

## ORIGINAL RESEARCH

# A hospital based cross sectional study on psychiatric comorbidities in patients with seizure disorders

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### ABSTRACTS

**Aims:** To study the prevalence of psychiatric comorbidity in patients with seizure disorders. Also assess association of socio-demographic and clinical factors with the psychiatric comorbidity in seizure patients. **Methods and material:** our study is a descriptive cross-sectional study with 100 sample size. Patients with seizure was recruited in Epilepsy Clinic of the mental hospital, Banganga, MGMMC, Indore. Patient aged between 18-60 years, either sex.. Diagnosis of seizure was done clinically in accordance with the ILAE 2017 Classification of Seizure type and ICD -10 is used to diagnose psychiatry comorbidity. Informed consent form, socio-demographic and clinical data sheet were used as a tool for assessment of samples. **Results:** Psychiatric comorbidity was seen in 31% subjects with seizure disorders. Depression 20%, Psychosis 5% and others 6% (Anxiety Disorders, panic attacks, post ictal psychosis) were the most commonly found psychiatric morbidities. Presence of generalized seizures, frequent seizures, long duration of epilepsy was significantly associated with presence of psychiatric comorbidity in subjects with seizure disorders. **Conclusions:** Psychiatric comorbidities are very common in epilepsy. Psychosis associated with epilepsy is seen more in hospital settings. Depression and anxiety though commonly reported in studies are less commonly presented to tertiary care settings.

**Keywords:** Seizure, Psychiatric comorbidity, Depression, Prevalence

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### INTRODUCTION

The term comorbidity refers to a more than occasional concomitant presence of two medical conditions in the same individual [1]. Comorbidity does not imply directionality or a cause-and-effect relationship, and diseases may coexist randomly, or also share common genetic and/or environmental mechanisms [2]. Epilepsy is mostly seen to be linked to cognitive, psychiatric or social problems.[3]

Psychiatric disorders can occur as discrete, self-limited entities resulting directly from a seizure ('peri-ictal' or 'postictal' psychiatric disturbances) or occur independently in the context of epilepsy ('interictal' psychiatric disorders). Admittedly, whilst peri and postictal psychiatric disorders both common and debilitating for people with epilepsy, especially for those with drug-resistance epilepsy, the emphasis of this topic will be on interictal psychiatric conditions that are comorbid with epilepsy.[4]

Epilepsy treated in neurology clinics focused more on the seizure semiology, its origin & progression and

relationship with the brain structures. As controlling the seizures improved the comorbid mental illness, hence psychiatric comorbidities were viewed as secondary reaction to the underlying seizure disorder and therefore believed to require no treatment. [5] The prevalence of psychiatric comorbidity is higher in persons with epilepsy than general population. It ranges from 19%-62% across studies. [3]

A gradient in prevalence is seen, with lower figures reported in community, higher among those visiting family physician and highest in specialty clinics.[6] Depression and anxiety were most frequently reported, though hospital studies reporting a higher prevalence of depression.[7]

Studies from India [8] showed prevalence of psychiatric co-morbidity in people with epilepsy is 28.7% Psychiatric disturbances, primarily psychosis and personality disorders are two to three times more common in patients with complex partial seizures, most of whom have a temporal focus, compared to those with generalized tonic-clonic seizures.

Also use of antiepileptic drug itself can cause depression adding to the morbidity further.[9] Recognition of a comorbid psychiatric disorder is hence important for both better control of seizure and better quality of life. So, assessing the psychiatric comorbidity will help in further refining the management of persons with seizure disorders.

**MATERIAL AND METHODS**

**Study Setting**

This is a hospital based cross-sectional study, which was conducted in outpatient department of psychiatry, MGM Medical College and mental hospital Banganga, after clearance obtained institutional ethic committee of MGMMC, Indore. Patients were included after the meeting inclusion criteria and those patients who do not meet inclusion criteria are excluded from the study.

**Study design**

The study was carried out with a cross sectional observational study the as per the designed objective of the study. The study was aimed to study prevalence of psychiatric comorbidity in seizure patients and their association with various socio-demographic and clinical variables.

**Sample**

Purposive sampling technique was used. The study sample was consisted of 100 subjects of seizure.

**Inclusion and exclusion criteria**

- The patients included were in the age group of 18 to 60 years of either sex and diagnosed as having epilepsy as per ILAE Classification. Patients with mental retardation, head injury, substance

dependent, past history of mental illness prior to onset of seizure disorder were excluded. Any medical co morbidity, Pregnancy and lactation were excluded.

- Written informed consent was obtained from all participants after complete description of the study to the subjects. Evaluation of the samples was done as per procedure of methodology.

