

A comparative study of psychiatric comorbidities and quality of life in patients with epilepsy and psychogenic non-epileptic seizures



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ABSTRACT

Background: Epilepsy and psychogenic non-epileptic seizures (PNES) are both common disease entities and psychiatric comorbidities are also high among the sufferers. Studies on the comparison of the levels of comorbidities between the two groups are few in number. **Aims and Objectives:** The aims of this study were to investigate different psychiatric disorders like depression, anxiety, social functioning, and quality of life (QoL) in epilepsy and PNES patients and compare them statistically. **Materials and Methods:** 38 epilepsy and 22 PNES patients were evaluated with clinical history and different tools like the mini international neuropsychiatric interview - 5, Beck's Depression Inventory - 2, state and trait anxiety inventory, Social and Occupational functioning scale for epilepsy and QoL in epilepsy - 31 questionnaire. Comparisons were made between the groups regarding sociodemographic data, scores on different aspects of psychiatric disorders, social functioning, and QoL. **Results:** The majority in the epilepsy group were males, and in the PNES group were females, while younger age group predominates in both groups. There was a high prevalence of depression and anxiety in both groups, while PNES subjects had significantly higher depression and trait anxiety scores. Social and occupational functions were comparable in the two groups, but QoL indexes were significantly worse in the PNES group. **Conclusion:** Findings in this study indicate that psychiatric comorbidities like depression and anxiety disorders are much more common among patients with epilepsy and PNES. Occurrence of depression is even higher among patients with PNES. Both epilepsy/PNES and these psychiatric comorbidities affect Socio-occupational functions and their QoL. Thus, it is very important to look for these psychiatric comorbidities and QoL in these patients and implement proper management protocols to improve their mental health as well as their QoL.

Key words: Psychiatric comorbidities; Quality of life; Epilepsy; Psychogenic non-epileptic seizure; Social and occupational functioning scale for epilepsy; Quality of life in epilepsy - 31; Beck depression inventory - 2; State and trait anxiety inventory

INTRODUCTION

Epilepsy is a common disease. 10–12 million people with epilepsy are estimated to live in India.¹ The prevalence ranges from 3 to 11.9/1000 population²⁻⁴ and incidence from 0.2 to 0.6/1000/year.⁵⁻⁷ Psychogenic non-epileptic

seizures (PNES) are diagnosed in 20–30% of patients referred to epilepsy units.⁸ Recently, the International League Against Epilepsy (ILAE) Commission on Neuropsychobiology Nonepileptic Seizures Task Force published consensus guidelines on the minimum requirements to diagnose PNES.⁹ PNES is also a common

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disorder, with an annual incidence of 1.5–6.17/100000.¹⁰ This is probably an underestimate because it only accounts for a video-EEG-documented diagnosis. The mean age of onset is around 28 years, and young women are at particular risk.¹¹

Although neuro electrophysiologically different activities, epilepsy and PNES share many similarities in clinical features and co-morbidities. Lennox in the 1930's observed that many people with grand mal or petit mal seizures also have disturbances in mood and behavior.¹²

After 2000, many investigations began reporting psychiatric and behavioral problems predated the onset of seizures.^{13,14}

Two common psychiatric disorders, depression and anxiety disorder (AD), are shown in many studies to be more frequent in epilepsy and PNES patients compared to the general population. Fiest et al., found the incidence of depression at 23.1% in current or past years and the lifetime prevalence at 13%.¹⁵ A British study (population-based) showed the prevalence of generalized AD to be 12.5% in epilepsy, with adjusted odds of 2.6 compared to the general population.

Similarly, in PNES, ADs and depression are shown to be significantly high in many studies.

Quality of life (QoL) gets affected in epilepsy and PNES. Many studies at the international level explored the patterns of psychiatric comorbidities and QoL in patients with epilepsy and PNES and compared those in both groups. In our country, few studies have been conducted in this regard. Studies on social and occupational functioning in epilepsy are relatively few in number where seizure frequency was shown to be an important determinant of social functioning.

Aims and objectives

The aims and objectives of the study are to compare the (1) sociodemographic profile, (2) psychiatric comorbidities, (3) social functioning, and (4) QoL in patients with epilepsy and PNES.

MATERIALS AND METHODS

A hospital-based cross-sectional descriptive study was conducted in the departments of psychiatry and neurology in North Bengal Medical College from October 2020 to September 2021, involving a total of 60 patients. The minimum sample size was calculated using "OpenEpi," free software provided by the Center for Disease Control and Prevention in Atlanta. Both male (n=32) and female (n=28) patients between the ages of 18 and 60 whose diagnoses

were confirmed by a neurologist and a psychiatrist with appropriate diagnostic studies like EEG or video-EEG (where necessary) were included in the study. Informed consent was obtained from each subject.

Patients with chronic comorbid physical illness, a history of psychiatric illness before the onset of epilepsy or PNES, cognitive impairment except for mild to moderate intellectual disability (ID), and substance use disorders were excluded from the study.

