



PSYCHIATRIC COMORBIDITY IN PATIENTS WITH EPILEPSY

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ABSTRACT

Psychiatric comorbidities have long been recognized in people with epilepsy, yet a significant proportion of patients with psychiatric comorbidities remain undiagnosed and untreated. Available data suggest that psychiatric comorbidity occurs in 20–40% of patients with epilepsy, with an even higher incidence in people with treatment-resistant epilepsy and temporal lobe epilepsy. Identifying and treating various comorbid psychiatric disorders is an essential aspect for comprehensive treatment of epilepsy.

Keywords: Epilepsy, Psychiatric comorbidity, Depression, Anxiety

1. INTRODUCTION

Epilepsy is a neurological condition characterized by recurrent seizures. It affects 0.4–1% of the general population, with a higher incidence in males than females. Comorbidity is a condition in clinical practice where several diseases coexist with the same patient at the same time.

Individuals with epilepsy appear to have elevated rates of Axis I disorders according to the DSM, ranging from 19% to 62% ¹ with rates of major depressive episodes from 32% to 48% ².

Both epileptic disorders and their treatment can affect the mental state of patients and produce a wide variety of symptoms. A range of mental health problems can be seen in patients with epilepsy that can lead on to significant distress, dysfunction and impair their quality of life. Neuropsychiatric problems in epilepsy are difficult to diagnose and they are frequently missed or overlooked ³.

Identifying and treating psychiatric comorbidities in epilepsy could be one of the ways to improve a patient’s health status and quality of life, and may help reduce healthcare costs

2. MATERIALS AND METHODS:

A total of sixty cases of epilepsy and sixty controls were recruited for the study. Cases and controls were recruited from the Department of Psychiatry, Rajah Muthiah Medical

College and Hospitals. Study was conducted from April to September in the year 2014. Case control study has been used.

INCLUSION CRITERIA FOR STUDY GROUP:

- Patients with epilepsy of age 16 and 55 years both sex those who are willing to participate in the study.

EXCLUSION CRITERIA FOR STUDY GROUP:

- Epileptic patients with severe physical illness
- Those who are not willing to participate in the study.

INCLUSION CRITERIA FOR CONTROL GROUP:

- Healthy individuals without any significant medical illness including epilepsy those who are willing to participate in the study.

EXCLUSION CRITERIA FOR CONTROL GROUP:

- Persons with any significant severe physical illness.
- Those who are not willing to participate in the study.

3. OBSERVATION AND RESULTS

SOCIO DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE
Table – 1 Age distribution

Age group	Study group		Control group		Total	
	No	%	No	%	No	%
16-25	29	48.3	13	21.7	42	35.0
26-35	16	26.7	24	40.0	40	33.3
36-45	11	18.3	15	25.0	26	21.7
46-55	4	6.7	8	13.3	12	10.0
Total	60	100.0	60	100.0	120	100.0

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Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	9.644	3	0.022

Highest number of cases in the study group is between 16 – 25 years of age and there is a significant difference between the study group and control group with regard to age distribution between 16 – 25 years

Table – 2 Sex Distribution

Gender	Study group		Control group		Total	
	No	%	No	%	No	%
Male	33	55.0	38	63.3	71	59.2
Female	27	45.0	22	36.7	49	40.8
Total	60	100.0	60	100.0	120	100.0

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	0.862	1	0.353

With regard to sex distribution there is no significant difference between study and control group

Table – 3 Domicile

Domicile	Study group		Control group		Total	
	No	%	No	%	No	%
Urban	3	5.0	16	26.7	19	15.8
Semi-urban	10	16.7	23	38.3	33	27.5
Rural	47	78.3	21	35.0	68	56.7
Total	60	100.0	60	100.0	120	100.0

Chi-Square Tests

	Value	Df	Sig.
Pearson Chi-Square	23.957	2	0.000

More number of cases in study group (47) came from rural background when compared to control group where only 21 persons belong to rural background which is statistically significant

Table – 4 Education

Education	Study group		Control group		Total	
	No	%	No	%	No	%
Illiterate	19	31.7	15	25.0	34	28.3
Primary education	26	43.3	23	38.3	49	40.8
secondary education	10	16.7	12	20.0	22	18.3
Degree	5	8.3	10	16.7	15	12.5
Total	60	100.0	60	100.0	120	100.0