**Ethical consideration**

The study was approved by Institutional Ethics Committee. Written informed consent was taken from the study subjects. They were informed about the purpose of the study and were ensured confidentiality. They were also informed about their right to withdraw any point of time during the study and told that their withdrawal from study would not have any impact in the treatment of the condition. All voluntary participants were informed of possible risks and benefits of participating in the research.

**Socio demographic and clinical factors**

The socio demographic details of the patients and clinical factors like seizure type, seizure frequency, and duration of seizure, duration to antiepileptic drugs were taken. ICD-10 Criteria is used to assess psychiatric disorders in subjects with seizure disorders.

**Statistical analysis**

The statistical analysis of data was done by SPSS version 23.0 (SPSS South Asia Pvt Ltd., Bengaluru, Karnataka, India). Test of significance was seen by chi square test and fisher exact test was applied for correction wherever applicable.

**RESULTS**

**Table 1: Prevalence of Psychiatric comorbidity in studied sample**

Psychiatric comorbidity	Percent (%)
Depression	20
Psychosis	5
Anxiety	3
Post ictal psychosis	2
Panic attack	1
Absent	69
Total	100

**Table 2: Association of socio-demographic and clinical variables with psychiatric comorbidity**

Variables	Psychiatric comorbidity present (%)	Psychiatric comorbidity absent (%)	P value
Age group (%)			0.142
18-30	18	53	
31-40	8	11	
41-50	4	5	
51-60	1	0	
Gender (%)			0.561
Male	19	38	
Female	12	31	
Marital Status (%)			0.104

Single	11	38	
Married	18	30	
Divorced	1	1	
separated	1	0	
Education (%)			0.995
Primary school	3	8	
Middle school	13	27	
High school	9	19	
High sec.school	4	9	
Graduate/postgraduate	2	6	
Type of seizure (%)			0.066
CPS	0	6	
CPS with generalization	4	3	
GTCS	27	60	
Seizure frequency (%)			0.137
<10 episodes/years	13	40	
>10episodes/Years	18	29	
Duration of seizure (%)			0.186
0-2 years	5	11	
3-5 years	5	23	
>5 years	21	35	
Duration of AED (%)			0.645
Drug naïve	10	28	
0-1years	2	8	
1-2 years	5	7	
2-5 years	4	11	
>5 years	10	15	
Medication status (%)			0.158
Drug naïve	10	28	
Monotherapy	8	25	
Polytherapy	13	16	

## DICUSSSION

In our study prevalence rate of depression was 20%, while 5% of cases shown inter-ictal psychosis and 6% of others cases shows anxiety disorders 3% ,panic attack 1% and post ictal psychosis 2% .Depression at 20% was most commonly found individual psychiatric disorder in our study population. Hospital based samples have reported higher rate of depression (27–58%) than community based studies (9–22%) in population with epilepsy [6].The most common psychiatric comorbid condition associated with seizure disorder is depression which can be secondary to the effect of seizure or can be due to long term effect of seizure on subjects.

Psychosis was present in 5% of our study subjects; similar prevalence of psychosis in other studies was reported at 2–9%. We found 2% cases of Anxiety disorders which was same as Amruth et al study (2.5%) [10]. The less number of subjects suffering from psychosis and anxiety spectrum disorders can be explained on the basis of including subjects receiving pharmacotherapy for the seizure disorders and getting relapsed in between .

In our study we found that 31 cases out of 100 subjects had psychiatric comorbidity and shows that most of the psychiatric comorbidity in younger age group about 18 cases were less than 30 years of age and rest

13 belonged to above 30 years this is because, most of the cases in our study were in younger age group and fact that majority of psychiatric illness have onset in the second and third decades of life . The gender wise ratio of M: F was 19:12 this can be because; most of the cases in our study were male. Compared with Rehman et al [12] study 37 out of 50 PWE having psychiatric comorbidity present in 18-30 years of age group and 35 in male patients. The effect of gender on the development of psychiatric comorbidities in epilepsy is highly controversial in previous studies because of the diverse methods used and the differences in the population investigated. There are some studies which reported gender having no effect [13], and there are studies in which females have been associated with higher incidence of anxiety [14,15]. In our study, there was no gender difference in the incidence of psychiatric comorbidities and epilepsy (chi-squared = 0.33, df= 1, p = 0.56) ,similar distribution was seen in Amruth et al [10] study (chi-squared = 0.31, df= 1, p = 0.57).Out of 31% of psychiatric comorbidity 2/3<sup>rd</sup> cases were married rest 1/3<sup>rd</sup> was un-married ,higher proportion in married shows that higher level of stress and responsibility after marriage and because of seizure, functioning of the person decreases which lead to higher tendency towards psychiatric illness . In our study we found low

