification from orgasm. 5 -30 is the range of possible total scores. As the score becomes higher it signifies sexual dysfunction.

How to Score??

Easy to score and interpret

Possible scores may range from 5 to a maximum score of 30

As the score increases greater is the degree of sexual dysfunction.

A person was considered to have sexual dysfunction if they had either a total score of 19 or higher, a score of 5 or higher on one question or a score of 4 or higher on 3 questions.

STATISTICAL ANALYSIS

Statistical Design was formulated using the data collected as above. For each of the scales and socio-demographic variables, the central values [arithmetic Mean] and Dispersion tendencies [Standard Deviation] were calculated. In comparison of the data, for categorical variables, Chi square and for numerical variables Student ‘t’ test and ANOVA were used. For knowing the significance of psychopathological attributes correlation matrix were used.

RESULTS AND INTERPRETATION.

TABLE: 1
AGE DISTRIBUTION TABLE

AGE	N	Percent
(BELOW 26YRS)	24	24.0
(27 TO 37 YRS)	51	51.0
(38 & ABOVE YRS)	25	25.0
Total	100	100.0

From the above1, table it was found that around 24% were from below 26 age group, 51% were from 27 to 37 and the remaining 25 Percent were from above 38years of age.

TABLE:2
SEX DISTRIBUTION TABLE

SEX	N	Percent
MALE	52	52.0
FEMALE	48	48.0
Total	100	100.0

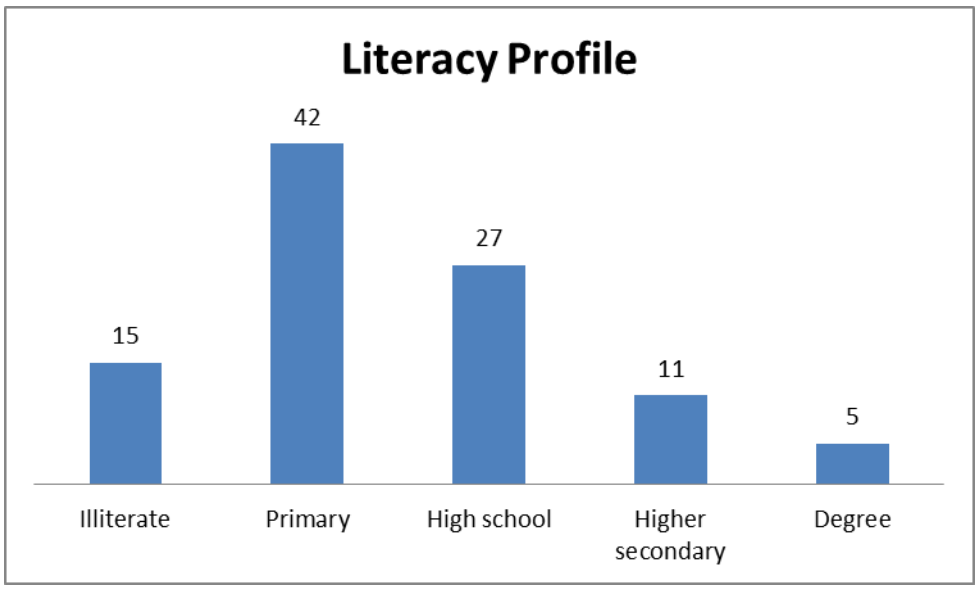
From the above table 2, and it was found that 52 % were females and the remaing 48% were males.

TABLE:3

TABLE SHOWING LITERACY PROFILE

LITERACY PROFILE	N	Percent
ILLITERATE	15	15.0
PRIMARY	42	42.0
HIGH SCHOOL	27	27.0
HSC	11	11.0
DEGREE	5	5.0
Total	100	100.0

FIGURE:1



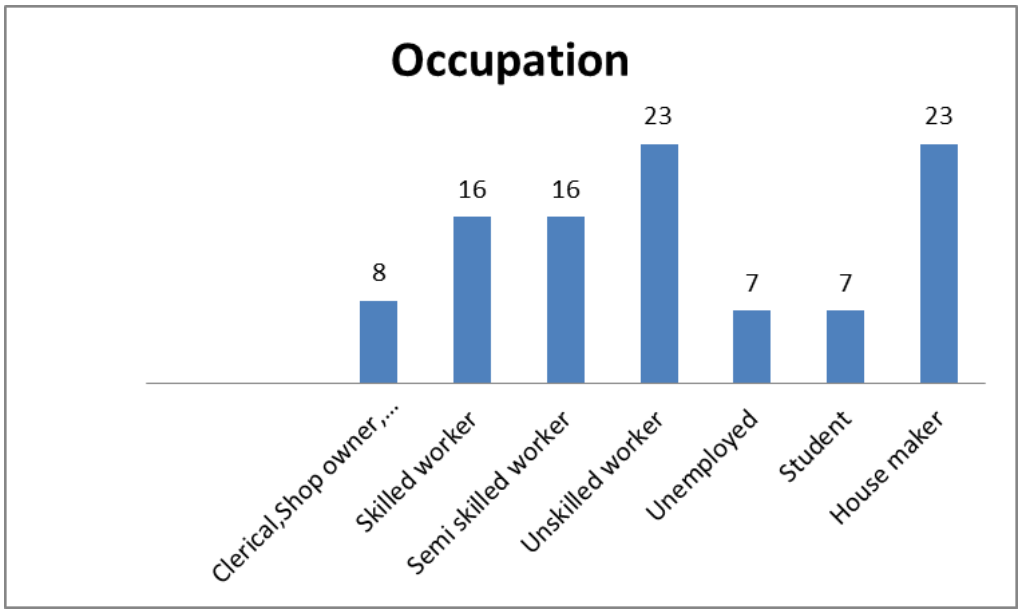
It was found from the above table 3 & figure1 that majority of the participants for the study group were having an educational qualification of primary grade.

TABLE:4

TABLE SHOWING OCCUPATIONAL STATUS

OCCUPATION	N	Percent
UN EMPLOYED	7	7.0
UN SKILLED	23	23.0
SEMI SKILLED	16	16.0
SKILLED	16	16.0
CLERK	8	8.0
STUDENT	7	7.0
HOME MAKER	23	23.0
Total	100	100.0

FIGURE:2



From the above table 4 & figure2, majority of patients were of housewife's and un skilled workers. Few were students and unemployed persons.

TABLE:5
TABLE SHOWING MARITAL STATUS

MARITAL STATUS	N	Percent
MARRIED	77	77.0
UN MARRIED	17	17.0
WIDOW	6	6.0
Total	100	100.0

From the above table 5 it was observed that majority were married which constituted 77% , un married were 17% and widow/separated constituted 6%

TABLE:6
TABLE SHOWING SOCIOECONOMIC STATUS

Socioeconomic status	N	Percent
UPPER MIDDLE	5	5.0
LOWER MIDDLE	21	21.0
UPPER LOWER	19	19.0
LOWER	55	55.0
Total	100	100.0

From the above table 6 it was found that majority of them formed the lower class which constituted 55% and lower middle which constituded 19%.

TABLE:7
TABLE SHOWING FAMILY TYPE

FAMILY	N	Percent
NUCLEAR	65	65.0
JOINT	35	35.0
Total	100	100.0

Based on the type of family from the table 7,it was found that majority of the people who participated in the study design were from nuclear family which was 65% and the remaining were from joint family ie 35%.

TABLE:8
TABLE SHOWING FAMILY HISTORY

FAMILY HISTORY	N	Percent
ABSENT	88	88.0
PRESENT	12	12.0
Total	100	100.0

From the above table 8, it was found that 12% of the patients had positive family history of seizure disorder.

TABLE:9

TABLE SHOWING DISTRIBUTION OF DIFFERENT SEIZURE TYPES

SEIZURE TYPES	N	Percent
GTCS	34	34.0
CPSWSG	23	23.0
FMSWSG	17	17.0
COMPLEX	14	14.0
MYO	4	4.0
ATONIC	3	3.0
FMS	2	2.0
FSS	2	2.0
ABSG	1	1.0
Total	100	100.0

TABLE:9

TABLE SHOWING DISTRIBUTION OF DIFFERENT SEIZURE TYPES

SEIZURE TYPE	N	Percent
GTCS	34	34.0
CPSWSG	23	23.0
FMSWSG	17	17.0
COMPLEX	14	14.0
OTHERS	12	12.0
Total	100	100.0

FIGURE:3

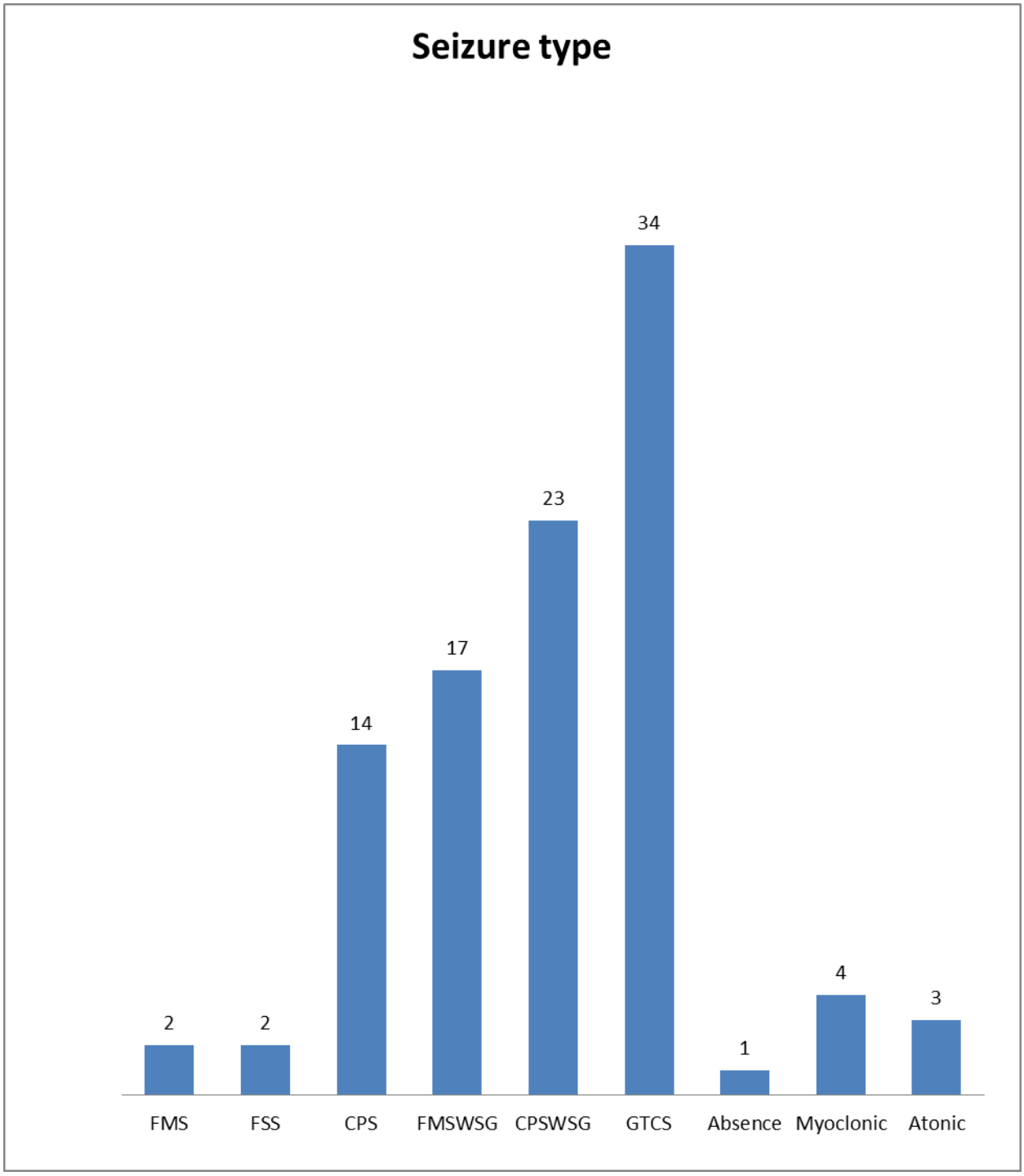
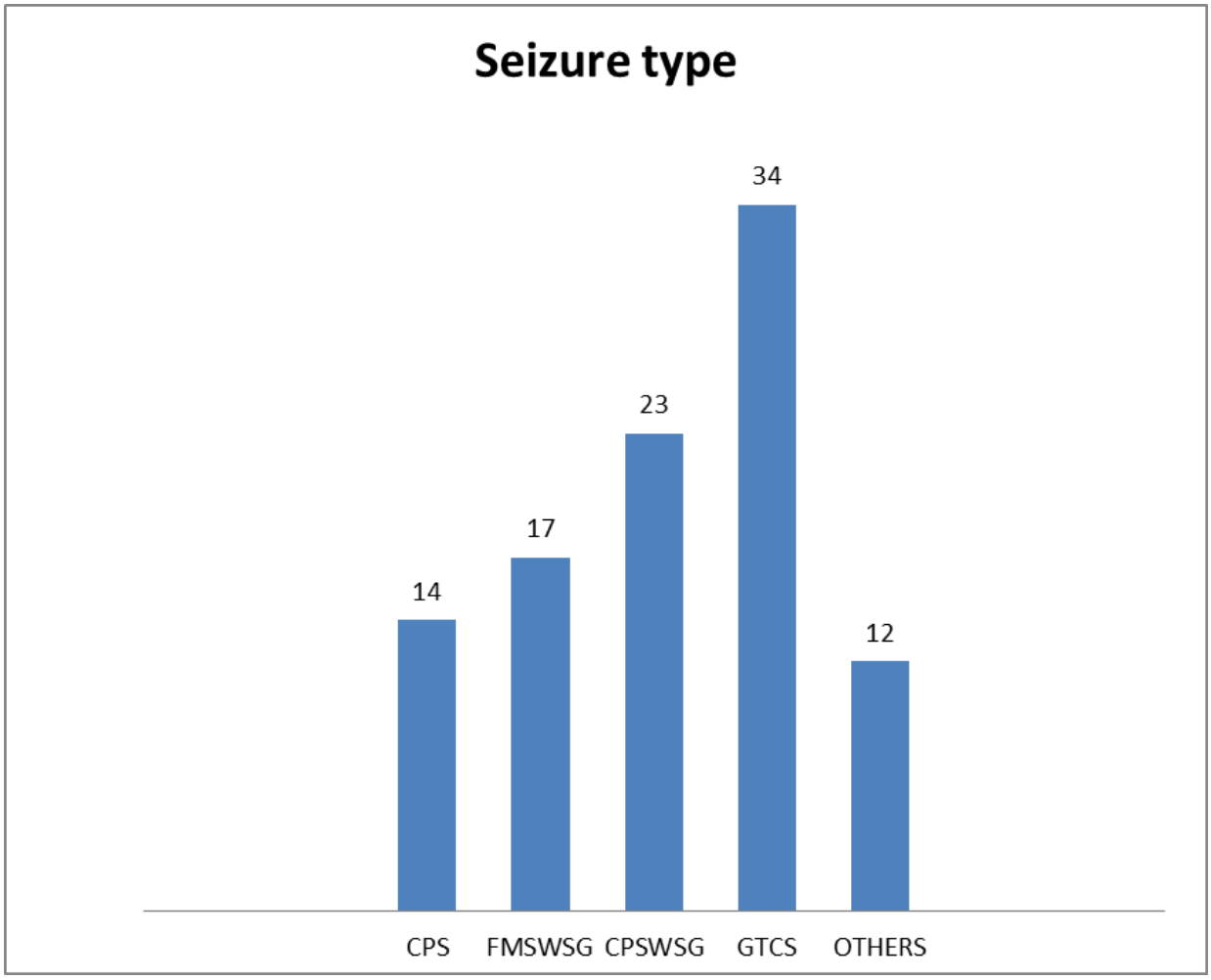

