

Psychiatric Comorbidities in Patients with Epilepsy: A Cross-sectional Study

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ABSTRACT

Introduction: People with epilepsy are more likely than the general population to have comorbid psychiatric disorders that include anxiety, depression, and interictal and chronic psychoses. Even though psychiatric comorbidity is common in epilepsy, it is underrecognized and undertreated, both in specialty epilepsy centers and also in community-based services. A thorough assessment of this was sought in this study among the patients of Rohilkhand region of Uttar Pradesh (India).

Materials and methods: A total of 100 patients with epilepsy who visited the psychiatry outpatient clinic were recruited for this study. They were assessed in detail for the presence of comorbid psychiatric disorders on Axis 1 with the help of Structured Clinical Interview for Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorders.

Results: Overall, it was found that a comorbidity of psychiatric disorders was present in 45% of patients with epilepsy. The frequency of cooccurrence of different types of psychiatric disorders was as follows: Mood disorders 21%, anxiety disorders 14%, and psychotic disorders 28%.

Conclusion: Psychiatric comorbidities were found to be a common problem in patients with epilepsy. The results of this study are in line with many different research works both in India and abroad. A proper address of this issue is important for management, better outcome, and policy making in patients with epilepsy.

Keywords: Axis 1 disorders, Comorbidity, Epilepsy, Psychiatric disorders.

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INTRODUCTION

Epilepsy is a chronic disorder characterized by intermittent, stereotyped disturbance of consciousness, behavior,

emotion, motor function, or sensation that on clinical grounds is believed to result from cortical neuronal discharge.¹ It is the second most common neurological condition after headache.² At least 50 million people in the world suffer from recurrent nonprovoked seizures. The incidence (20–70 cases per 100,000/year), point prevalence (5–10 cases per 1,000), and lifetime prevalence (2–5%) in industrialized countries² emphasize its numerical importance. The World Health Organization and the International League against Epilepsy (ILAE) have estimated that 34 million out of 50 million people with epilepsy live in developing countries.³ It is estimated that in India, with a population of over 1.2 billion, there will be around 6 to 10 million people with epilepsy, accounting for nearly 1/5th of global burden.⁴

People with epilepsy are more likely than the general population to have comorbid psychiatric disorders that include anxiety, depression, interictal and chronic psychoses, and aggression, with reported rates in chronic epilepsy ranging from 19 to 62%.⁵⁻⁷ In some instances, it has been possible to test the hypotheses that (1) psychiatric disorder is associated with an increased risk for developing the neurological disorder, and (2) the neurological disorder is associated with an increased risk for developing a new-onset psychiatric disorder.⁸ Epileptic activity in the brain has an effect on the behavior, mood, and cognitive functions of the patient.⁹ It is important for clinicians to know which psychiatric disorders are most likely to coexist with epilepsy so that they may specifically probe for these conditions when evaluating the patient.

Psychiatric symptoms can be classified according to their temporal relationship with seizure occurrence. They can be divided into peri-ictal (related to the seizure itself) and interictal (independent of the seizure) symptoms. Peri-ictal symptoms are symptoms that precede the seizure (preictal), clinical manifestations of the seizure itself (ictal), and symptoms that follow the seizure directly (postictal). Since the present study concerns psychiatric comorbidity in epilepsy, only the interictal disorders are focused on.

MATERIALS AND METHODS

This was a hospital-based cross-sectional observational study conducted at the Department of Psychiatry in

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Rohilkhand Medical College & Hospital, Bareilly (Uttar Pradesh, India). With the help of purposive sampling technique, the patients with epilepsy who fulfilled the inclusion and exclusion criteria of this study were enrolled. Such patients came on their own with family members or were referred from other departments for further psychiatric evaluation. Diagnosis of epilepsy was made clinically using the guidelines on classification of seizures, given by the ILAE, after which a thorough physical examination was done; neuroimaging and other relevant investigations were performed as and when required. The duration of this study was 1 year (September 2014 to August 2015). It was ensured that the adult (>18 years) patients diagnosed with epilepsy, in the interictal period, were included in the study. The patients who were physically unfit or who were not accompanied with at least one reliable informant were excluded from the study. Informed consent was taken and patients were administered following tools of assessment.