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	2.503	3	0.475

There is no significant difference between two groups with regard to educational status

Table – 5 Occupation

Occupation	Study group		Control group		Total	
	No	%	No	%	No	%
Student	6	10.0	11	18.3	17	14.2
Unemployed	21	35.0	15	25.0	36	30.0
coolie	26	43.3	21	35.0	47	39.2
Employed	0	.0	4	6.7	4	3.3
Self employed	7	11.7	9	15.0	16	13.3
Total	60	100.0	60	100.0	120	100.0

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	7.253	4	0.123

In both groups majority comprised of unemployed and coolie workers. There is no significant difference between two groups

Table – 6 Socioeconomic Status

Socioeconomic status	Study group		Control group		Total	
	No	%	No	%	No	%
Upper	0	0	0	0	0	0
Upper middle	1	1.7	4	6.7	5	4.2
Lower middle	4	6.7	16	26.7	20	16.7
Upper lower	21	35.0	19	31.7	40	33.3
Lower	34	56.7	21	35.0	55	45.8
Total	60	100.0	60	100.0	120	100.0

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	12.173	3	0.007

With regard to socioeconomic status majority in the study group (34) belong to lower socioeconomic status when compared to control group where only 21 belong to lower socioeconomic status, which is statistically significant.

Table – 7 Marital Status

Marital status	Study group		Control group		Total	
	No	%	No	%	No	%
Unmarried	21	35.0	16	26.7	37	30.8
Married	32	53.3	41	68.3	73	60.8
Divorced	1	1.7	0	.0	1	.8
Separated	2	3.3	1	1.7	3	2.5
Widowed	4	6.7	2	3.3	6	5.0
Total	60	100.0	60	100.0	120	100.0

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	3.785	4	0.436

Majority of them, 53.3% in study group and 68.3% in control group are married. There is no statistically significant difference between two groups

Table – 8 Family Type

Family Type	Study group		Control group		Total	
	No	%	No	%	No	%
Nuclear	45	75.0	49	81.7	94	78.3
Joint	15	25.0	11	18.3	26	21.7
Total	60	100.0	60	100.0	120	100.0

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	0.786	1	0.375

Seventy five percent of study group and eighty five percent of control group belong to nuclear family. There is no statistically significant difference between these two groups.

Table – 9 Age of Onset

Age of onset (in years)	No. of PWE with mental Illness		No. of PWE without mental Illness		Total No of cases with Epilepsy	
	No	%	No	%	No	%
1-10	1	1.67	5	8.33	6	10.00
11-20	9	15.00	15	25.00	24	40.00
21-30	8	13.33	11	18.33	19	31.67
31-40	8	13.33	2	3.33	10	16.67
41-50	1	1.67	0	0.00	1	1.67
Total	27	45.00	33	55.00	60	100.00

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	8.728	4	0.068

In both epileptic patients with mental illness and without mental illness, the age of onset was mostly between 11 – 30, more numbers in patients without mental illness (26) than Epileptic patients with mental illness (17) which is not statistically significant.

Table – 10 Duration of Illness

Duration of illness (in years)	No. of PWE with mental Illness		No. of PWE without mental Illness		Total No of cases with Epilepsy	
	No	%	No	%	No	%
<1	0	0.00	2	3.33	2	3.33
1-2	6	10.00	5	8.33	11	18.33
2-5	6	10.00	13	21.67	19	31.67
5-10	8	13.33	8	13.33	16	26.67
>10	7	11.67	5	8.33	12	20.00
Total	27	45.00	33	55.00	60	100.00

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	4.448	4	0.349

With regard to duration of epileptic illness majority of cases had the illness from 2 – 10 years. There is no statistically significant difference between these two groups.

Table – 11 Type of Seizure

Type of seizure	No. of PWE with mental Illness		No. of PWE without mental Illness		Total No of cases with Epilepsy	
	No	%	No	%	No	%
Complex partial	12	20.00	15	25.00	27	45.00
CPS with secondary generation	5	8.33	5	8.33	10	16.67
Generalized tonic clonic seizures	10	16.67	11	18.33	21	35.00
Simple partial	0	0.00	2	3.33	2	3.33
Total	27	45.00	33	55.00	60	100.00

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	1.799	3	0.615

Complex partial seizure is the commonest type in epileptic patients both with and without mental illness. Second commonest is Generalized Tonic-clonic Seizure. There is no statistically significant difference between these two groups.