Seizure type
2
2
14
17
23
34
1
4
3
FMS
FSS
CPS
FMSWSG
CPSWSG
GTCS
Absence
Myoclonic
Atonic

FIGURE:4



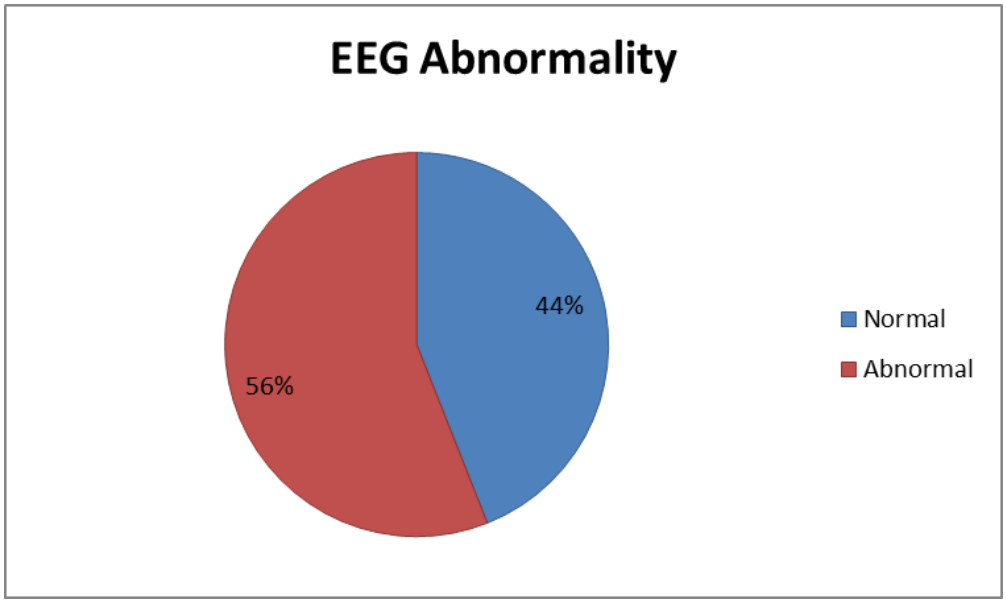
From the above table 9, & figures 3,4,it was found that majority of the participants for the study group were from GTCS which constituted 34% complex partial seizure with secondary generalization were 23% , focal motor seizure with secondary generalization were 17%, complex partial seizure were 14% and others were 12%.

TABLE:10

TABLE SHOWING EEG FINDINGS

EEG	N	Percent
ABNORMAL	56	56.0
NORMAL	44	44.0
Total	100	100.0

FIGURE:5



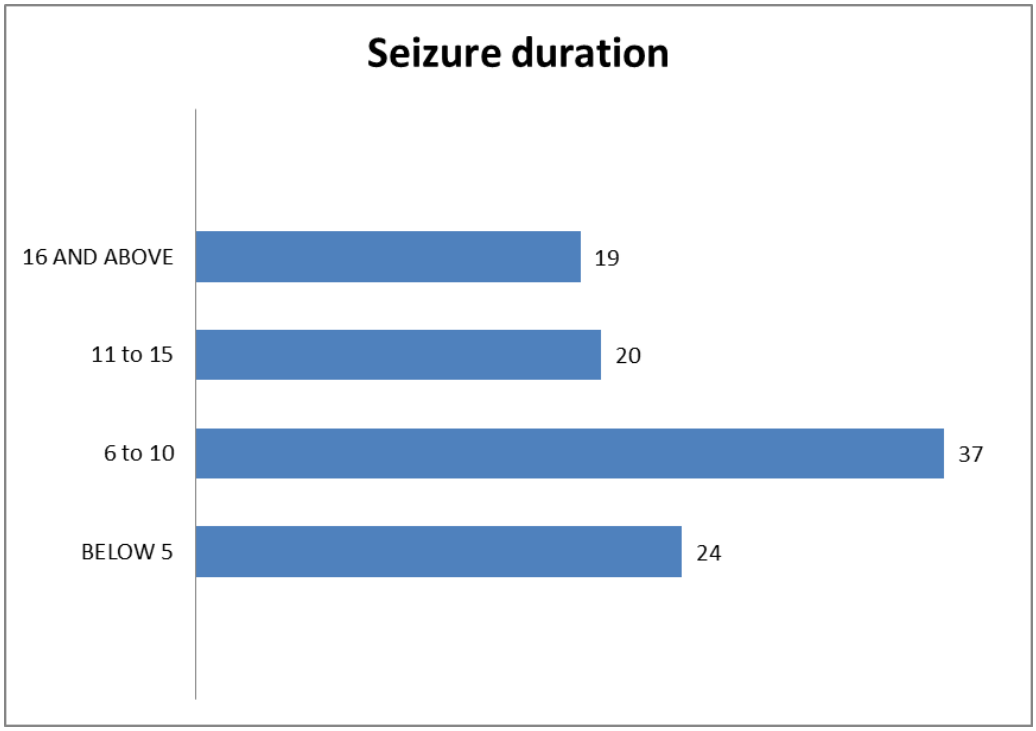
From the above table 10, & i figure 5, it was found that 56% of epileptic patients had abnormal EEG and the remaining 44% had normal EEG.

TABLE:11

TABLE SHOWING SEIZURE DURATION

SEIZURE DURATION	N	Percent
(BELOW 5 YRS)	24	24.0
(6 TO 10 YRS)	37	37.0
(11 TO 15 YRS)	20	20.0
(16 & ABOVE YRS)	19	19.0
Total	100	100.0

FIGURE:6



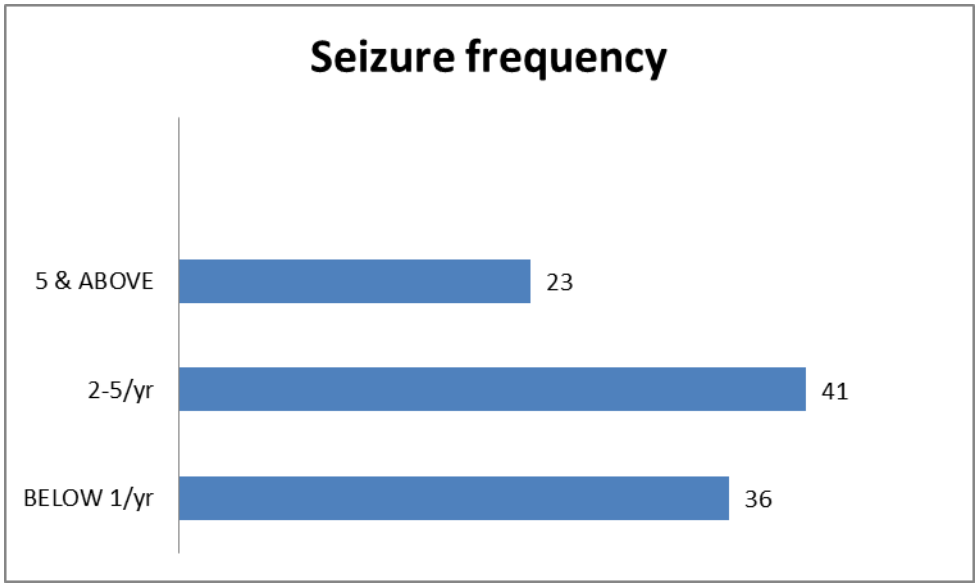
It was found from the above table 11 and figure 6, it was found that the most common was 6-10 years which constituted 37%. The second most common was below 5 years which constituted 24%.

TABLE:12

TABLE SHOWING SEIZURE FREQUENCY

SEIZURE FREQUENCY	N	Percent
(BELOW 1 / Yr)	36	36.0
(2-5 / Yr)	41	41.0
(5 & ABOVE / Yr)	23	23.0
Total	100	100.0

FIGURE:7



From the above table 12, & figure 7, it was found that majority of them had a seizure frequency of 2- 5yrs which constituted 41%

TABLE:13

TABLE SHOWING DRUG COMPLIANCE

COMPLIANCE	N	Percent
GOOD	59	59.0
AVERAGE	26	26.0
POOR	15	15.0
Total	100	100.0

From the above table 13, it was found that 59% had good compliance and 26% patients had average compliance and 15% had poor compliance.

TABLE:14

TABLE SHOWING GRADES OF DEPRESSION

HAM-D	N	Percent
NO DEPRESSION	46	46.0
MILD DEPRESSION	25	25.0
MODERATE DEPRESSION	17	17.0
SEVERE DEPRESSION	11	11.0
VERY SEVERE DEPRESSION	1	1.0
Total	100	100.0

FIGURE:8

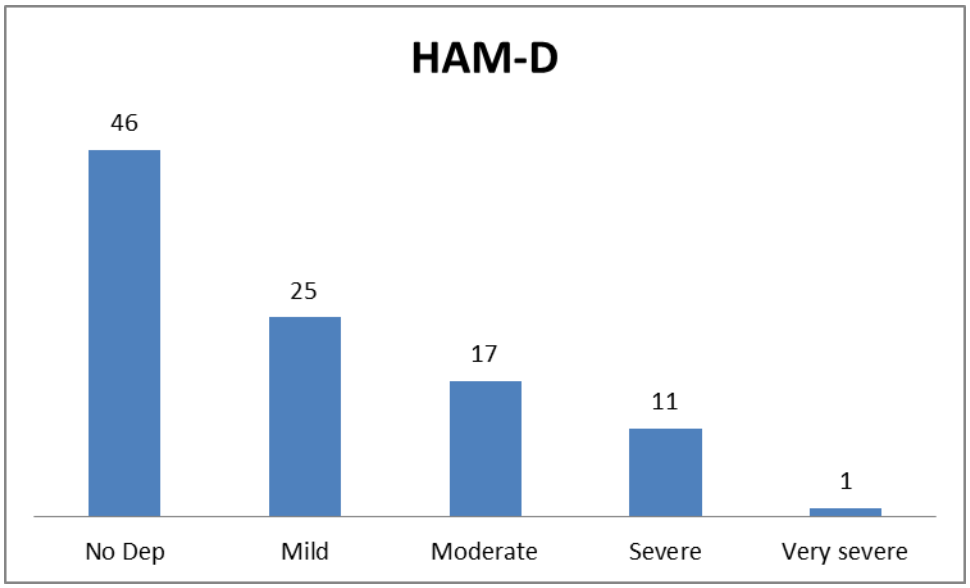


TABLE:15

TABLE SHOWING PRESENCE OR ABSENCE OF DEPRESSION

DEPRESSION	N	Percent
ABSENT	46	46.0
PRESENT	54	54.0
Total	100	100.0

From the above tables 14 , 15 & figure8,it was found that 54% of the epileptic patients had depression and 46% did not have depression. Among the 54% who had depression 25% had mild depression, 17% had moderate depression and 11 % had severe depression.