After getting approval from the Institutional Ethical Committee, data collection was started on the basis of individual interviews. Sociodemographic profile was collected using a semi-structured proforma. The Mini International Neuropsychiatric Interview Version 5 (MINI-5)¹⁶ was administered to assess psychiatric comorbidities such as major depressive disorder, (MDD), AD, and mixed anxiety-depressive disorder. Beck depression inventory version 2 (BDI-II)¹⁷ was used to evaluate the severity of depression in the study population, both in the epilepsy and PNES groups. The BDI-II score was interpreted as (a) 0–13 (minimal depression), (b) 14–19 (mild depression), (c) 20–28 (moderate depression), and (d) 29–63 (severe depression). The state and trait anxiety inventory (STAI)¹⁸ was applied to assess the spectrum of anxiety in the study population.

QoL in epilepsy - 31 (BDI-31) (Cramer et al., 1998),¹⁹⁻²² an abbreviated version of the QOLIE-89, comprising 7 subscales, was used to assess the health-related QoL of both groups of patients.

The Social and Occupational Functioning Scale for Epilepsy (SOFSE)²³ (scale added in the footnote section), a brief but psychometrically sound and easy-to-administer scale with 30 items in 6 dimensions, was applied to assess the social functioning of our subjects.

Statistical analysis

The collected data were checked for consistency and, after completeness, entered into the statistical software SPSS version 21 data sheet, and the data were processed, enlisted, tabulated, and analyzed using the same. Data were presented using the principles of descriptive statistics in the form of frequency and percentage, as well as with suitable tables and diagrams. Nominal data was expressed as means; a chi-square test and paired t-test were applied to test the significance, and P<0.05 was considered statistically significant.

RESULTS

Table 1 shows the distribution of sociodemographic variables among the study population as a whole. Male

patients are higher in number, and the most common age group is 18–20 years. Bengali is the most commonly spoken language here and also the mother language. Most people hail from rural areas, and Hinduism is the most commonly followed religion here. The number of unmarried participants is higher than that of married ones.

Table 1: Sociodemographic data (n=60)

Variables	Frequency	Percentage
Gender		
Male	32	53.34
Female	28	46.66
Age years		
18–20	24	40
21–30	21	35
31–40	8	13.33
41–50	6	10
51–60	1	1.67
Language		
Bengali	45	75
Hindi	11	18.33
Nepali	3	5
English	1	1.67
Residence		
Rural	42	70
Urban	18	30
Religion		
Hinduism	39	65
Islam	20	33.33
Christianity	1	1.67
Marital Status		
Unmarried	34	56.67
Married	24	40
Widowed/Divorcee	2	3.33

Psychiatric comorbidities among epilepsy and PNES group - (assessed by MINI-5)

Among epileptics, 23 (60.5%) had no psychiatric comorbidities; 7 (18.4%) had MDD; 4 (10.5%) had AD; 1 (2.6%) had mild ID; 2 (5.3%) had mixed MDD+AD; and 1 (2.6%) had adjustment disorder.

Among PNES, 5 (22.7%) had no psychiatric comorbidity; 11 (50%) had MDD; 1 (4.5%) had AD; 3 (13.6%) had MDD+AD; 1 (4.5%) had post-traumatic stress disorder; and 1 (4.5%) had bipolar disorder.

Table 2 shows 9 out of 38 patients in the epilepsy group and 14 out of 22 PNES patients had depression. The PNES group had significantly higher depression compared to the epilepsy group ($P=0.024$).

Table 3 shows among epilepsy patients, 15.8% had state anxiety, and 21.1% had trait anxiety. In the PNES group, 22.7% had state anxiety and 45.5% had trait anxiety. Trait anxiety is significantly higher in the PNES group compared to the epilepsy group ($P=0.047$).

Overall, scores of 69.05 and 57.90 in the epilepsy and PNES groups, respectively, with $P=0.038$, show significant poorer QoL in PNES. Overall, QoL (OQoL), emotional well-being (EWB), and energy scores (ES) are significantly lower in the PNES group (P -values being 0.001 and 0.009, respectively) (Table 4).

Table 2: Distribution of study cases according to severity of depression (diagnosed by MINI-5 and severity by BDI-2) (n=60)

Variables	Seizure or PNES		Total (n=60) (%)	Chi-square value	P-value
	Epilepsy (n=38) (%)	PNES (n=22) (%)			
BDI-2 Score					
Normal	29 (76.3)	8 (36.4)	37 (61.7)	9.468	0.024*
Mild	3 (7.9)	5 (22.7)	8 (13.3)		
Moderate	3 (7.9)	5 (22.7)	8 (13.3)		
Severe	3 (7.9)	4 (18.2)	7 (11.7)		
Total	38 (100)	22 (100)	60 (100)		

df=3, *Normal as diagnosed by MINI-5. * $P<0.05$ significant, MINI: Mini international neuropsychiatric interview, BDI: Beck depression inventory, PNES: Psychogenic non-epileptic seizure