Sociodemographic and Clinical Data Sheet (Self-prepared)

This was specially prepared for noting down the social, demographic, and clinical variables of the patient, including case record number, age, sex, marital status, religion, education level, occupation, residence, socioeconomic status, type of family, type of seizures, etiology of seizure, age of onset of seizures, duration of epilepsy, seizure frequency, family history of seizure, family history of mental disorder, past history of mental disorder.

Structured Clinical Interview for DSM-IV

The Structured Clinical Interview for Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) Axis I disorders (SCID I)¹⁰ is a semi-structured interview for making the major DSM-IV Axis 1 diagnoses. The semi-structured interview covers all major psychiatric diagnoses, which meet diagnostic criteria as specified in DSM-IV. Within each section, the diagnosis is assessed for the presence of the symptoms currently (i.e., within the last month) or in the patient's past. For clinical research, patients are assessed using the SCID I clinician-administered version, which is designed to be administered by a clinician or a trained mental health professional. During the course of interview, patients are also asked subjectively whether they had ever been given a psychiatric diagnosis in the past.

Subsequently, the data thus collected were tabulated and statistically analyzed using IBM Statistical Package for the Social Sciences version 21 for Window 8.1 with parametric and nonparametric tests being used as applicable.

RESULTS

Table 1 shows the sociodemographic details of patients suffering from epilepsy. The mean age of the patients was 32.33 (± 9.828) years and these patients were between 18 and 60 years of age. The majority of them were Hindu (77%), of male gender (55%), educated from 1st to 10th standard (53%), married (58%), and unskilled workers (52%) of middle social economic status (71%), nuclear family type (64%), and urban (44%) background of Uttar Pradesh state of India (88%).

Table 2 shows clinical details of patients with epilepsy. Mean age of onset of seizures was 21.33 \pm 8.58 years, while the mean total duration of epilepsy was 5.72 \pm 4.01 years. In the current study, 45% of the patients were found to be suffering from complex partial seizure, while 35% had generalized tonic-clonic seizure, and 17% had secondary generalization; only 3% patients presented with simple partial seizure in our study. The etiology of majority (56%) seizure was idiopathic followed by infections (33%) and others, such as vascular (5%), traumatic (4%), and tumor (2%). The frequency of seizure was one or less than one per month in 21% patients, 2 to 4 seizures per month in 29% patients, 5 to 15 seizures per month in 25% patients,

Table 1: Sociodemographic details of the patients suffering from epilepsy (n = 100)

Sociodemographic variables	Patients with epilepsy (n = 100)	
	Mean \pm SD	
Age in years (18–60)	32.33 \pm 9.828	n (%)
Gender	Male	55 (55%)
	Female	45 (45%)
Religion	Hindu	77 (77%)
	Muslim	17 (17%)
	Sikh	6 (6%)
Marital status	Single	40 (40%)
	Married	58 (58%)
	Divorced	2 (2%)
Education	Illiterate	8 (8%)
	1st–10th Std.	53 (53%)
	Pre-university	18 (18%)
	Graduate	15 (15%)
	Postgraduate or above	6 (6%)
Occupation	Unemployed	10 (10%)
	Unskilled employment	52 (52%)
	Skilled employment	38 (38%)
Residence	Rural	27 (27%)
	Semi-urban	29 (29%)
	Urban	44 (44%)
Socioeconomic status	Low	20 (20%)
	Middle	71 (71%)
	High	9 (9%)
Family type	Nuclear	64 (64%)
	Joint	36 (36%)

SD: Standard deviation

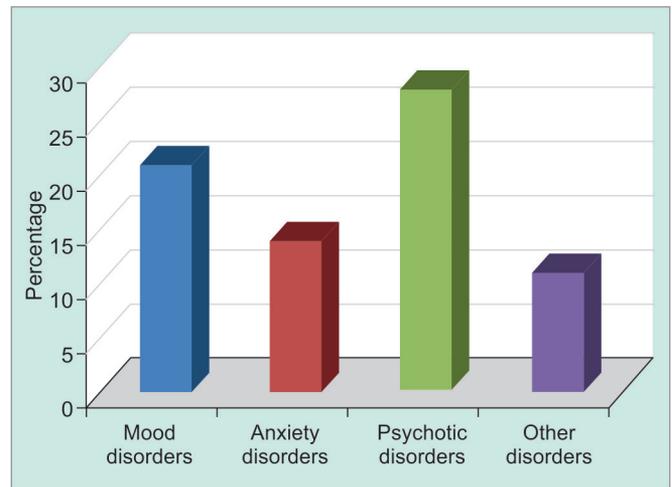
Table 2: Clinical details of patients with epilepsy (n = 100)