TABLE:16

TABLE SHOWING GRADES OF ANXIETY

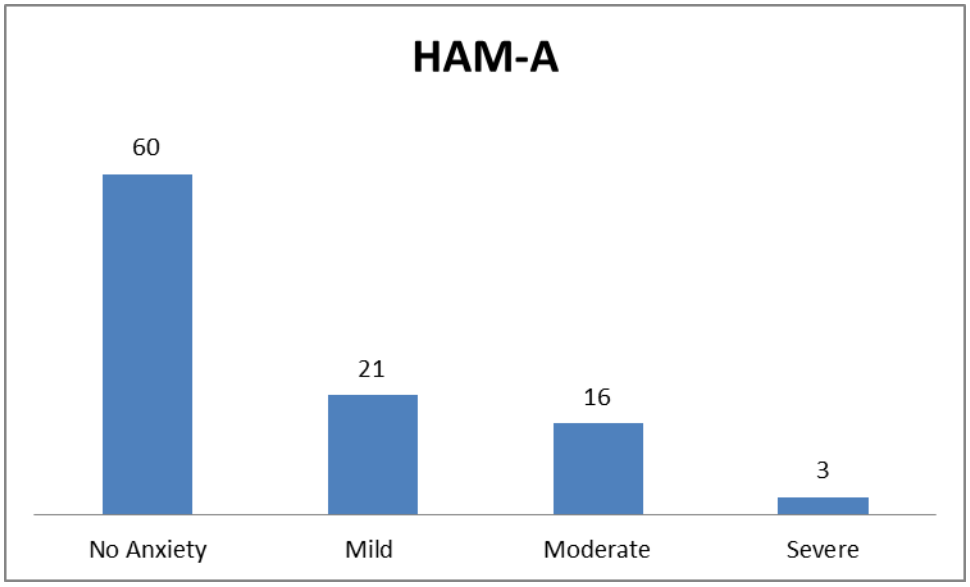
HAM-A	Frequency	Percent
NO ANXIETY	60	60.0
MILD ANXIETY	21	21.0
MODERATE ANXIETY	16	16.0
SEVERE ANXIETY	3	3.0
Total	100	100.0

TABLE:17

TABLE SHOWING PRESENCE OR ABSENCE OF ANXIETY

ANXIETY	N	Percent
ABSENT	60	60.0
PRESENT	40	40.0
Total	100	100.0

FIGURE:9



From the above tables 16 ,17 & figure9,it was found that 40% of the epileptic patients had Anxiety and 60% did not have Anxiety among the 40% who had Anxiety 21% had mild Anxiety, 16% had moderate Anxiety and 3 % had severe Anxiety.

TABLE:18

TABLE SHOWING PRESENCE OR ABSENCE OF PSYCHOSIS

BPRS (PSYCHOSIS)	N	Percent
ABSENT	98	98.0
PRESENT	2	2.0
Total	100	100.0

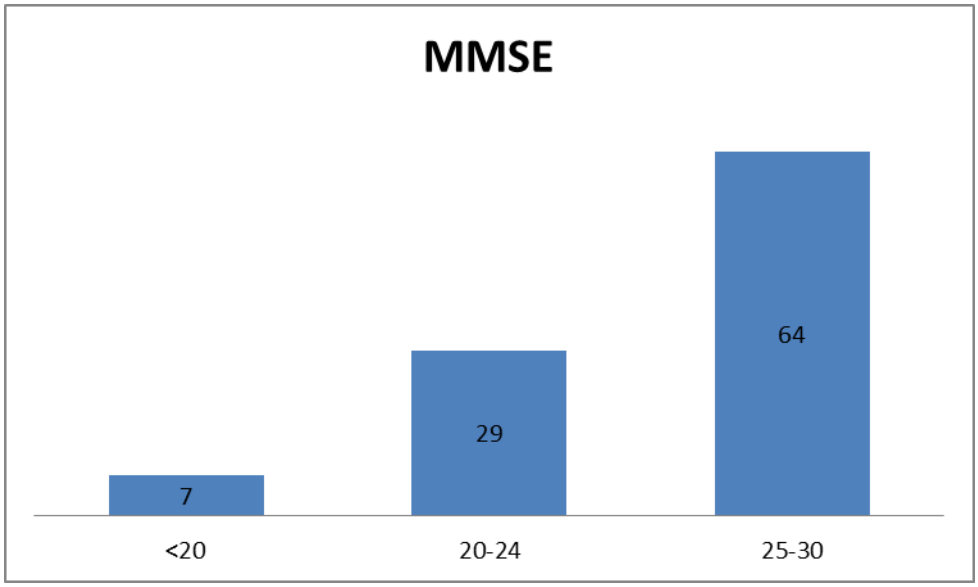
From the above tables it was found that 2% of the epileptic patients had psychosis, and 98% did not have psychosis.

TABLE:19

TABLE SHOWING GRADES OF COGNITIVE DECLINE

MMSE (COGNITIVE IMPAIRMENT)	N	Percent
NO	64	64.0
MILD	29	29.0
DEFINITE	7	7.0
Total	100	100.0

FIGURE:10



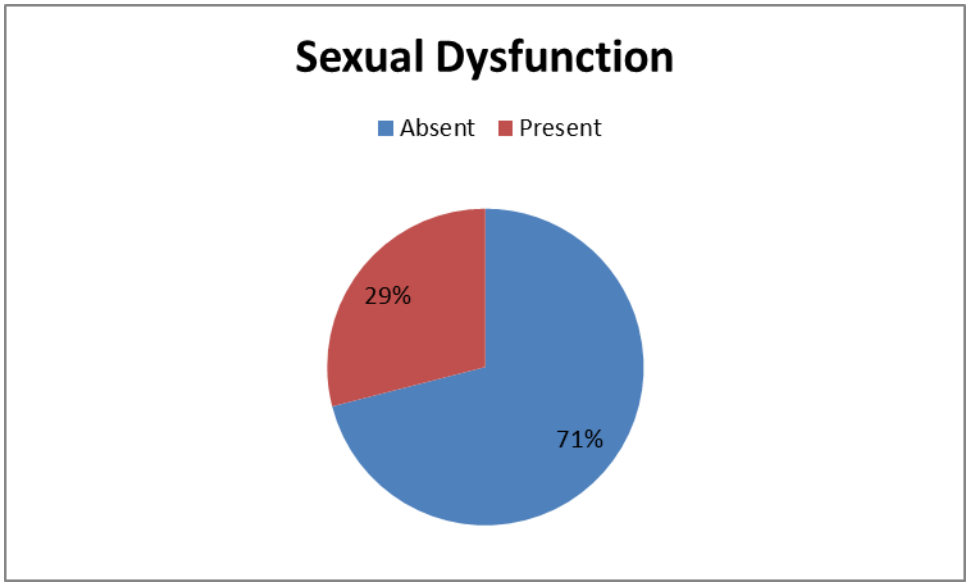
From the above table 19, & figure10, it was found that 36% of the epileptic patients had cognitive impairment and 64% did not have cognitive impairment. Among the 36% who had cognitive impairment 29% had mild cognitive impairment, 7% had definite cognitive impairment.

TABLE:20

TABLE SHOWING PRESENCE OR ABSENCE OF SEXUAL DYSFUNCTION

SEXUAL DYSFUNCTION	N	Percent
ABSENT	71	71.0
PRESENT	29	29.0
Total	100	100.0

FIGURE:11

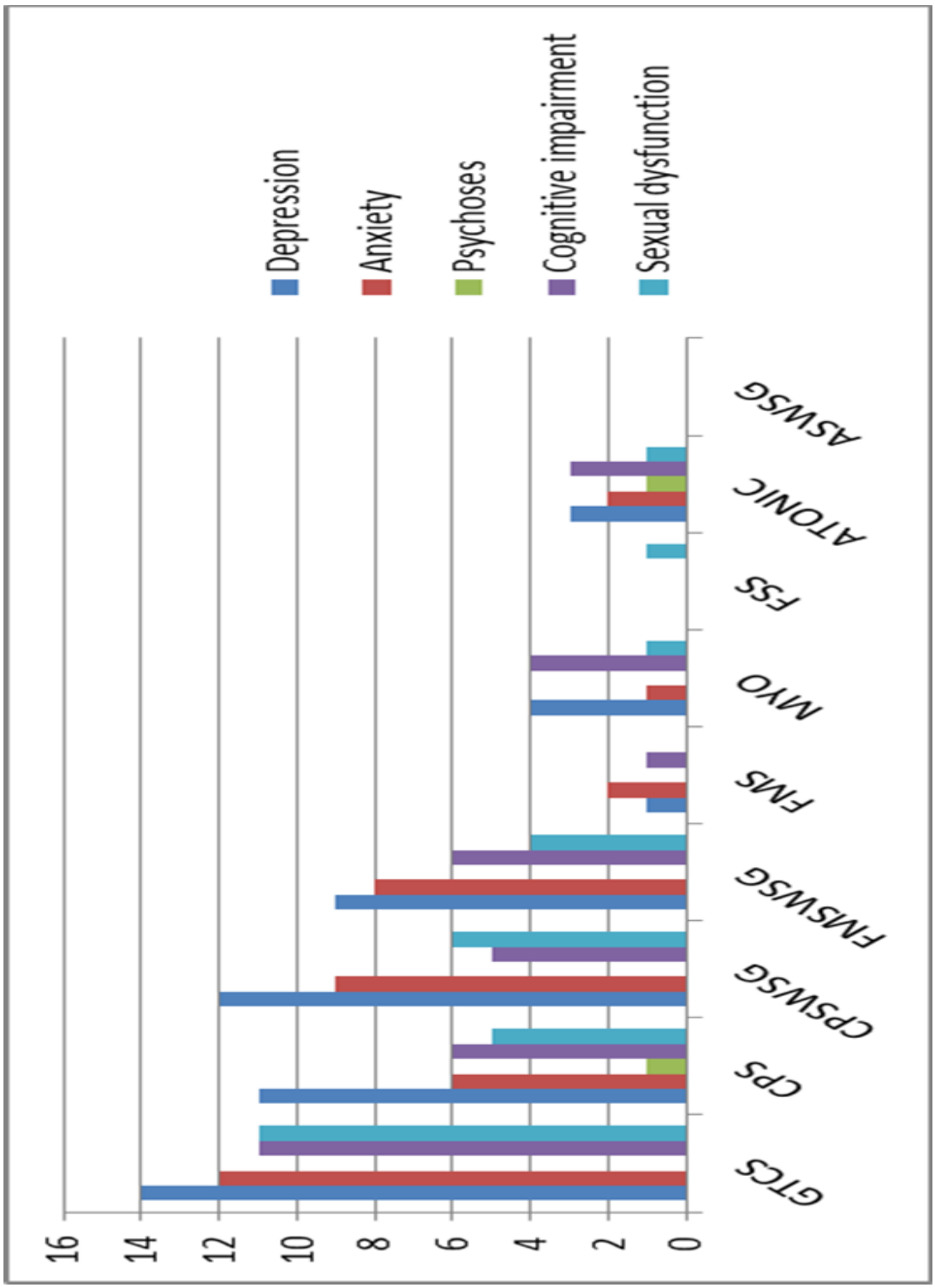


From the above table 20 & figure20,29% had sexual dysfunction and 71 % had no sexual dysfunction after screening through Arizona Sexual Experience Scale.

TABLE:21

TABLE SHOWING PREVALENCE OF PSYCHIATRIC MORBIDITY IN SEIZURE DISORDER

PSYCH MORBID	GTCS	CPS	CPSWSG	FMSWSG	FMS	MYO	FSS	ATONIC	ASWSG	TOTAL
DEP	14	11	12	9	1	4	0	3	0	54
ANX	12	6	9	8	2	1	0	2	0	40
PSYCHO	0	1	0	0	0	0	0	1	0	2
COG IMP	11	6	5	6	1	4	0	3	0	36
SEX DYS	11	5	6	4	0	1	1	1	0	29



FIGURE; 12

Table 21, & figure12, gives a clear picture that out of 100 samples, 54 had depression, 40 had anxiety, 2 had psychosis 36 had cognitive decline and 29% had sexual dysfunction.

TABLE:22

Distribution of samples based on SEIZURE TYPE VS DEPRESSION.

SEIZURE TYPE	DEPRESSION		N	MEAN	S.D	F RATIO	SIGNIFICANCE
	PRESENT	ABSENT					
GTCS	14	20	34	7.85	6.026	1.576	0.187 P>0.05NS
CPSWSG	12	11	23	8.83	5.929		
FMSWSG	9	8	17	10.53	6.644		
COMPLEX	11	3	14	12.29	6.005		
OTHERS	8	4	12	11.00	8.057		
Total	54	46	100	9.53	6.449		

P > 0.05

From the above table 22, it was observed that the complex partial seizure has highest mean score of 12.29 for depression when compared to other seizure types. It was also observed that the mean score for GTCS was low (7.85), however the observed difference is not statistically significant; Since the F ratio is not significant at 0.05level.

TABLE:23

Distribution of samples based on SEIZURE DURATION VS DEPRESSION.

SEIZURE DURATION	DEPRESSION		N	MEAN	S.D	F RATIO	SIGNIFICANCE
	PRESENT	ABSENT					
(< 5YRS)	11	13	24	9.88	6.145	0.284	0.837 P>0.05NS
(6 -10)	19	18	37	8.95	6.872		
(11 -15)	14	6	20	10.50	5.952		
(16 & >)	10	9	19	9.21	6.828		
Total	54	46	100	9.53	6.449		

P > 0.05

From the above table 23 those who had seizures between the duration of 11-15 yrs had the highest mean score for depression ie 10.50, and whose seizure duration was more than 16 years they had a mean score of 9.21 for depression. However the observed difference is not statistically significant, since the F ratio is not significant at 0.05 level.

TABLE:24

Distribution of samples based on SEIZURE FREQUENCY VS DEPRESSION.