Table – 12 Family History of Epilepsy

Family H/O Epilepsy	No. of PWE with mental Illness		No. of PWE without mental Illness		Total No of cases with Epilepsy	
	No	%	No	%	No	%
No	21	35.00	25	41.67	46	76.67
Yes	6	10.00	8	13.33	14	23.33
Total	27	45.00	33	55.00	60	100.00

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	0.034	1	0.854

Only few of the epileptic patients with and without mental illness have family history of epilepsy and there is no significant difference between these two groups.

Table – 13 Adherence to Treatment

Adherence to treatment	No. of PWE with mental Illness		No. of PWE without mental Illness		Total No of cases with Epilepsy	
	No	%	No	%	No	%
No	10	16.67	20	33.33	30	50
Yes	17	28.33	13	21.67	30	50
Total	27	45.00	33	55.00	60	100

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	3.300	1	0.069

Though are more number of patients with mental illness (17) adhered to treatment when compared to patients without mental illness (13), there is no statistical significance.

Table – 14 Family History of Mental Illness

Family H/O mental illness	No. of PWE with mental Illness		No. of PWE without mental Illness		Total No of cases with Epilepsy	
	No	%	No	%	No	%
No	16	26.67	29	48.33	45	75.00
Yes	11	18.33	4	6.67	15	25.00
Total	27	45.00	33	55.00	60	100.00

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	4.448	4	0.349

In epileptic patients with mental illness there is strong family history (11/27), which is weak (4/33) in epileptic patients without mental illness. There is statistically significant difference between these two groups.

Table – 15 Past History of Mental Illness

Past H/O mental illness	No. of PWE with mental Illness		No. of PWE without mental Illness		Total No of cases with Epilepsy	
	No	%	No	%	No	%
No	22	36.67	30	50.00	52	86.67
Yes	5	8.33	3	5.00	8	13.33
Total	27	45.00	33	55.00	60	100.00

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	1.142	1	0.285

In both epileptic patients with and without mental illness less number of patients showed past history of mental illness, which statistically insignificant.

Table – 16 History of Concurrent Medical Illness

History of concurrent medical illness	No. of PWE with mental Illness		No. of PWE without mental Illness		Total No of cases with Epilepsy	
	No	%	No	%	No	%
No	23	38.33	31	51.67	54	90.00
Yes	4	6.67	2	3.33	6	10.00
Total	27	45.00	33	55.00	60	100.00

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	1.264	1	0.261

Among epileptic patients with mental illness only four of them had concurrent medical illness whereas among epileptic patients without mental illness only two of them had concurrent medical illness, which is statistically insignificant.

Table – 17 Type of Mental Illness

Type of mental illness	No of cases in study group	%	No. of cases in control group	%	P-value
Depression	15	25.00	4	6.67	0.006
Generalized anxiety disorder	6	10.00	2	3.33	0.143
Tobacco dependence	13	21.67	8	13.33	0.230
BPAD	2	3.33	0	0.00	0.154
Somatiform disorder	4	6.67	1	1.67	0.171
Social phobia	3	5.00	1	1.67	0.309
Agoraphobia	3	5.00	0	0.00	0.079
Alcohol dependence	7	11.67	6	10.00	0.769
Panic anxiety disorder	6	10.00	1	1.67	0.051
Dissociative disorder	2	3.33	0	0.00	0.154

In epileptic patients with mental illness Depression contributes major portion (15/27) followed by Tobacco abuse (13/27), Alcohol dependence (7/27), Panic anxiety disorder (6/27), Generalized anxiety disorder (6/27).

In control group 8 out of 60 were abusing tobacco, 6 out of 60 were abusing alcohol and 4 out of 60 showed signs and symptoms of depression.

As far as the mental illness is concerned depression (15/60) is the commonest psychiatric disorder in patients with epilepsy which is statistically significant when compared to control group (4/60).