education level had higher prevalence of psychiatric comorbidity out of 31 cases of psychiatry comorbidity 25 had below high school education level and rest 6 had above high school education this is because of socio demographic drift. We found generalized seizure had higher proportion of psychiatry comorbidity, 27 cases had episodes of GTCS while only small proportion 4 cases had CPS with secondary generalization. Our study showed that generalized neuronal discharges causes greater impairment of brain function which is responsible for higher proportion of psychiatric comorbidity, this finding was nearby statistically a significant (P value 0.06). In our study higher seizure frequency that is more than 10 episodes per years causes higher prevalence of psychiatry illness about 18 cases shown >10 episodes/years and rest 13 cases had less than 10 episodes per years, majority of seizure disorders subjects with psychiatric comorbidity i.e. 58% were shown more than 10 episodes / years while the subject not showing comorbid psychiatric illness along with seizure disorders were 42% which shows that there is a increased chances of psychiatric illness as the frequency of seizure episodes crosses more than 10 episodes per years. This finding was supported by Amruth et al [10] study, and other study also shows that increased seizure frequency associated with increased psychiatric comorbidities [14,15]. On the contrary, some studies have found that increased psychiatric comorbidities are not associated with increased seizure frequency [16,17] because of bidirectional relation of seizure and psychiatric illness .we found more than 21 out of 31 (68%) patients with psychiatric comorbidity had greater than 5 years of seizure duration while 32% of subjects of seizure disorders with comorbid psychiatric illness were in <5 year of subgroup, here also the more subjects with psychiatric comorbidity had almost 36 % more subjects falling in > 5 years of seizure duration subgroup which shows that longer duration of seizure is likely to lead for higher chances of psychiatric comorbidity, similar to Amruth et al[10] study 22 out of 26 patients with Psychiatric comorbidity had > 5years of seizure duration .The younger age at onset of seizures and the longer duration of epilepsy noted in this study are consistent with the literature regarding the increased incidence of psychiatric comorbidities[18].

In our study 38 out of 100 cases were drug naïve in which 10 cases had psychiatry comorbidity and in rest 62 cases on antiepileptic drug in which 14 cases having psychiatric illness had > 2 years of duration on AEDs. Rest 7 patient with psychiatric comorbidity had < 2 years on antiepileptic drugs. We found 13%cases had on polytherapy shows psychiatry comorbidity while only 8% cases on monotherapy had psychiatry comorbidity, similar distribution was seen in Amruth et al study[10] this shows that more number of antiepileptic drugs for longer duration predisposes psychiatric illness. The mechanism of action of

antiepileptic drugs and secondary effects of AEDs or polypharmacy may be associated with increased risk of depressive symptoms or psychiatric issues[19].Our study finding compared with Rehman et al [12] study where 68% subjects had a generalized seizure or complex partial seizure with secondary generalization and 25% subjects the seizures were poorly controlled as they were having >10 episodes of seizure a year and 16% of the subjects had a seizure duration <2years. 85% subjects were on single anticonvulsant and 58% of the subjects were on treatment for last 2 years while only 4% on treatment for >5 years.

In our study association of psychiatry comorbidity with various socio demographical and clinical variables was not statistically significant (P value >0.05), because our study was hospital based cross sectional study and having small sample size which fails to represent actual psychiatric comorbidities in general population and in our hospital setting most of the patients had well controlled seizure and good adherence on AEDs. Which may have a bidirectional relationship with presence of comorbid psychiatric disorder , Such an association needs further clarification.

## CONCLUSIONS

Psychiatric comorbidity causes considerable burden in morbidity and quality of life. So, proper recognition and treatment is essential in patients management .In persons with epilepsy, psychiatric comorbidity is common problem and among them depression was the commonest diagnosis, others are psychosis, anxiety, aggression etc. So awareness in the community is needed regarding psychiatric issues in epileptic patients especially with respect to depression and anxiety, sometimes which may get unnoticed. Various clinical factors such as generalized seizure, frequency and duration of seizures, anticonvulsant polypharmacy, duration of AED and a family history of psychiatric disorder, were associated with a higher prevalence of psychiatric disorders. However, in our study it was not statistically significant associated.

The limitations of the present study are cross sectional design, Small sample size, and inclusion of out patients only, which had lack of healthy control group. Further research with large sample size, longitudinal study and follow ups on regular interval is advised, so that results will be more sensitive and generalized.

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## CONFLICTS OF INTEREST

There are no conflicts of interest.

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