SEIZURE FREQUENCY	DEPRESSION		N	MEAN	S.D	F RATIO	SIGNIFICANCE
	PRESENT	ABSENT					
(BELOW 1) /Yr	12	24	36	6.44	5.634	14.083	0.000 P<0.05S
(2-5)/ Yr	22	19	41	9.41	6.046		
(5 & ABOVE)/ Yr	20	3	23	14.57	5.299		
Total	54	46	100	9.53	6.449		

P < 0.05

From the above table 24 it was found that those who had a high seizure frequency ie more than 5 and above per year had the highest mean score for depression and those whose seizure frequency was 1 or less than 1 per year had the lowest mean score for depression. The observed difference is statistically significant; since the F ratio is significant at 0.05 level.

TABLE:25

Distribution of samples based on EEG REPORT VS DEPRESSION.

EEG	DEPRESSION		N	MEAN	S.D	t	Sig. (2-tailed)
	PRESENT	ABSENT					
ABNORMAL	36	20	56	11.30	6.677	3.249	0.002 P<0.05S
NORMAL	18	26	44	7.27	5.423		
Total	54	46	100	9.53	6.449		

$P < 0.05$

From the above table 25 it was found that those who had abnormal EEG record had high mean scores for depression ie 11.30, where as those who had normal EEG record had the low mean scores for depression. The observed difference is statistically significance since $P<0.05$.

TABLE:26

Distribution of samples based on SEIZURE TYPE VS ANXIETY.

SEIZURE TYPE	ANXIETY		N	MEAN	S.D	F RATIO	SIGNIFICANCE
	PRESENT	ABSENT					
GTCS	11	23	34	9.82	7.133	0.519	0.722 P>0.05NS
CPSWSG	9	14	23	10.87	6.384		
FMSWSG	8	9	17	11.82	6.738		
COMPLEX	6	8	14	10.57	6.035		
OTHERS	6	6	12	12.75	7.593		
Total	40	60	100	10.86	6.747		

P > 0.05

From the above table 26 it was found that the other seizure group which included atonic, myoclonic, focal sensory, focal motor, absence seizure with secondary generalization had the high mean score for anxiety, it was also observed that GTCS had the least mean score for anxiety. However the observed difference is not statistically significance, since the F ratio is not significant at 0.05 level.

TABLE:27

Distribution of samples based on SEIZURE DURATION VS ANXIETY.

SEIZURE DURATION	ANXIETY		N	MEAN	S.D	F RATIO	SIGNIFICANCE
	PRESENT	ABSENT					
(BELOW 5YRS)	13	11	24	12.50	6.352	1.282	0.285 p>0.05NS
(6 TO 10YRS)	12	25	37	10.03	7.201		
(11 TO 15YRS)	10	10	20	12.05	6.386		
(16 & ABOVE)	5	14	19	9.16	6.509		
Total	40	60	100	10.86	6.747		

P > 0.05

From the above table 27, it was observed those who had seizure duration of less than 5 years had high mean score for anxiety, and those who had seizure duration of more than 16 years had the low mean scores for anxiety. However the observed difference is not statistically significant, since the F ratio is not significant at 0.05 level.

TABLE:28

Distribution of samples based on SEIZURE FREQUENCY VS ANXIETY.

SEIZURE FREQUENCY	ANXIETY		N	MEAN	S.D	F RATIO	SIGNIFICANCE
	PRESENT	ABSENT					
(BELOW 1)/Yr	9	27	36	8.00	5.777	13.210	0.000 P<0.05S
(2-5) /Yr	16	25	41	10.37	5.834		
(5 & ABOVE) /Yr	15	8	23	16.22	6.782		
TOTAL	40	60	100	10.86	6.747		

P < 0.05

From the above table it was observed that those who had a seizure frequency of more than 5years had high mean score for anxiety, where as those who had seizure frequency of 1 or < 1/year had low mean score for anxiety. However the observed difference is statistically significant, since the F ratio is significant at 0.05 level.

TABLE:29

Distribution of samples based on EEG VS ANXIETY.

EEG	ANXIETY		N	MEAN	S.D	t	Sig. (2-tailed)
	PRESENT	ABSENT					
ABNORMAL	26	30	56	11.30	6.677	2.090	0.039
NORMAL	14	30	44	7.27	5.423		
Total	40	60	100	10.86	6.747		

$P < 0.05$

From the above table 29 it was observed that those who had abnormal EEG record had high mean score for anxiety , whereas low mean anxiety scores were seen among normal EEG patients. However the observed difference is statistically significant since $P<0.05$.

TABLE:30

Distribution of samples based on SEIZURE TYPE VS COGNITIVE IMPAIRMENT

SEIZURE TYPE	COGNITIVE IMPAIRMENT			N	MEAN	S.D	F RATIO	SIGNIFICANCE
	Absent	Mild	Definite					
GTCS	23	10	1	34	25.74	3.621	4.501	0.002 P<0.05 S
CPSWSG	18	5	0	23	26.61	2.210		
FMSWSG	11	5	1	17	25.35	2.849		
COMPLEX	8	5	1	14	25.50	3.252		
OTHERS	4	4	4	12	21.92	3.801		
Total	64	29	7	100	25.38	3.408		

$P < 0.05$

From the above table 30 it was observed that the other group of seizure subtypes which included atonic, myoclonic, focal sensory, focal motor, absence seizure with secondary generalization had low mean cognitive scores signifying cognitive impairment, where as those with complex partial seizure with secondary generalization group had high mean cognitive scores signifying no cognitive dysfunction. However the observed difference is statistically significant, since the F ratio is significant at 0.05 level.

TABLE:31

Distribution of samples based on SEIZURE DURATION VS COGNITIVE IMPAIRMENT

SEIZURE DURATION IN YEARS	COGNITIVE IMPAIRMENT			N	MEAN	S.D	F RATIO	SIGNIFICANCE
	Absent	Mild	Definite					
< 5	17	6	1	24	25.79	2.502	2.507	0.064 P>0.05NS
6 TO 10	26	9	2	37	26.16	3.633		
11 TO 15	13	4	3	20	25.05	3.748		
16 & >	8	10	1	19	23.68	3.163		
Total	64	29	7	100	25.38	3.408		

P > 0.05

From the above table 31, it was observed that those who had longer seizure duration ie 16 years and above had cognitive decline since their mean scores were low. It was also observed that those who had seizure duration between 6 to 10 years had high mean scores indicating no cognitive decline. However the observed difference is not statistically significant, since the F ratio is not significant at 0.05 level.

TABLE:32

Distribution of samples based on SEIZURE FREQUENCY VS COGNITIVE IMPAIRMENT

SEIZURE FREQUENCY (PER YEAR)	COGNITIVE IMPAIRMENT			N	MEAN	S.D	F RATIO	SIGNIFICANCE
	Absent	Mild	Definite					
BELOW 1	28	8	0	36	26.94	2.787	21.610	0.000 P<0.05S
2-5/Yr	31	10	0	41	25.88	2.282		
5 & ABOVE	5	11	7	23	22.04	3.784		
Total	64	29	7	100	25.38	3.408		

$P < 0.05$

From the above table 32, it was observed that those who had higher seizure frequency had low mean cognitive scores indicating cognitive decline and those with very low seizure frequency had high mean cognitive scores indicating no cognitive decline. However the observed difference is statistically significant, the F ratio is not significant at 0.05 level.

TABLE:33

Distribution of samples based on EEG VS COGNITIVE IMPAIRMENT

EEG	COGNITIVE IMPAIRMENT			N	MEAN	S.D	t	Sig. (2-tailed)
	Mild	Definite	Absent					
ABNORMAL	32	19	5	56	24.68	3.644	-2.376	0.019
NORMAL	32	10	2	44	26.27	2.880		
Total	64	29	7	100	25.38	3.408		

$P < 0.05$

From the above table 33, it was observed that the mean score for abnormal EEG patients was 24.68 indicating mild cognitive decline whereas for normal EEG patients the mean cognitive score was 26.27 indicating no cognitive decline. However the observed difference is statistically significant since $P<0.05$.

TABLE:34

Distribution of samples based on SEIZURE TYPE VS SEXUAL DYSFUNCTION

SEIZURE TYPE	SEXUAL DYSFUNCTION		N	CHI SQUARE	SIGNIFICANCE
	PRESENT	ABSENT			
GTCS	11	23	34	0.927	0.921 P>0.05 NS
CPSWSG	6	17	23		
FMSWSG	4	13	17		
COMPLEX	5	9	14		
OTHERS	3	9	12		
Total	29	71	100		

$P > 0.05$

Out of 100 samples 29 had sexual dysfunction, 11% are from GTCS, 6% are from CPSWSG. Respondents from different seizure types do not differ with regard to their sexual dysfunction (chi square 0.027, P>0.05 NS).

TABLE:35

Distribution of samples based on SEIZURE DURATION VS SEXUAL DYSFUNCTION

SEIZURE DURATION	SEXUAL DYSFUNCTION		N	CHI SQUARE	SIGNIFICANCE
	PRESENT	ABSENT			
< 5	5	19	24	4.116	0.249 P>0.05 NS
6 TO 10	10	27	37		
11 TO 15	5	15	20		
16 & >	9	10	19		
Total	29	71	100		

P > 0.05

From the above table, 5 out of 24 had sexual dysfunction having below 5 years of seizure duration, 10 out of 37 had sexual dysfunction having 6 to 10 years of seizure duration, 5 out of 20 had sexual dysfunction having 11 to 15 years of seizure duration and 9 out of 19 had sexual dysfunction having 16 or more years of seizure duration. Respondents from different seizure types do not differ with regard to their sexual function (chi square 4.11, P>0.05NS).

TABLE:36

Distribution of samples based on SEIZURE FREQUENCY VS SEXUAL DYSFUNCTION

SEIZURE FREQUENCY	SEXUAL DYSFUNCTION		N	CHI SQUARE	SIGNIFICANCE
	PRESENT	ABSENT			
(BELOW 1)/ Yr	6	30	36	6.620	0.037 P<0.05 S
(2-5) /Yr	12	29	41		
(5 & ABOVE)/ Yr	11	12	23		
Total	29	71	100		

P < 0.05

From the above table, 6 out of 36 having below 1year of seizure frequency had sexual dysfunction, 12 out of 41 having 2-5 /year of seizure frequency had sexual dysfunction,11 out of 23 having 5 and above /year of seizure frequency had sexual dysfunction. It is very obvious from the above table that respondents of different seizure frequency do differ with regard to sexual dysfunction (chi square 6.620,P<0.05S).

TABLE:37

Distribution of samples based on EEG VS SEXUAL DYSFUNCTION

EEG	SEXUAL DYSFUNCTION		N	CHI SQUARE	SIGNIFICANCE
	PRESENT	ABSENT			
ABNORMAL	18	38	56	0.611	0.289 P>0.05 NS
NORMAL	11	33	44		
Total	29	71	100		

P > 0.05

From the above table, 18 out of 56 having abnormal EEG had sexual dysfunction, 11out of 44 having normal EEG had sexual dysfunction. Respondents from normal and abnormal EEG record do not differ with regard to their sexual dysfunction (chi square0.611, P>0.05).

TABLE:38

Distribution of samples based on SEIZURE TYPE VS QUALITY OF LIFE

SEIZURE TYPE	N	MEAN	S.D	F RATIO	SIGNIFICANCE
GTCS	34	66.3088	14.81068	1.437	0.228 P>0.05NS
CPSWSG	23	60.9674	13.08328		
FMSWSG	17	66.4706	15.58617		
COMPLEX	14	64.8214	10.12965		
OTHERS	12	72.1458	9.83584		
Total	100	65.6000	13.60917		

P > 0.05

From the above table 38, it was observed that the mean score for complex partial seizure with secondary generalization was 60.96 and those with other seizure group which included included atonic, myoclonic, focal sensory, focal motor, absence seizure with secondary generalization had a mean score of 72.14 indicating good quality of life. However the observed difference is not significant, since the F ratio is not significant at 0.05 level.

TABLE:39

Distribution of samples based on SEIZURE DURATION VS QUALITY OF LIFE

SEIZURE DURATION	N	MEAN	S.D	F RATIO	SIGNIFICANCE
(< 5YRS)	24	68.9896	11.61555	0.955	0.417 P>0.05NS
(6 -10)	37	65.5338	15.06516		
(11 -15)	20	62.0500	13.00066		
(16 & >)	19	65.1842	13.57997		
Total	100	65.6000	13.60917		

P > 0.05

From the above table 39, it was observed that those who had a seizure duration of less than 5 years had high mean quality of life score(68.98) and those who had seizure duration of 11-15 years had low mean quality of life score (62.05). However the observed difference is not statistically significant, since the F ratio is not significant at 0.05 level.

TABLE:40

Distribution of samples based on SEIZURE FREQUENCY VS QUALITY OF LIFE

SEIZURE FREQUENCY	N	MEAN	S.D	F RATIO	SIGNIFICANCE
(BELOW 1)/ Yr	36	71.1111	10.45952	6.512	0.002 P<0.05S
(2-5) /Yr	41	64.5122	11.68198		
(5 & ABOVE)/ Yr	23	58.9130	17.68098		
Total	100	65.6000	13.60917		

P < 0.05

From the above table 40, it was observed that patients who had seizure frequency of 1 or < 1 /year had a high mean quality of life, those with higher seizure frequency ie 5 and above had a mean score of 58.91 indicating poor quality of life. The observed difference is statistically significant; since the F ratio is significant at 0.05 level.

TABLE:41

Distribution of samples based on EEG VS QUALITY OF LIFE

EEG	N	MEAN	S.D	t	Sig. (2-tailed)
ABNORMAL	56	64.8839	15.41737	-.592	0.555 P>0.05
NORMAL	44	66.5114	10.99391		
Total	100				

P >0.05

From the above table 41, it was observed that patients with abnormal EEG score had mean score of 64.88 and patients with normal EEG scores had a mean score of 66.51 indicating better quality of life among normal EEG patients, however the observed difference is not significant since P>0.05.