4.DISCUSSION

The study was carried out by using a case control design. The cases (patients with epilepsy) and controls (healthy individuals accompanying patients with medical illness) were compared over various socio demographic variables. The variables compared are age, sex, marital status, educational status, occupation, socioeconomic status, domicile and family system. The study group was further divided into two groups as epilepsy with mental illness and epilepsy without mental illness. These two groups were further compared with variables like age of onset of epilepsy, duration of epileptic illness, type of seizure, family history of epilepsy, antiepileptic treatment compliance, family history of mental illness, past history of mental illness, presence of other physical illnesses and type of mental illness currently associated with epilepsy.

There is a general agreement that the incidence of neurobehavioral disorders is higher in patients with epilepsy than in the general population. Many researchers have agreed that there is a strong link between neurobehavioral disorders and temporal lobe or complex partial epilepsy.

Multiple interacting biologic and psychosocial factors determine the risk for the development of psychiatric disorders in epilepsy which includes common neuropathology, genetic predisposition, consequences of medical and surgical treatment, primary and (or)

independent psychiatric illness, psychosocial burden of epilepsy etc.

In this study it was found that 45% of people with epilepsy had psychiatric disorders as compared to 21.7% in the control group. This finding is consistent with Hackett R, Hackett L, Bhakta P^{4,5,6,7,8,9-12} whose reports showed a prevalence of 20 – 50 % mental illness in people with epilepsy.

The most common psychiatric diagnosis found in people with epilepsy are mood disorders (28.3%) and neurotic disorders (36.7%) which is accordance with the fact established by Gaitatzis et al 2004a¹³. Among neurotic disorders 22.2 % suffered Generalized Anxiety Disorder, 22.2% suffered Panic anxiety disorder, 22.2 % suffered Phobic anxiety disorder, 7.4% showed features of dissociative disorder, 48.1% abused Tobacco and 25.9% abused alcohol and 14.8 % suffered Somatoform disorder.

Depression comprises about 55.6% of the total psychiatric illnesses and was the most common psychiatric disorder which was found to be associated with epileptic patients in this study. This data is comparable to two previous studies by Kanner AM¹⁴ and Altshuler L¹⁵ in which it is quoted 6 – 30% depression in general population with epilepsy and upto 50% in tertiary centres.

Maximum number of cases (29) were between 16 – 25 years of age of which 8(29.6%) cases had psychiatric disorder, which is consistent with the finding of Amitabh Saha¹⁶ who reported a rate of 23.1% mental illness in epileptic patients between the age of 18 – 25 years.

In this study it was found that female cases had more number of psychiatric disorders (59.2%) than males (40.7%), which is also consistent with the finding of Amitabh Saha¹³ who has reported a 55% of cases in females and 41.5% of cases in males who had psychiatric illness along with epilepsy.

Psychiatric illness was found to be more common among illiterates and people with less than secondary education (46.7%). The number of psychiatric illnesses is found to be increasing with a decline of educational status. The percentage of mental illness among the total illiterate population who participated in the study was 52.6% whereas in people with secondary education it was only 40%.

Major number of people with epilepsy with psychiatric illness are unemployed (44.4%) followed by coolie workers (37%). The percentage of mental illness among the total unemployed population was 57.1% which is the highest, followed by 38.5% in the coolie workers and it was only 28.6% in the self-employed group. This reveals the fact that mental illness is more common in people with epilepsy who are less educated, who come from low socioeconomic status and who are unemployed.

The high number of unemployed population with epilepsy with mental illness also suggests of poor job opportunity to the persons with epilepsy and thus a poor quality of living.

Psychiatric illness was present in 46.6% of people with epilepsy who came from a nuclear family system and 40% in

joint family system. This infers that there doesn't seem to prevail any differences among the incidence of mental illness with regard to the family system.

The percentage of people with epilepsy with mental illness among the total lower socioeconomic status group was 38.2%, Upper lower was 57.1% and lower middle was 50%. These findings are consistent with the study conducted by Amitabh saha (2014).¹⁶

In our study majority of sample 78.3 % of study group and 35 % of control group are from rural background. There is statistically significant difference between both the groups. Within the study group 85% of epileptic patients with comorbid psychiatric disorders is from rural population. This finding is inconsistent with other studies which showed insignificant relationship between comorbid psychiatric disorder and domicile. This may be due to the sample selection as most of the patients who seek treatment in our hospital are from rural and semi urban areas.