		Patients with epilepsy (n = 100)	
Clinical variables		Mean ± SD	
Age of onset of seizure (in years)		21.33 ± 8.58	
Total duration of epilepsy (in years)		5.72 ± 4.01	
Type of seizures		n (%)	
	Complex partial	45 (45%)	
	CPS with secondary generalization	17 (17%)	
	Generalized tonic-clonic seizures	35 (35%)	
Etiology	Simple partial	3 (3%)	
	Idiopathic	56 (56%)	
	Infections	33 (33%)	
	Vascular	5 (5%)	
	Traumatic	4 (4%)	
	Tumor	2 (2%)	
	Seizure frequency	1 or less per month	21 (21%)
2–4 per month		29 (29%)	
5–15 per month		25 (25%)	
16–30 per month		17 (17%)	
More than 30 per month		8 (8%)	
Family history of seizure	No	77 (77%)	
	Yes	23 (23%)	
Family history of mental disorder	No	75 (75%)	
	Yes	25 (25%)	
Past history of mental disorder	No	87 (87%)	
	Yes	13 (13%)	

SD: Standard deviation

16 to 30 seizures per month in 17% patients, and more than 30 per month in 8% of the patients. Family history of seizure in first- or second-degree relative was found in 23% of the patients, while 77% did not have any family history. Family history of some mental disorders was found in 25% of the patients, while 75% of the patients did not have such family history. Past history of mental disorder was found in 13% of the patients, while 87% of the patients had no past history of mental disorders.

Graph 1 shows gross distribution of psychiatric disorders in patients with epilepsy. Table 3 shows the detailed distribution of comorbid psychiatric disorders as per SCID I in the patients with epilepsy. Overall, the frequency of occurrence of different psychiatric conditions was as follows: Mood disorder – 21%, anxiety disorder – 14%, psychotic disorder – 28%, and other diagnosis – 11%. Mood disorders were further classified into major depressive disorder recurrent in full remission – 8%, major depressive disorder recurrent ongoing – 2%, depressive disorder due to a general medical condition (GMC) – 5%, depressive disorder not otherwise specified (NOS) – 3%, dysthymia – 2%, major depressive disorder single episode – 1%. Anxiety disorders were further classified into panic disorder without agoraphobia – 4%, agoraphobia without



Graph 1: Distribution of psychiatric comorbidities in patients with epilepsy on SCID I

Table 3: Distribution of psychiatric comorbidities in patients with epilepsy (n = 100) on SCID I

Psychiatric comorbidity on SCID I	Patients with epilepsy (n = 100) n (%)
Mood disorders	21
• Major depressive disorder recurrent in full remission	8
• Major depressive disorder recurrent ongoing	2
• Depressive disorder due to a GMC	5
• Depressive disorder NOS	3
• Dysthymia	2
• Major depressive disorder single episode	1
• No mood disorder	79
Total	100
Anxiety disorders	14
• Panic disorder without agoraphobia	4
• Agoraphobia without panic disorder	2
• Social phobia	2
• Conversion disorder	2
• Specific phobia	1
• Obsessive compulsive disorder	1
• Posttraumatic stress disorder	1
• Generalized anxiety disorder	1
• No anxiety disorder	86
Total	100
Psychotic disorders	28
• Schizophrenia	2
• Brief psychotic disorder	2
• Psychotic disorder due to GMC with delusions	5
• Psychotic disorder due to GMC with hallucinations	14
• Psychotic disorder NOS	5
• No psychotic disorder	72
Total	100
Other diagnosis	11
• Alcohol abuse/dependence	8
• Benzodiazepine dependence	1
• Opiate dependence	1
• Cannabis abuse	1

panic disorder – 2%, social phobia – 2%, conversion disorder – 2%, specific phobia – 1%, obsessive compulsive disorder – 1%, posttraumatic stress disorder (PTSD) – 1%, generalized anxiety disorder – 1%. Psychotic disorders were further classified into schizophrenia – 2%, brief psychotic disorder – 2%, psychotic disorder due to GMC with delusions – 5%, psychotic disorder due to GMC with hallucinations – 14%, psychotic disorder NOS – 5%. Other disorders diagnosed were: Alcohol abuse/dependence – 8%, benzodiazepine dependence – 1%, opiate dependence – 1%, cannabis abuse – 1%.