TABLE:42

Distribution of samples based on LITERACY VS QUALITY OF LIFE

LITERACY PROFILE	N	MEAN	S.D	F ratio	Sig
ILLITRATE	15	59.1333	11.20382	2.559	0.044 P<0.05S
PRIMARY	42	65.9881	12.66621		
HIGH SCHOOL	27	63.9815	14.44135		
HSC	11	71.5909	14.51390		
DEGREE	5	77.3000	13.11654		
Total	100	65.6000	13.60917		

P<0.05

From the above table degree level patients had a high mean score of 77.30 and those with illiterate level had a low mean score of 59.13. Respondents from different literacy profile do differ with regard to their quality of life which is statistically significant since the F ratio is significant at 0.05 level.

DISCUSSION

The study using a cross sectional design examined and estimated the prevalence of psychiatric morbidity and quality of life amongst the epilepsy patients. The findings in the study bring to light certain observations which, In spite of the limitations in the study, may be generalizable. The sample essentially consisted of males and female aged between 16- 50 years, males formed the majority of the sample which was 52% and remaining 48% were females. Amongst the study group majority were of primary grade literacy profile i.e. 42% and next common was high school ie 27%.Regarding the occupation majority belonged to unskilled group of workers and housewife's which constituted 23%. Regarding marital status 77% of them were married and only 17% of them were unmarried. Majority belonged to lower, upper lower and lower middle socio economic status. Regarding the type of family in which they were living was nuclear family type which constituted 65% and the remaining 35% was joint family type.

In our Hospital the different types of seizure groups have been categorized by our expertise neurologists into a) Focal Seizures b) Focal Seizures with secondary generalization and c) Generalized Seizures.

- Among focal seizures we have Focal Motor Seizure (FMS), Focal Sensory Seizures (FSS), and Complex Partial Seizures (CPS).

- Among Focal Seizures with secondary generalization we have Focal Motor Seizures with secondary generalization (FMSWSG), Complex Partial Seizures with secondary generalization (CPSWSG).

- Among Generalized Seizures we have Generalized Tonic Clonic Seizures (GTCS), Myoclonic Seizures (MYO), Atonic (ATONIC) and Absence Seizures with secondary generalization.

We have 9 different types of seizure groups and for the sake of statistics we have merged myoclonic, atonic, focal motor, focal sensory and absence with secondary generalization into others. Majority of the participants for the study group were from GTCS which constituted 34% complex partial seizure with secondary generalization were 23% , focal motor seizure with secondary generalization were 17%, complex partial seizure were 14% and others were 12%. 56% of epileptic patients had abnormal EEG and the remaining 44% had normal EEG. For the sake of statistical convenience the duration of seizure has been grouped into below 5years. 6-10 years, 11-15 years and 16 years and above. From the study it was found that the most common was 6-10 years which constituted 37%. The second most common was below 5 years which constituted 24%. Seizure frequency was grouped into below 1 per year, 2-5 per year and 5 and above per year. It was found that majority of them

had a seizure frequency of 2- 5yrs which constituted 41%.

Patients who continued to drugs regularly was categorized as good compliance and those patients who skipped the medications for 2- 3 visits were categorized as average compliance and patients who skipped their antiepileptic medications for more than 3 to 4 visits was categorized as having poor compliance. From the study it was found that 59% had good compliance and 26% patients had average compliance and 15% had poor compliance.

Depression was the most common psychiatric morbidity among epilepsy patients which constituted 54% next common psychiatric morbidity was anxiety which was 40% cognitive dysfunction was found to be 36% sexual dysfunction around 29% and only 2% had psychosis. Among the depressed individuals 25% had mild depression, 17% had moderate depression, 11% had severe depression and 1% had very severe depression with suicidal wishes.

R. Jones et al.,(2010) the overall prevalence of psychiatric morbidity in epilepsy was found to be

Mood disorders 24-75%

Anxiety disorders 10-25%

Psychosis 2-7%

Personality disorders 1-2%

So our study fairly correlates with the standard literature.

The prevalence of depression ranged from 10-55% according to the standard literature. L.S.Boylan ., et al. (2003) prevalence of depression 54% & Stefan Beyenburg.,et al.(2007) depression and anxiety ranging from 50-60%. Kanner., et al (2003) Depression in epilepsy where he quotes prevalence of depression up to 50% and Frank G Gilliam., et al. (2004) prevalence of depression 30-50%. Our study findings correlated with the above study findings. On the contrary depression was found to be 20.4% by Sabrina Stefanello., et al. (2011). Eleonora Borges Gonçalves, Fernando Cendes. (2011) prevalence of depression 68%.

Sabrina Stefanello., et al. (2011), prevalence of anxiety of 39.4% these study findings correlated with our study findings in which prevalence of anxiety was 40%. However this finding was contrary to most of the studies including Jose augusto bragatti.,et al.(2011) anxiety disorders were 30.7%, Brandt., et al. (2010) 19.6 % had anxiety disorders. Stefan Beyenburg., et al. (2005) prevalence of anxiety is 25%. Andres M kanner., et al. (2011) anxiety prevalence 19.6%.

Stefansson et al., (1998) prevalence of schizophrenia like psychosis was higher ie 3% compared to the non-epileptic group of 0.6%, Mendez et al.(1993) prevalence of schizophrenia like psychosis 4.72 %, these study findings correlated with our study findings in which the prevalence of psychosis was 2%. On the contrary psychoses ranges from 7% - 25% in patients with complex partial seizures (Gibbs., et al. 1952a; Matsuura, et al., 2003) and it may

range from 2.4% - 9.4% when both focal and generalized seizures.

Thompson., et al. (2005) seizure frequency predicts cognitive dysfunction this study finding correlates with our study finding which was statistically significant from the table 32. Ozlem Aksoy OZMENEK, et al.(2008), Aldenkamp and Dodson 1990; Dodson and Pellock (1993), Albert P. Aldenkamp, (2006), Kimford J. Meador, (2005). cognition decline may range between 30-44%. In our study cognitive dysfunction prevalence was around 36% this finding correlates with the above study findings.

On the contrary many previous studies of Schouten, et al.(2002) & Seidenberg.,et al.(2007) did not mention the prevalence about cognitive dysfunctions. From the table 30, our study remains contrary to Cynthia L. Harden (2007) cognitive decline in Temporal lobe epilepsy since our study finding did not have any statistical significance between complex partial seizure and cognitive decline.

Kuba R,.etal. (2006) estimates of prevalence of sexual dysfunction ranges between 30-70%, Herzog et al, (1986a b;Isojärvi et al., 1990, 1993; Mikkonen et al., 2004). Schupf., et al.(2004), Jalava., et al. (1997) observations that sexual dysfunction is common in epilepsy patients. MiiaArtama., et al.(2006) highlighted that birth rate was lower in women and men on Antiepileptic drugs with epilepsy compared to the reference population. The prevalence of sexual dysfunction was 29% with our study, this fairly correlates with the above described study findings. Duncan S., et al. psychological status

determines sexual dysfunction not seizure frequency this finding was contrary to our study findings. According to the Canadian epilepsy Allianz, an article where temporal lobe epilepsy can cause 63% sexual dysfunction, but in our study there was no statistical difference between seizure types and sexual dysfunction from the table 34.

David .F. Smith., et al (1991) seizure frequency predicts psychiatric morbidity this study findings correlated with our study findings that seizure frequency increases the psychiatric morbidity which was statistically significant. Deirdre P., et al(2008) who concluded that stigma and seizure frequency predicts the quality of life in epileptic patients. Baker GA., et al.(1998) seizure frequency and seizure type predicts the quality of life. This study finding correlates with our study finding that epilepsy patients with poor quality of life had increased seizure frequency which was statistically significant from the table 40. On the contrary in our study seizure type did not affect the quality of life which was not statistically significant from our study. In our study patients who had higher literacy status had good quality of life compared to illiterate epileptics who had poor quality observed from the table 41.However this finding was contrary to L.S.Boylan ., et al. (2003) Depression predicts quality of life not seizure frequency.

From the table 30, it is obvious that cognitive decline was seen among atonic, myoclonic, focal sensory, focal motor, absence seizure with secondary

generalization. But this finding is contrary to the studies by Hennric., et al.(1999) which concluded that among temporal lobe epilepsies cognitive decline is more common.

From the tables 25, 29, & 33 it is very obvious that Depression, Anxiety and Cognitive decline is more among epilepsy patients with Abnormal EEG this observed difference was statistically significant. There was no observed previous study evidences regarding this. So this is considered as A NEW FINDING IN OUR STUDY, however this new finding correlation between psychiatric morbidity and abnormal EEG for clarification needs further research and future studies.

LIMITATIONS

- The sample was collected from patients attending a large tertiary care hospital. The finding observed, therefore, cannot be generalized to the Community.

- Since the participants in the study group are on Antiepileptic drugs the role of AED'S in contribution to psychiatric morbidity can't be totally ruled out.

- We did not assess substance use since we recruited only out patients there were no attender available and most of the substance users may deny.

- Patients with mental or physical illness of such severity so as to preclude the assessment had to be excluded from the study. This may influence the prevalence rate.

- It's only a prevalence study we did not compare any control groups.

- Regarding sexual functioning and cognition we only screened the participant's with screening questionnaires.

- Personality factors were not assessed

CONCLUSION

- ✓ From the study, we found that depression is the most common psychiatric morbidity among epilepsy patients followed by anxiety, cognitive dysfunction, sexual dysfunction, and psychosis.

- ✓ Seizure frequency has significant correlation with depression, anxiety, cognitive decline, sexual dysfunction and poor quality of life in patients with epilepsy.

- ✓ Patients with abnormal EEG pattern had significant correlation with depression, anxiety and cognitive decline when compared to normal EEG patterns.

- ✓ Among the seizure subtypes atonic, myoclonic, focal sensory, focal motor, absence seizure with secondary generalization had more cognitive decline/impairment which was statistically significant.

- ✓ Epilepsy patients with higher literacy profile had good quality of life when compared to the illiterate epileptics which was statistically significant.

BIBLIOGRAPHY

1. Albert P. Aldenkamp. Cognitive impairment in epilepsy: State of affairs and clinical relevance. Seizure (2006) 15, 219—220.
2. Aldenkamp A, Arends J. The relative influence of epileptic EEG discharges, short nonconvulsive seizures, and type of epilepsy on cognitive function. Epilepsia 2004; 45: 54–63.
3. Aziz H, Akhtar SW, Hasan KZ, 1997. Epilepsy in Pakistan: stigma and psychosocial problems. A population-based epidemiologic study. Epilepsia 38: 1069–1073.
4. Baker, A. Jacoby, D. Buck, C. Stalgis, and D. Monnet, "Quality of life of people with epilepsy: a European study,"Epilepsia, vol. 38, no. 3, pp. 353–362, 1997.
5. Beard, A.W. The schizophrenia-like psychoses of epilepsy: II. Physical aspects. British Journal of Psychiatry, 109:113-129, 1963.
6. Bruens, J.H. Psychoses in epilepsy. Psychiatrica, Neurologia, Neurochirurgia, 74:175-192, 1971.
7. Christensen J, Vestergaard M, Mortensen PB, Sidenius P, Agerbo E. Epilepsy and risk of suicide: a population-based case-control study. Lancet Neurol 2007; 6(8): 693–8.
8. Cummings LN, Giudice L, Morrell MJ, Ovulatory function in epilepsy. Epilepsia 1995; 36:355-359.
9. Cynthia L. Harden. Sexual dysfunction in women with epilepsy. Seizure (2008) 17, 131—135.
10. David F. Smith, a, Gus A. Bakera, Michael Deweyb, Ann Jacobyc, David W. Chadwick. Seizure frequency, patient-perceived seizure severity and the psychosocial consequences of intractable epilepsy. Epilepsy research. Volume 9, Issue 3, September 1991, Pages 231–241.

11. Devinsky O. Neurologist-induced sexual dysfunction: enzyme-inducing antiepileptic drugs. Neurology 2005;65:980–1.
12. Dodrill CB. Progressive cognitive decline in adolescents and adults with epilepsy. In: Sutula T, Pitkanen A, eds. Do seizures damage the brain? Prog Brain Res 2002; 135: 399–407.
13. Donna C Bergen., Do Seizures Harm the Brain? Epilepsy Curr. 2006 July; 6(4): 117–118.
14. Duncan S, Blacklaw J, Beastall GH, Brodie MJ. Antiepileptic drug therapy and sexual function in men with epilepsy. Epilepsia 1999; 40:197-204.
15. E.K. Johnson, J. E. Jones, M. Seidenberg, and B. P. Hermann, "The relative impact of anxiety, depression, and clinical seizure features on health-related quality of life in epilepsy," Epilepsia,vol. 45, no. 5, pp. 544–550, 2004.
16. Ettinger A, Reed M, Cramer J. Depression and comorbidity in community-based patients with epilepsy or asthma. Neurology 2004; 63: 1008–14
17. Gaitatzis A, Trimble MR, Sander JW. The psychiatric comorbidity of epilepsy. Acta Neurol Scand 2004;110:207-220.
18. Griffi th HR, Martin RC, Bambara JK, Faught E, Vogtle LK, Marson DC. Cognitive functioning over 3 years in community dwelling older adults with chronic partial epilepsy. Epilepsy Res 2007; 74: 91–96.
19. H. Aziz, S. W. Akhtar, and K. Z. Hasan, "Epilepsy in Pakistan: stigma and psychosocial problems. A population- based epidemiologicstudy," Epilepsia, vol. 38, no. 10, pp. 1069–1073, 1997.
20. Hermann BP, Seidenberg M, Dow C, et al. Cognitive prognosis in chronic temporal lobe epilepsy. Ann Neurol 2006; 60: 80–87.