There was a 100% rate of psychiatric illness among the cases with epilepsy who were divorced and separated, 75% for widowers, 43.7% for married people and 33.3% for persons who are single. These findings show that psychosocial factors play important role in the onset of psychiatric morbidity also in patients with epilepsy.

With regard to duration of epileptic illness 25% of the patients with epilepsy who developed psychiatric morbidity and 21 % of epileptic patients without mental illness were suffering from epileptic illness for more than 5 years. This difference is not statistically significant. This finding shows that the duration of epileptic illness is not directly proportional to the development of mental illness. This finding is also consistent with the study of Amitabh Saha (2014).¹⁶

In this study 21 out of 60 epileptic patients had GTCS, 27 had CPS and 10 had CPS with secondary generalization. Forty four percent of patients with CPS, 47.6% of patients with GTCS and 50% of patients with CPS with secondary generalization showed comorbid psychiatric disorders. This finding is not statistically significant. This shows that the psychiatric morbidity is not significantly related to any particular type of seizure as found in the study of Amitabh Saha (2014).¹⁶

In this study the age of onset of epileptic illness was 1 -10 years in 10 % of cases, 11 – 20 years in 40% of cases and 21 – 30 years in 31.7% of cases. Seventeen out of 27 epileptic patients with mental illness belong to the age group of 11-30 years and 26 out of 33 belong to same age group in epileptic patients without mental illness. There is no significant difference between these groups. These findings are in accordance with the study of Amitabh Saha (2014).¹⁶

17 out of 27 epileptic patients with mental illness belong to the age group of 11 – 30 years. 26 out of 33 belong to the same age group in epileptic patients without mental illness. There is no significant difference between these two groups.

From our study it has been found that presence of family history of epilepsy is not significantly related to development of mental illness in patients with epilepsy.

The adherence to anti-epileptic treatment is not an important factor in preventing mental illness in epileptic patients. In our study it is found that more number of defaulters in patients without mental illness (66.7%) than in patients with mental illness (37%). It is possible that continuing treatment with anti-epileptics to control seizures may lead to increased psychiatric morbidity. This variable has not been addressed in this study. The therapeutic regime, the dosage and the duration of drug treatment has not been studied individually.

Family history of mental illness is more (40.7%) in epileptic patients with mental illness when compared to 12.1% in epileptic patients without mental illness which is statistically significant. This firmly suggests that there is genetic predisposition, an individual variable in epileptic patients who developed comorbid psychiatric disorder. This finding is consistent with the study of Gaitatzis.A et al 2004¹³.

Among epileptic patients with mental illness only 5 out of 27 and among epileptic patients without mental illness 3 out of 33 had past history of mental illness which is statistically insignificant. This suggests that past history of mental illness is an independent variable which does not necessarily be the causative factor in developing comorbid psychiatric disorder in epilepsy.

Presence of concurrent medical illness has no direct correlation with development of psychiatric disorders in epileptic patients.

5.CONCLUSION:

Comorbid psychiatric disorders are relatively frequent in patients with epilepsy. In spite of high prevalence rate studies conducted in this aspect are very few. Hence this study was conducted to find out the prevalence rate of common psychiatric disorders in epileptic patients. It is found that more than 45% of patients with epilepsy had comorbid psychiatric disorders.

Depression is the commonest disorder associated with epilepsy followed by substance abuse and anxiety disorders. Family history of mental illness, poor socio economic status, poor educational status, living conditions play important role in causation of comorbid psychiatric disorders in epileptic patients.

It is essential to recognize and treat concurrent psychiatric disorders in patients with epilepsy. Thereby we can improve the quality of life, decrease family burden, decrease suicidal behavior, enhance drug compliance, thereby better seizure control.

LIMITATIONS:

The study was conducted with limited sample for a shorter period. This study did not include certain variables like type of drugs, number of drugs and dosage and duration of treatment, EEG recordings of study sample. It is recommended that future studies with different variables with large sample size for a considerable duration is needed to substantiate the findings.

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