DISCUSSION

This was a hospital-based cross-sectional observational study to look into details of comorbid psychiatric disorders in patients with epilepsy. While including the patients in our study, it was ensured they were not in ictal or postictal phase of the epilepsy, as it would have biased the prevalence of psychiatric diagnosis, since during the postictal phase symptoms that resemble psychosis are commonly seen in the patients, which would have then given high false-positive rates of psychosis. Therefore, to enroll the patients for this study, purposive sampling technique was used.

In this study, 45% of participants with epilepsy had a psychiatric diagnosis. Other important studies from India and abroad of epilepsy patients have estimated the rates of overall psychiatric morbidity between 23 and 68%.^{11,12} Smaller studies consistently show higher rates of psychopathology in epilepsy, although there is also evidence indicating that psychiatric illness continues to remain underdiagnosed and undertreated in patients with epilepsy.¹³ Studies examining the relationship between psychopathology and epilepsy to date have tended to be small, use a nonrepresentative sample, and have failed to use standardized instruments. The high rate of psychiatric diagnosis in this study, therefore, may be due to the use of standardized diagnostic instrument, thus identifying more cases. The findings of the current study are very similar to those of Pintor et al¹⁴ who found that 45.7% of patients in a tertiary referral center had a SCID I diagnosis. A similar hospital-based cross-sectional study done in North-east India, in which patients with epilepsy were evaluated with Mini International Neuropsychiatric Interview, showed psychiatric comorbidity in 50%.¹⁵ Another study conducted at an urban referral hospital in central India by Saha¹⁶ in which a control group was also included and the diagnostic tool used was Schedules for Clinical Assessment in Neuropsychiatry, the prevalence rate of psychiatric disorders in epilepsy was found to be 44%. In another similar study conducted in South India by Kandeegan et al,¹⁷ which also included control groups, the prevalence rate of psychiatric disorders was

found to be 45%. There are several other studies which show similar prevalence rates of psychiatric disorders in epilepsy, such as 58% by Adams et al,¹⁸ 41% by Gaitatzis et al,⁷ and 37% by Davies et al.¹⁹

Fourteen percent of patients were diagnosed with an anxiety disorder, the most common diagnosis being panic disorder without agoraphobia. In this study, the overall anxiety findings were found to be lower compared with previous published rates of anxiety disorders in large population using SCIDs: 18.4,²⁰ 21.5,¹⁴ and 52.1%.²¹ Whereas many patients with epilepsy experience anxiety or panic-type symptoms preictally or as part of an aura, the use of the SCID identifies those with true panic disorder, i.e., panic symptoms occurring unexpectedly and not due to the direct physiological effect of a GMC. The use of a SCID I diagnostic interview therefore, most likely accounts for this study, identifying a percentage of participants with anxiety disorders being at the lower range of the published figures. We found no evidence that higher seizure frequency predicted an increased likelihood of an SCID diagnosis being made. However, the relatively small number of patients involved in the study may have influenced this.

CONCLUSION

In this study, overall, it was found that a comorbidity of psychiatric disorders was present in 45% of patients with epilepsy. The frequency of cooccurrence of different types of psychiatric disorders was as follows: Mood disorders – 21%, anxiety disorders – 14%, and psychotic disorders – 28%. In mood disorders, major depressive disorder recurrent in full remission was the principal diagnosis (8%), in anxiety disorders, panic disorder without agoraphobia was the main diagnosis (4%), and in psychotic disorders psychotic disorder due to GMC with hallucinations was the most common disorder (14%). The results of this study are in line with many different research works, both in India and abroad. It further emphasizes that healthcare providers need to recognize the burning issue of different aspects of psychiatric comorbidity for management, better outcome, and policy making in patients with epilepsy. This study was a cross-sectional study in which only patients with epilepsy in the interictal state were enrolled and also no control group was used. To overcome these limitations, it is being recommended that further research on this topic should include a larger sample size, inclusion of control group, and a prospective study design.

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