Table 3: Occurrence of state and trait anxiety in cases with epilepsy (n=38) and PNES (n=22)

STAI	Seizure or PNES (% Within category)		Total (%)	Chi-square test	df	P-value
	Epilepsy (%)	PNES (%)				
State anxiety						
Absent	32 (84.2)	17 (77.3)	49 (81.7)	0.448	1	0.503
Present	6 (15.8)	6 (22.7)	11 (18.3)			
Trait anxiety						
Absent	30 (78.9)	12 (54.5)	42 (70.0)	3.951	1	0.047*
Present	8 (21.1)	10 (45.5)	18 (30.0)			

* $P<0.05$ significant, PNES: Psychogenic non-epileptic seizure, STAI: State and trait anxiety inventory

Table 4: Comparison of QOLIE-31 sub-scores among patients with epilepsy (n=38) and PNES (n=22)

QOLIE-31 domains	Epilepsy (n=38) Mean±SD	PNES (n=22) Mean±SD	F	t	P-value
Domains					
Seizure worry	62.23±31.81	57.43±29.06	0.642	0.581	0.564
Overall quality of life	59.34±23.63	45.82±24.02	0.023	2.124	0.038*
Emotional well-being	67.53±22.78	47.55±20.56	0.145	3.39	0.001**
Energy	65.79±23.44	49.55±21.04	0.402	2.683	0.009**
Cognitive function	72.72±30.74	64.30±26.62	0.703	1.073	0.288
Medication side effects	88.46±19.68	94.09±12.81	4.966	-1.201	0.235
Social function	73.89±24.59	71.00±26.53	<0.001	0.427	0.671
Overall score	69.05±20.61	57.90±17.66	0.862	2.125	0.038*

df=58. *P<0.05, **P<0.01 significant, PNES: Psychogenic non-epileptic seizure

Table 5: Comparison of SOFSE scores between epilepsy (n=38) and PNES (n=22) groups

SOFSE Domains	Epilepsy (n=38) Mean±SD	PNES (n=22) Mean±SD	F	t	P-value
Domains					
Interpersonal relationship	88.59±15.72	84.87±18.52	1.527	0.829	0.41
Communication	76.81±24.66	80.39±17.59	1.625	-0.597	0.553
Social activities	57.19±23.89	61.19±22.58	0.075	-0.638	0.526
Leisure activities	52.19±39.93	52.10±27.38	10.13	0.01	0.992
Instrumental skill	74.29±19.21	72.50±21.41	0.001	0.333	0.74
Occupation	72.10±25.05	64.39±23.68	0.006	1.173	0.246
Overall	69.27±18.29	71.30±13.86	1.437	-0.451	0.654

df=58, PNES: Psychogenic non-epileptic seizure, SOFSE: Social and occupational functioning scale for epilepsy

Table 6 shows all the subscales in SOFSE have average scores close to each other in both categories, suggesting no significant difference in social function among the study population.

DISCUSSION

The current study was conducted to detect and compare the psychiatric comorbidities between subjects with epilepsy (n=38) and PNES (n=22). In the epilepsy group, the majority (71.1%) was male, and in the PNES group, 77.27% were female. Among epilepsy, the most common age group was 21–30 years, followed by 18–20 years, whereas in the PNES group, the most common age group was 18–20 years, followed by 21–30 years, which was supported by other studies in India.

Our study found 30% of subjects suffering from depression, comprising 23.9% from epilepsy and 63.6% from the PNES category. This was supported by studies from India and abroad.^{24,25}

Anxiety states accessed by the STAI scale showed no significant difference in state anxiety in the two groups but trait anxiety was significantly higher in PNES group (P=0.047). This was supported by the study by Dimaro et al.²⁶

We compared social and occupational functioning in epilepsy and PNES using the SOFSE scale and found no significant difference in overall social and occupational

functioning as well as in any of the sub-domains between the comparison groups. There is a scarcity of studies at the national and international level in this regard though there are studies comparing social and occupational functioning between seizure-free and non-seizure-free subjects among epileptics.²⁷

The QOLIE-31 scale was applied to compare different aspects of QoL between the epilepsy and PNES groups. OQoL, EWB, ES, and QOLIE TS (total score) were significantly better in the epilepsy group. Seizure worry, cognitive function, and medication side effects scores showed no significant difference. All these findings are partly supported and partly contradicted by national and international studies in this regard.^{28,29}

Here, we need a study in the future with a larger population.

Limitations of the study

1. The population size of the study was small, and the time period was short. Long-term prospective studies with a large study population are necessary in this regard.
2. A multi-centric study involving rural and urban population would produce a clearer result in this aspect.

CONCLUSION

Findings in this study indicate that psychiatric comorbidities like depression and ADs are much more common

among patients with epilepsy and PNES. Occurrence of depression is even higher among patients with PNES. Both epilepsy/PNES and these psychiatric comorbidities affect social-occupational functions and their QoL. Thus, it is very important to look for these psychiatric comorbidities and QoL in these patients and implement proper management protocols to improve their mental health as well as their quality of life.

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