

## Cross-Sectional Study to Assess Proportion of Depression Anxiety and Quality of Life in Patients with Seizure Disorder in a Tertiary Care Hospital

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### ABSTRACT

**Background:** Seizure disorder is a chronic condition marked by repeated, frequently unpredictable seizures that might interfere with daily activities as usual. At least one-third of people with active epilepsy experience severe emotional well-being impairment. According to a few authors' studies, the lifetime prevalence of depression in people with epilepsy might reach up to 55%. In fact, it is widely known that patients with epilepsy and depression have a higher rate of suicide than the overall population. In studies of epilepsy conducted in hospitals and in communities, inter-ictal anxiety disorders were found to be prevalent between 10 and 25 percent of the time. In various studies, the prevalence of anxiety ranges from 15% to 27%, and that of depression from 9% to 55%. More research is required to close this information gap regarding the incidence of these symptoms. Therefore, it is important to assess these psychiatric problems in seizure disorder in order to make an early diagnosis, initiate treatment, and improve the quality of life for the patient. **Aims:** 1. To determine the prevalence of anxiety and depression in seizure disorder. 2. To assess the quality of life in patients with seizure disorder. **Method:** IPD/OPD patients in Bangalore's Sathagiri Institute of Medical Sciences' department of psychiatry. We determined a sample size of 100 and took into account inclusion criteria of patients aged between 18 and 65 years, patients with seizure disorder, and exclusion criteria of patients who refused to give written informed consent. It is a cross sectional descriptive study with a study period of 1.5 years in a tertiary care hospital. severe intellectual handicap, psychotic problems, active acute medical conditions, and extensive history of neurosurgery. **Results:** There were 100 participants, with a mean age of 30.16 years for women and 33.63 years for men. 27% of people displayed medium to severe anxiety, whereas 21% displayed mild to moderate depression. Anxiety and depression were shown to be more common in females, unmarried people, those from metropolitan

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backgrounds, and people with partial epilepsy. Those with partial epilepsy had significantly ( $p=0.020^*$ ) more anxiety than patients with generalised epilepsy. Significant correlations between QOL and seizure frequency were also found.

**Keywords:** *PWE, epilepsy, seizure, seizure disorder, depression, anxiety, quality of life.*

**A**ncient diseases that have been there for a very, very long period are connected to the history of seizure disorders. Epilepsy is a family of several disease processes rather than a single illness or ailment. Epilepsy and psychiatric comorbidity may also have a seriously negative impact on a person's quality of life, ability to work, and ability to avoid stigma as well as suicide<sup>1</sup>. Early detection and treatment of psychiatric morbidities by engaging psychiatrists as members of the EPILEPSY TEAM may lead to a better outcome.<sup>1,2</sup>

In a study, the QOLIE-31 was given to 93 persons with epilepsy and 102 age- and sex-matched controls in order to evaluate the impact of seizure severity and independence from seizures on HRQOL of people with epilepsy in Sub-Saharan Africa. A perceived stigma scale with three items was used. Seizure severity and mean total HRQOL score had a moderately negative link, and scores on the subscales of seizure worry from one year had considerably higher preference-based HRQOL scores.<sup>3</sup>

### **METHODOLOGY**

Epilepsy patients were recruited for a cross-sectional out-patient study who all attended the Out-Patient Epilepsy Clinic at the Department of Psychiatry. During the course of the study, 111 patients were assessed, of whom 100 were enrolled and 11 were excluded. 57 male and 43 female patients with idiopathic epilepsy who were between the ages of 18 and 60. Patients had to have had epilepsy for more than 12 months and have been seizure-free for the previous 72 hours in order to be eligible for the trial.