21. Herzog AG, Levesque LA. Testosterone, free testosterone, non-sex hormone-binding globulin-bound testosterone and free androgen index: which testosterone measurement is most relevant to reproductive and sexual function in men with epilepsy? Arch Neurol 1992; 49: 133-134.
22. Jacoby, G. A. Baker, N. Steen, P. Potts, and D.W.Chadwick, "The clinical course of epilepsy and its psychosocial correlates: findings from a U.K. community study," Epilepsia, vol. 37, no.2, pp. 148–161, 1996.
23. Jensen P, Jensen SB, Sorensen PS, Bjerre BD, Rizzi DA, Sørensen AS, et al. Sexual dysfunction in male and female patients with epilepsy: a study of 86 outpatients. Arch Sex Behav 1990;19:1—14.
24. Johnson EK, Jones JE, Seidenberg M, Hermann BP. The relative impact of anxiety, depression, and clinical seizure features on health-related quality of life in epilepsy. Epilepsia 2004;45:544-550.
25. Kanner AM, Balabanov A. Depression and epilepsy: how closely related are they? Neurology 2002;58(Suppl 5):S27-S39.
26. Kanner AM. Depression in epilepsy: prevalence, clinical semiology, patho genic mechanisms, and treatment. Biol Psychiatry 2003; 54: 388–98.
27. Kobau R, Gilliam F, Thurman DJ. Prevalence of self-reported epilepsy or seizure disorder and its associations with self-reported depression and anxiety: results from the 2004 HealthStyles Survey. Epilepsia 2006; 47: 1915–21.
28. Krishnamoorthy ES, Trimble MR, Blumer D. The classification of neuropsychiatric disorders in epilepsy: a proposal by the ILAE commission on psychobiology of epilepsy. Epilepsy Behav 2007;10:349-353.
29. Kuba R, Pohanka M, Zakopcan J, Novotna I, Rektor I. Sexual dysfunctions and blood hormonal profile in men with focal epilepsy. Epilepsia 2006;47:2135–40.

30. Lambert M, Robertson M. Depression in epilepsy: etiology, phenomenology and treatment. Epilepsia 1999;40(suppl 10):S21–47.
31. Laura.S. Boylan, L. A. Flint, D. L. Labovitz, S. C. Jackson, K. Starner, and O. Devinsky. Depression but not seizure frequency predicts quality of life in treatment-resistant epilepsy.Neurology January 27, 2004 62:258-261.
32. Lindsay J, Ounsted C, Richards P. Long-term outcome in children with temporal lobe seizures. I: Social outcome and childhood factors. Dev Med Child Neurol 1979;21(3): 285-98.
33. Lishman WA. Organic Psychiatry. Blackwell Science, 4th edition (2009)
34. Lishman, W.A. A pilot study of schizophrenia-like psychosis in epilepsy using single-photon emission computerized tomography. British Journal of Psychiatry, 163:32- 36,1993.
35. Lo¨fgren E, Tapanainen JS, Koivunen R, Pakarinen A, Isoja¨rvi JI. Effects of carbamazepine and oxcarbazepine on the reproductive endocrine function in women with epilepsy. Epilepsia 2006;47(9):1441—6.
36. M J Jackson, D Turkington, DEPRESSION AND ANXIETY IN EPILEPSY, J Neurol Neurosurg Psychiatry 2005;76(Suppl I):i45–i47.
37. M. N. Sayeed Khan and M. S. Akhter, “Epilepsy in rural community of Pakistan: a description of one hundred patients,”Journal of the College of Physicians and Surgeons Pakistan, vol.12, no. 12, pp. 728–730, 2002.
38. Manchanda R, Schaefer B, McLachlan RS, et al. Psychiatric disorders in candidates for surgery for epilepsy. J Neurol Neurosurg Psychiatry 1996;61: 82-89.
39. Martin RC, Griffi th HR, Faught E, Gilliam F, Mackey M, Vogtle L. Cognitive functioning in community dwelling older adults with chronic partial epilepsy. Epilepsia 2005; 46: 298–303.

40. Mendez, M.F.; Grau, R.; Doss, R.C.; and Taylor, J.L. Schizophrenia in epilepsy: Seizure and psychosis variables. Neurology, 43:1073-1077, 1993.
41. Mohammadi MR, Ghanizadeh A, Davidian H, Mohammadi M, Norouzian M. Prevalence of epilepsy and comorbidity of psychiatric disorders in Iran. Seizure 2006;15:476-482.
42. Morrell MJ, Sperling MR, Stecker M, Dichter MA. Sexual dysfunction in partial epilepsy: a deficit in physiologic sexual arousal. Neurology 1994;44:243–7.
43. Mula M, Trimble MR, Sander JW, Epilepsia, 2007; in press.26. Trimble MR, Biological Psychiatry Second Edition, J Wylie & Sons,1996.
44. Najam-us Sahar. Assessment of Psychological Distress in Epilepsy:Perspective fromPakistan. Hindawi Publishing Corporation Epilepsy Research and Treatment Volume 2012, Article ID 171725, 7 pages doi:10.1155/2012/171725
45. Patricia E. Penovich, M.D. The Effects of Epilepsy and Its Treatment on Sexual and Reproductive Functions.
46. Piazzini A, Canevini MP, Turner K, Chifari R, Canger R, Canevini MP. Elderly people and epilepsy: cognitive function. Epilepsia 2006; 47: 82–84.
47. S. K. Gambhir, V. Kumar, P. D. Singhi, and R. C. Goel, "Public awareness, understanding and attitudes toward epilepsy,"Indian Journal of Medical Research, vol. 102, pp. 34–38, 1995.
48. Sachdev P. Schizophrenia-like psychosis and epilepsy: the status of the association. Am J Psychiatry 1998; 155: 325–36.
49. Seidenberg M, Pulsipher DT, Hermann B. Cognitive progression in epilepsy. Neuropsychol Rev 2007; 17: 445–54.
50. Slater E, Beard AW. The schizophrenia-like psychoses of epilepsy. Br J Psychiatry 1963; 109: 95-150. Geschwind N. Effects of temporal lobe

surgery on behavior. N Engl J Med 1973; 289:480-1. Seminars in Psychiatry 1975; 171-98.

51. Swinkels WA, Kuyk J, van Dyck R, Spinhoven P. Psychiatric comorbidity in epilepsy. Epilepsy Behav 2005; 7: 37–50.
52. Thapar A, Kerr M, Harold G. Stress, anxiety, depression, and epilepsy: investigating the relationship between psychological factors and seizures.Epilepsy Behav 2009;14:134-140.
53. Vazquez B, Devinsky O. Epilepsy and anxiety. Epilepsy and Behaviour 2003;4:S20–25.
54. Waxman SG, Geschwind N. The interictal behavior syndrome of temporal lobe epilepsy. Arch Gen Psychiatry 1975; 32:1580-6.
55. X. Wen , K.J. Meador, D.W. Loring , S. Eisenschenk , R. Segal , A.G. Hartzema . Is antiepileptic drug use related to depression and suicidal ideation among patients with epilepsy?. Epilepsy & Behavior 19 (2010) 494–500.

PROFORMA

A – SOCIODEMOGRAPHIC DATA

• Name :
• Age :
• Sex :
• Education : Iliterate/Primary/High school/Degree
• Occupation : Unemployed/Un skilled/Semi skilled/ Skilled/Clerk, Shop owner, farmer
• Income :Upper/ Upper middle/Lower middle/Upper lower/Lower
• Marital Status : Unmarried / Married/Separated, Divorced, Widow
• Address : Urban/Rural
• Religion : Hindu / Muslim/Christian/Others
• Family Type : /Nuclear/Joint
• Number of children :

B – ILLNESS DETAILS

• Diagnosis
• Duration of illness
  Seizure frequency
  Last seizure episode
• Mode of treatment – antiepileptic drugs
• Complication of disease (if any)
• EEG & CT-SCAN details
• Drug compliance (Good, poor)
• Perception of illness: Extent of knowledge about illness.
• Previous treatment– Y/N.
• Psychological reaction: Fear/anger/grief/acceptance/denial
• Body image disturbances +/- Type of disturbance:

C- PAST HISTORY

• Mental illness – Y/N
• Medical illness – Y/N
• Past H/o of treatment for present complaints – other Modalities (specify)
• Suicidal attempt / gestures
• Drug intake →

D- FAMILY HISTORY

• Family H/o of seizure disorder/ Suicide / Alcohol abuse / mental illness.

E-PERSONAL HISTORY

• Birth & Development history
• Menarche – age Menopause:
• Married Y/N
• Children Y/N
• Smoker Y/N
• Alcoholic Y/N
• Ganja Y/N
• Other substance use / abuse/dependence
• Sexual dysfunction – absent / present
(Frequency reduced / abstinent)

F- PREMORBID PERSONALITY

G – MENTAL STATUS EXAM

• Conscious : Y/N
• Rapport : Good/Possible/Not Possible
• Gaze Contact : Maintained / Possible/ Not possible
• Dressing and grooming: Adequate/Average/Poor
• Psychomotor activity : Increased/Normal/Decreased
• Attention : Aroused/Not aroused
• Concentration : Sustained/ Not sustained
• Memory : Immediate Y/N / Recent Y/N / Remote Y/N
• Orientation : Y/N / Place: Y/N / Person: Y/N

TALK
• Quantum : Decreased /Normal/Increased
• Tone : Decreased/Normal/Increased
• Tempo : Decreased/Normal/Increased
• Reaction time : decreased/Normal/Increased
• Prosody : Maintained/Not maintained
• Relevant : Y/N
• Coherent : Y/N

THOUGHT
• Formal thought disorder Y/N (Please specify)
• Delusions : Y/N (Please Specify)
• Hallucination : Y/N (Please Specify)
• Depressive ideas : Y/N
• Suicidal ideation : Y/N

MOOD

INSIGHT
Absent / Partial /Present

Physical Examination

RATING SCALES:

SL NO	RATING SCALES	SCORES
1.	HAM - D	
2.	HAM - A	
3.	BPRS	
4.	MMSE	
5.	ASEX	

MASTER CHART

SL NO	NEURO NO	AGE	SEX	EDUCATION	OCCUPATION	MARITAL STATUS	SOCIOECONOMIC STATUS	FAMILY HISTORY	DIAGNOSIS	EEG	DRUGS	SEIZURE DURATION	SEIZURE FREQUENCY	COMPLIANCE	HAM-D	HAM-A	BPRS	MMSE	D1	D2	D3	D4	ASEX
1	7298	50	M	HS	4	M	LM	N	N	CPSWSG	N	PHT 300MG,CBZ 600MG, PBT 30MG	20	2-5/yr	G	2	4	23	24	23	13	32	10
2	6918	28	M	P	3	M	L	J	N	GTCS	N	PHT 300	16	1/yr	G	4	8	28	24	24	15	38	4+4+4
3	704	33	M	P	2	M	L	N	N	CPSWSG	AB	PHT 200, CBZ 400	23	2-5/yr	A	6	9	28	22	20	11	25	5+5+5
4	615	38	F	P	HOUSWIFE	W	L	N	N	GTCS	AB	SVP 800	8	2-5/yr	G	16	7	24	20	17	7	23	4+4+4
5	4847	31	F	P	2	M	L	N	N	CPSWSG	N	CBZ 600	13	5-10/yr	A	12	12	26	22	20	11	29	4+4+4
6	6813	45	M	IL	2	M	L	J	N	GTCS	AB	PHT 200	17	2-5/yr	G	13	12	25	22	19	10	26	5+5+5
7	3486	31	M	HS	2	M	L	N	N	CPSWSG	N	CBZ 400	6	1/yr	G	3	4	29	24	22	13	31	10
8	2185	31	M	DEGREE	2	M	L	J	N	CPSWSG	AB	PHT 300, PBT 60, CBZ 600	20	2-5/yr	G	2	3	27	23	22	12	30	10
9	7327	19	M	HS	STUDENT	UM	LM	J	N	GTCS	AB	SVP 600	8	5-10/yr	G	19	20	24	18	12	9	22	5+5+5
10	12290	30	M	P	2	UM	L	J	Y	GTCS	AB	PHT 300	9	2-5/yr	G	16	7	26	20	17	7	23	21
11	2265	25	F	DEGREE	STUDENT	M	L	J	N	CPSWSG	N	CBZ 600	11	1/yr	G	3	8	28	23	23	9	28	10
12	10298	38	F	IL	HOUSWIFE	W	L	N	N	GTCS	N	PHT 300	6	1/yr	G	3	8	30	23	24	6	27	10
13	289	32	F	HS	3	M	L	N	N	CPSWSG	AB	CBZ 400, PHT 100	13	5-10/yr	A	16	20	23	18	14	7	18	5+5+5
14	8699	27	F	IL	HOUSWIFE	M	L	N	N	GTCS	AB	SVP 400	2MNTH		G	20	20	26	19	16	8	23	6+6+6
15	8161	35	F	P	HOUSWIFE	M	L	J	N	GTCS	AB	PHT 600	10	1/yr	A	4	8	28	20	22	13	33	10
16	3371	31	M	IL	2	M	L	N	N	CPSWSG	N	CBZ 1000	9	2-5/yr	A	16	20	27	17	14	8	23	5+5+5
17	9869	37	M	P	5	M	L	J	N	CPSWSG	N	CBZ 800	8	1/yr	G	6	5	28	24	22	12	33	15
18	6576	26	M	HS	2	M	L	N	N	CPSWSG	AB	CBZ 800	10	5-10/yr	A	16	25	23	17	13	5	16	5+5+5
19	24263	35	M	P	4	M	L	N	N	GTCS	N	PHT 200	4	1/yr	G	4	5	29	25	25	13	35	5
20	12515	28	M	P	4	M	L	N	N	GTCS	N	PHT 300,PBT 60	3	2-5/yr	G	6	7	28	24	24	12	32	10
21	815	40	M	P	4	M	L	N	N	GTCS	N	PHT 200	20	2-5/yr	G	11	16	22	19	18	8	24	20
22	2475	35	F	P	4	W	LM	N	N	FMSWSG	AB	PHT 200, CBZ 600	5	2-5/yr	G	16	10	25	22	17	12	26	20
23	11228	39	M	P	5	M	L	N	N	CPSWSG	N	PHT 300,PBT90,CBZ 400,DZP 5	15	>10/yr	P	12	15	27	20	17	9	26	10
24	4224	38	M	HS	4	M	L	J	N	CPSWSG	N	PHT 200, CBZ 400,	10	1/yr	P	2	4	29	22	22	12	34	10
25	1279	28	F	P	HOUSWIFE	M	L	N	N	CPSWSG	N	CBZ 400	2	1/yr	G	6	4	27	23	22	12	32	10
26	1172	46	M	HSS	5	M	LM	J	N	GTCS	AB	PHT 200	12	2-5/yr	G	16	16	26	16	17	7	19	15
27	1784	32	F	IL	4	M	LM	N	N	CPSWSG	N	CBZ 400, PHT 200	12	2-5/yr	G	6	16	25	20	18	9	21	5+5+5
28	7291	16	F	HS	STUDENT	UM	LM	N	N	CPS	AB	CBZ 400	2	2-5/yr	G	20	14	25	20	22	10	32	20
29	1000	23	F	HS	1	W	UL	N	N	CPSWSG	AB	CBZ 400	6	2-5/yr	G	12	17	28	24	23	12	32	10
30	8134	25	F	HSS	1	M	UL	J	Y	CPS	AB	CBZ 800, SVP 400	10	2-5/yr	G	10	6	27	24	22	12	32	10
31	816	27	F	HS	3	M	UL	N	N	CPSWSG	AB	CBZ 600	10	2-5/yr	A	0	4	29	24	22	12	32	5
32	406	38	F	P	3	M	LM	J	N	GTCS	N	SVP 400	6	1/yr	G	0	4	24	24	23	12	32	5
33	14178	27	F	P	HOUSWIFE	M	UL	N	N	ASWSG	AB	CBZ 600, SVP 400	3	2-5/yr	A	0	0	25	24	22	12	32	5
34	2978	40	F	IL	2	M	L	N	N	FMSWSG	N	CBZ 400	24	2-5/yr	A	2	5	27	22	21	10	29	10
35	5452	39	F	P	HOUSWIFE	M	UL	N	N	FMSWSG	AB	CBZ 500	20	>10/yr	P	16	0	23	22	17	10	27	5+5+5
36	9135	27	F	HS	HOUSWIFE	M	LM	J	N	FMSWSG	AB	CBZ 400	1.5	2-5/yr	G	4	6	28	24	22	12	29	5
37	1107	35	F	P	2	M	L	N	N	FMSWSG	AB	CBZ 400	20	5-10/yr	A	18	16	26	17	16	7	14	6+5+5
38	3038	30	F	P	HOUSWIFE	M	UL	N	N	FMSWSG	AB	CBZ 400	15	1/yr	G	5	6	30	23	21	12	30	10
39	2253	24	M	HS	1	M	UL	N	N	CPS	AB	CBZ 400	17	2-5/yr	A	2	4	22	23	23	13	32	10
40	2288	20	M	HS	3	UM	UL	N	N	GTCS	N	SVP 800, CBZ 1000	16	>10/yr	P	4	6	24	24	20	10	32	5+5+5
41	10760	32	M	P	4	M	LM	J	N	CPS	N	CBZ 400	8	1/yr	G	20	16	29	24	23	13	32	10
42	5787	29	M	HS	1	UM	UL	J	N	GTCS	AB	SVP 800, PBT 60	14	5-10/yr	A	8	6	22	22	19	9	25	10
43	5101	18	F	HSS	STUDENT	UM	LM	N	N	FMSWSG	N	CBZ 400	4MNTH		G	7	14	24	22	23	14	35	5
44	3758	39	F	P	HOUSWIFE	M	LM	N	N	FMSWSG	AB	CBZ 400	23	2-5/yr	A	14	12	22	26	25	13	35	15
45	17709	35	M	HS	3	M	UL	J	N	FMSWSG	AB	SVP 800, CBZ 1000	15	5-10/yr	P	14	16	28	23	23	12	32	10
46	17768	17	M	HSS	STUDENT	UM	LM	N	N	FMSWSG	AB	CBZ 600, PHT 300	5	2-5/yr	A	6	15	27	24	23	13	32	10
47	7293	27	F	IL	2	M	L	N	N	CPS	N	CBZ 600	2	1/yr	G	14	6	28	19	18	10	27	4+4+4
48	6650	22	F	HS	HOUSWIFE	M	UL	N	N	CPS	AB	CBZ 400	8	2-5/yr	G	14	6	30	24	23	13	32	10
49	8725	36	F	P	HOUSWIFE	M	L	N	N	CPS	N	CBZ 400	5.5	2-5/yr	G	14	16	24	19	18	10	27	5+4+4
50	11211	31	F	P	HOUSWIFE	M	UL	N	N	GTCS	N	SVP 600	6MNTH		G	16	20	23	19	18	10	27	4+4+4
51	7290	28	M	HS	4	M	LM	J	Y	CPS	AB	CBZ 600	8	2-5/yr	G	13	12	27	24	23	13	32	10
52	7824	32	F	HS	HOUSWIFE	M	UL	N	N	GTCS	AB	SVP 600	12	1/yr	G	8	6	28	24	22	12	31	17
53	998	40	M	P	3	M	L	N	N	GTCS	N	PHT 200, SVP 400	14	1/yr	G	2	0	27	24	19	11	31	4+4+4
54	7614	30	F	P	2	M	L	J	N	CPSWSG	N	CBZ 600	8	2-5/yr	G	13	6	26	23	19	11	28	10
55	346	43	M	P	3	M	UL	J	Y	MYO	AB	SVP 800	20	>10/yr	P	12	8	20	27	25	15	36	10
56	1123	19	M	HSS	4	UM	LM	N	Y	CPS	AB	CBZ 400	2	2-5/yr	G	20	14	24	22	18	10	27	10
57	10821	36	F	P	2	M	L	N	N	FSS	AB	SVP 800	6	2-5/yr	A	3	4	27	24	22	12	31	6+5+6
58	862	42	M	P	2	M	L	J	N	CPS	N	CBZ 400	20	2-5/yr	G	4	2	26	23	22	12	31	10
59	968	36	F	IL	2	M	L	N	N	GTCS	N	PHT 300	18	1/yr	G	2	2	21	23	22	10	32	10
60	5849	20	M	DEGREE	5	UM	UL	N	N	GTCS	AB	PHT 300	6	1/yr	G	0	0	30	27	26	15	38	5
61	11234	28	F	HSS	HOUSWIFE	M	UL	N	Y	GTCS	AB	PHT 300	4	5-10/yr	A	22	6	24	26	24	15	38	15
62	7821	35	M	P	2	M	L	J	N	GTCS	AB	PHT 300	8	1/yr	G	6	4	26	25	25	12	34	10
63	10863	38	M	HS	HOUSWIFE	W	L	J	Y	FMSWSG	AB	PHT 200, CBZ 400	10	5-10/yr	A	16	20	23	18	13	7	18	5+5+5
64	10021	20	F	P	2	UM	L	N	N	GTCS	AB	SVP 400	6	1/yr	G	6	2	28	26	26	14	34	5
65	9241	39	M	IL	2	M	L	N	N	FMSWSG	N	CBZ 800	15	2-5/yr	A	6	4	26	24	23	13	32	10
66	7714	36	F	P	2	M	L	N	N	CPS	AB	CBZ 1000	8	5-10/yr	P	16	20	24	17	16	8	23	5+5+5
67	6684	32	M	P	2	M	L	N	Y	GTCS	AB	SVP 800, PHT 200	10	5-10/yr	P	20	12	12	25	23	12	34	5+5+5
68	7849	24	F	DEGREE	5	M	UM	J	N	GTCS	AB	PHT 300	6	1/yr	G	2	3	30	25	26	15	38	5
69	9986	28	M	HSS	5	M	UM	N	N	FSS	N	SVP 400, PHT 200	10	1/yr	G	0	4	28	24	24	12	32	5
70	12840	29	M	IL	4	M	L	N	N	GTCS	N	PHT 300, PBT 60	2	2-5/yr	A	10	22	28	24	24	19	34	15
71	6843	19	M	HSS	STUDENT	UM	UM	N	Y	FMSWSG	AB	CBZ 600	9	2-5/yr	A	21	20	24	25	23	12	35	5
72	5864	30	F	HS	HOUSWIFE	M	L	J	N	MYO	AB	PHT 300,SVP 400	12	>10/yr	P	20	18	18	25	21	10	29	15
73	10680	22	M	HS	4	UM	L	J	N	FMSWSG	N	CBZ 600, PHT 200	6	1/yr	G	8	12	26	24	23	10	31	18
74	10980	20	M	HS	STUDENT	UM	L	J	N	GTCS	N	SVP 400	6	1/yr	G	0	2	30	24	21	12	32	5
75	8694	31	F	IL	HOUSWIFE	M	L	N	Y	ATONIC	AB	CBZ 200, PHT 300	16	5-10/yr	A	23	26	18	21	18	9	24	6+6+6
76	868	40	M	P	3	M	L	J	N	MYO	AB	CBZ 600	20	.10/yr	G	20	13	20	24	23	11	32	5+5+5
77	18250	27	F	P	HOUSWIFE	W	L	N	N	CPSWSG	AB	CBZ 400, PHT 200	5	5-10/yr	A	21	18	22	24	22	11	31	10
78	5679	32	M	P	3	M	L	J	N	CPSWSG	N	CBZ 400, PHT 200	12	1/yr	A	8	14	24	24	22	12	29	10
79	18760	18	M	HSS	5	UM	UM	N	N	CPS	N	CBZ 400	4	1/yr	G	4	2	30	25	25	13	37	10
80	11021	29	F	HSS	HOUSWIFE	M	LM	N	N	FMSWSG	N	CBZ 400	6	1/yr	G	4	0	28	27	27	15	39	5
81	6863	38	M	P	3	M	L	N	N	GTCS	N	SVP 600	10	2-5/yr	G	2	4	29	25	23	12	31	5
82	883	46	M	P	4	M	UL	N	N	GTCS	AB	SVP 400, PHT 200	20	1/yr	A	8	14	28	26	26	14	39	10
83	11356	38	F	IL	HOUSWIFE	M	L	J	N	GTCS	AB	SVP 600	3	2-5/yr	G	7	11	26	24	23	12	32	10
84	2689	48	M	HS	3	M	L	N	N	GTCS	AB	SVP 400, PHT 100	15	2-5/yr	G	2	6	28	22	23	13	36	5
85	2864	40	F	IL	2	M	L	J	N	CPSWSG	N	CBZ 600, SVP 400	15	2-5/yr	P	18	12	29	25	21	10	28	15
86	1135	35	F	P	3	M	L	N	N	CPSWSG	N	SVP 600	5	1/yr	G	7	8	28	21	18	11	26	10
87	468	20	F	P	4	UM	UL	J	N	MYO	AB	SVP 800, PHT 300	6	>10/yr	P	10	12	19	24	22	12	31	10
88	6587	36	M	HS	3	M	L	N	Y	FMS	AB	CBZ 600	10	2-5/yr	A	4	16	26	27	24	13	35	5
89	11824	22	M	DEGREE	1	UM	LM	J	N	GTCS	AB	SVP 800	4	2-5/yr	G	6	17	25	27	27	15	40	5
90	7684	27	F	P	3	M	L	N	N	CPSWSG	N	CBZ 600	15	1/yr	G	8	6	28	26	23	13	31	5
91	18670	38	F	HS	HOUSWIFE	M	L	J	N	CPSWSG	N	CBZ 400, SVP 400	5	2-5/yr	G	10	14	28	24	23	12	32	5
92	10285	29	M	HSS	4	M	UL	N	N	GTCS	AB	PHT 300	6	2-5/yr	G	13	14	20	23	23	14	35	5
93	6108	36	F	P	HOUSWIFE	M	L	N	N	ATONIC	N	CBZ 600, PHT 300	12	>10/yr	P	18	20	18	27	24	15	39	5
94	11246	25	M	P	3	M	L	N	N	CPS	N	CBZ 600, SVP 600	2	5-10/yr	P	13	13	19	26	22	12	34	10
95	868	29	M	HS	1	M	L	N	N	ATONIC	AB	SVP 200	20	1/yr	G	20	12	27	20	24	22	12	32	10
96	10214	20	M	P	4	UM	L	N	N	FMSWSG	AB	SVP 600, CBZ 400	12	5-10/yr	A	20	23		18	24	22	12	32	10
97	1770	26	M	HS	1	M	L	N	Y	CPS	N	CBZ 600	12	2-5/yr	P	8	17	25	22	21	19	12	27	4+4+4
98	7083	30	F	IL	2	M	L	N	N	FMS	AB	CBZ 600	5	1/yr	G	10	18		24	25	26	13	39	5
99	6853	39	M	HS	5	M	UM	J	N	FMSWSG	N	SVP 800	2	1/yr	G	6	18		26	27	26	15	40	5
100	8214	36	F	IL	2	M	L	J	N	GTCS	AB	SVP 600	6	5-10/yr	P	5	25		26	22	22	12	34	10

Keys To Master Chart

M: Male

F: Female

IL: Iliterate

P: Primary

HS: High school

HSS: Higher secondary

1: Unemployed

2: Unskilled worker

3: Semiskilled worker

4: Skilled worker

5: Clerk, Shop owner,Farmer

M: Married

UM: Unmarried

W: Widow

UM: Upper middle

LM: Lower middle

UL: Upper lower

L: Lower

N: Nuclear family

J: Joint family

Y: Family history of seizure

N: No family history of seizure

GTCS: Generalized Tonic Clonic Seizure

CPSWSG: Complex partial seizure with secondary generalization

FMSWSG: Focal motor seizure with secondary generalization

CPS: Complex partial seizures

MYO: Myoclonic

FMS: Focal motor seizure

FSS: Focal sensory seizures

ASWSG: Absence seizure with secondary generalization

N: Normal EEG

AB: Abnormal EEG

P: Poor compliance

A: Average compliance

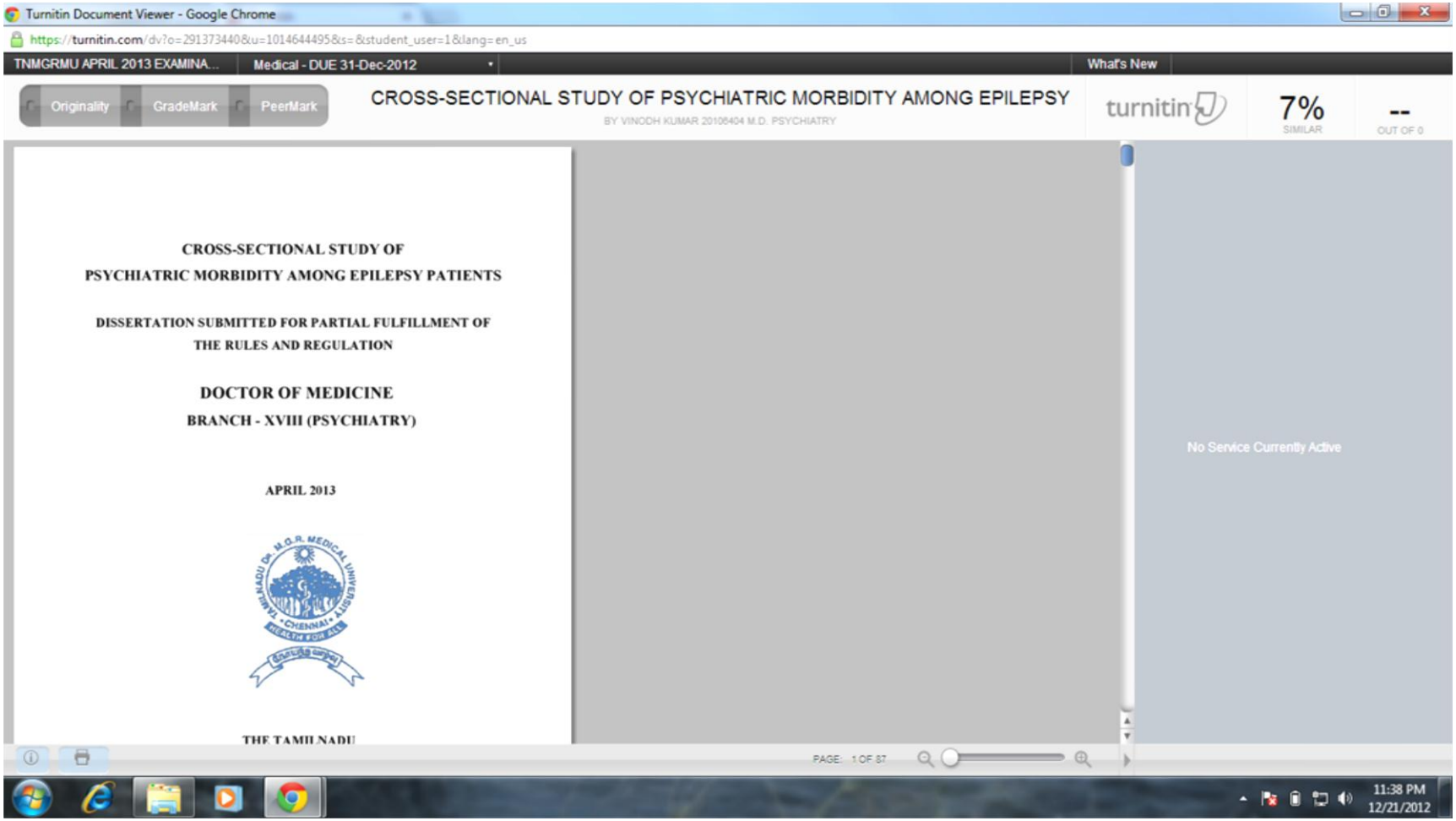
G: Good compliance

SVP: Sodium valproate

PBT: Phenobarbitol

PHT: Phenytoin

CBZ: Carbamazepine


Turnitin Document Viewer - Google Chrome
https://turnitin.com/dv?o=291373440&u=1014644495&s=&student_user=1&lang=en_us
TNMGRMU APRIL 2013 EXAMINA...
Medical - DUE 31-Dec-2012
What's New
Originality
GradeMark
PeerMark
CROSS-SECTIONAL STUDY OF PSYCHIATRIC MORBIDITY AMONG EPILEPSY
BY VINODH KUMAR 20106404 M.D. PSYCHIATRY
turnitin
7%
SIMILAR
--
OUT OF 0
CROSS-SECTIONAL STUDY OF
PSYCHIATRIC MORBIDITY AMONG EPILEPSY PATIENTS
DISSERTATION SUBMITTED FOR PARTIAL FULFILLMENT OF
THE RULES AND REGULATION
DOCTOR OF MEDICINE
BRANCH - XVIII (PSYCHIATRY)
APRIL 2013
THE TAMIL NADU
No Service Currently Active
PAGE: 1 OF 87
11:38 PM
12/21/2012

turnitin

Your digital receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

Paper ID	291373440
Paper title	CROSS-SECTIONAL STUDY OF PSYCHIATRIC MORBIDITY AMONG EPILEPSY PATIENTS
Assignment title	Medical
Author	Vinodh Kumar 20106404 M.D. Psychiatry
E-mail	findme_vj@yahoo.com
Submission time	21-Dec-2012 11:23PM
Total words	13021

First 100 words of your submission

CROSS-SECTIONAL STUDY OF PSYCHIATRIC MORBIDITY AMONG EPILEPSY PATIENTS DISSERTATION SUBMITTED FOR PARTIAL FULFILLMENT OF THE RULES AND REGULATION DOCTOR OF MEDICINE BRANCH - XVIII (PSYCHIATRY) APRIL 2013 THE TAMILNADU DR.MGR MEDICAL UNIVERSITY, CHENNAI, TAMIL NADU. INTRODUCTION Epilepsy is a chronic disorder manifest by recurrent, often erratic seizures which may be disconcerting and troublesome to the normal commotion of daily living. There is scant data on psychiatric morbidities like depression, anxiety, psychosis, quality of life, cognitive decline and sexual dysfunction in people living with seizure from low and middle income nations. And in India there is very little data available...

Rc. No. 01104 /E4/3/2012

Govt.Rajaji Hospital,Madurai.20.
Dated: .03.2012

Institutional Review Board / Independent Ethics Committee.
Dr. A. Edwin Joe, M.D (FM), BL.,
Dean, Madurai Medical College & 2521021 (Secy)
Govt Rajaji Hospital, Madurai 625020.
Convenor
grhethicssecy @gmail.com.

Sub: Establishment-Govt. Rajaji Hospital, aMadurai-20-
Ethics committee-Meeting Agenda-communicated-regarding.

The next Ethics Committee meeting of the Govt. Rajaji Hospital, Madurai was held at 11.00 Am to 1.00Pm on 23.02.2012 at the Dean Chamber, Govt. Rajaji Hospital, Madurai. The following members of the committee have been attended the meeting.

1. Dr.N.Vijayasankaran,M.ch(Uro.) 094-430-58793 0452-2584397	Sr.Consultant Urologist Madurai Kidney Centre, Sivagangai Road,Madurai	Chairman
2. Dr.P.K. Muthu Kumarasamy, M.D., 9843050911	Professor & H.O.D of Medical, Oncology(Retired)	Member Secretary
3. Dr.T.Meena,MD 094-437-74875	Professor of Physiology, Madurai Medical College	Member
4. Dr. S. Thamilarasi, M.D (Pharmacol)	Professor of pharmacology	
5.Dr.Moses K.Daniel MD(Gen.Medicine) 098-421-56066	Professor of Medicine Madurai Medical College	Member
6.Dr.M.Gobinath,MS(Gen.Surgery) 097-871-50040	Professor of Surgery Madurai Medical College	Member
7.Dr.S. Dilshadh, MD(O&G)	Professor of OP&Gyn Madurai Medical College	Member
8.Dr.S.Vadivel Murugan., M.D. 097-871-50040	Professor of Medicine Madurai Medical College	Member
9.Shri.M.Sridher,B.sc.B.L. 099-949-07400	Advocate, 623-B.II.Floor,East II Cross, K K.Nagar,Madurai.20.	Member
10.Shri.O.B.D.Bharat,B.sc., 094-437-14162	Businessman Plot No.588, K.K.Nagar,Madurai.20.	Member
11.Shri. S.sivakumar,M.A(Social) Mphil 093-444-84990	Sociologist, Plot No.51 F.F, K.K Nagar, Madurai.	Member

Following Projects were approved by the committee

Sl. No	Name of P.G.	Course	Name of the Project	Remarks
1.	Sampatkumar. R	PG, D.M (Cardiol)	Patency rates of bare metal coronary stents at 1-year follow-up	Approved
2.	Ramachandran. K	PG, M.S (genl surg)	Oral cancers: a clinical study	Approved
3.	Rajarajan. K	PG, M.S (genl surg)	Prevalence of H. pylor in acid peptic disease.	Approved
4.	Ravisankar. P	PG, M.S (genl surg)	Thyroid cancers: a clinical study	Approved
5.	Senthilkumar. K	PG, M.S (genl surg)	Perforative peritonitis: a clinical study.	Approved
6.	Dinesh Kannan. G	PG, M.S (genl surg)	Factors influencing major amputations in patients with diabetic foot.	Approved
7.	Vaasanthi. R	PG, M.D (genl med)	Atherosel in non-alcoholic Fatty Liver, by measuring carotid intima media thickness	Approved
8.	Suraj Narasihan.	PG, M.D (genl med)	Correlation of quantitative HBsAg and HBV DNA levels in chr hepatitis B	Approved
9.	Mythili. M	PG, M.D (physiol)	Comparison of Resting ECG in athletes and non-athletes.	Approved
10.	Nivedita. A.S.A	PG, M.D (Paed)	Buccal midazolam vs. iv diazepam as first line treatment in status epileptics	Approved
11.	Vinodkumar.J	PG, M.D (psych)	Psychiatric morbidity in epileptics.	Approved
12.	Godson . A	PG, M.D (psych)	Sexual dysfunction in alcohol-dependent VS. non-alcohol dependent controls.	Approved
13	Sulthana Dhilras. J	PG, M.S (genl surg)	Antibiotic prophylaxis in prevention of SSI.	Approved
14.	Kathiravan .T	PG, M.S (genl surg)	Obstructive jaundice: a clinical study.	Approved
15.	Dinesh. S	PG, M.Ch (cardioth)	CABG, on-pump and off-pump procedures: a study of post-operative outcome.	Approved
16.	Muthukumar. J	D.M (Neurology)	Analysis of epidemiological, clinical, investigatory, prognostic profile of cortical venous thrombosis patients in a tertiary care hospital.	Approved
17.	Chandrasekaran. P	D.M (Neurology)	Analysis of non motor manifestations in 50 Parkinson's disease.	Approved
18.	Baba Dhoulath khan. H.M	M.Ch (Neurosurgery)	Analytical study of prognostic factors and outcome in traumatic brain injury in patients aged 18 to 40 years.	Approved

19.	Sivakumar. K	M.Ch (Neurosurgery)	Analytical study of Occult Spinal Dysraphisms - its varied presentations. management and outcome in south Indian population - in a period of 5 years (A retrospective & prospective study).	Approved
20.	Gunasekaran. R	M.S (Plastic Surgery)	Post Burn Contracture of Hand-analysis of 60 cases	Approved
21.	Selluraja .K	M.S (Plastic Surgery)	Mandible Fracture and management - analysis of 98 cases.	Approved

Please note that the investigator should adhere the following: She/He should get a detailed informed consent from the patients/participants and maintain Confidentially.

1. She/He should carry out the work without detrimental to regular activities as well as without extra expenditure to the institution to Government.
2. She/He should inform the institution Ethical Committee in case of any change of study procedure site and investigation or guide.
3. She/He should not deviate for the area of the work for which applied for Ethical clearance.
She/He should inform the IEC immediately, in case of any adverse events or Serious adverse reactions.
4. She/he should abide to the rules and regulations of the institution.
5. She/He should complete the work within the specific period and apply for if any Extension of time is required She should apply for permission again and do the work.
6. She/He should submit the summary of the work to the Ethical Committee on Completion of the work.
7. She/He should not claim any funds from the institution while doing the word or on completion.
8.She/He should understand that the members of IEC have the right to monitor the work with prior intimation.

o/c

Dean's

13/3/12

To
All the above members and Head of the Departments concerned.
All the Applicants.