Patients were excluded from the study if they had depression or anxiety prior to receiving an epilepsy diagnosis, a substance use disorder that was associated with it, or any other mental illness, if they had a serious illness that required immediate medical attention, if they had a chronic medical condition that required surgery, or if they were taking proconvulsant medication. The Hamilton rating scale for depression (HDRS) and the Hamilton rating scale for anxiety (HARS) were then used to assess each subject.<sup>4,5</sup>

#### ***Statistical analysis***

By comparing groups according to parameters, descriptive statistics were used to analyse the results. Quantitative data were summarised as mean and SD whereas discrete (categorical) data were expressed as proportions and percentages (%). We compared proportions using the chi-square ( $\chi^2$ ) test. Statistical significance was defined as a two-sided ( $\alpha = 0.05$ )  $p < 0.05$ . SPSS version 18 and MS-Excel were both employed as analysis tools.

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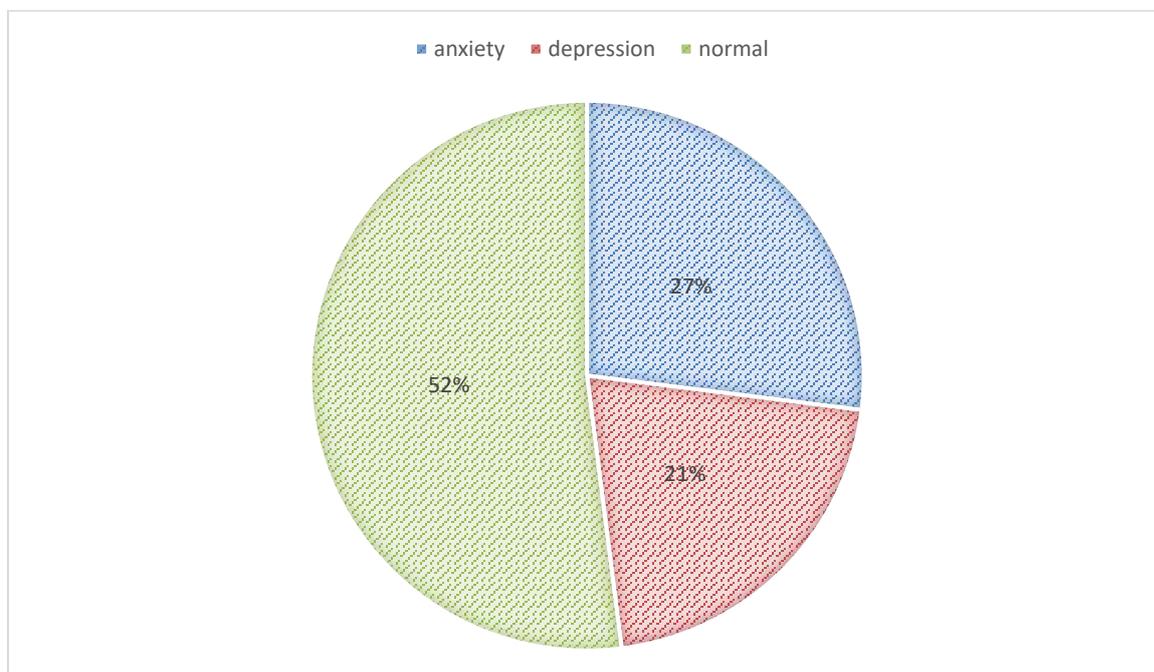
**RESULTS**

*Sociodemographic variables*

**Table 1: Sociodemographic variables**

<b>Gender</b>	<b>Number (n = 100)</b>
Male	55
Female	45
<b>Mean age</b>	<b>In Years</b>
Male	30.16
Female	33.63
<b>Marital status</b>	
Single	21
Married	71
Separated/divorced/ widow (ER)	8
<b>Domicile</b>	
Rural	36
Semi urban	20
Urban	44
<b>Seizure type</b>	
Partial	59
Generalized	41

In contrast to women who made up 45% of study participants and had a mean age of 33.36 years, Table 1 reveals that the majority of patients (55%) were men with a mean age of 30.16 years. The majority of the study participants were married. 40% and 36%, respectively, of participants came from urban and rural backgrounds, and 20% were from semi-urban areas. 59% of participants had partial seizures, while 41% had generalised seizures.



**Figure 1: Anxiety and depression in patients with epilepsy.**

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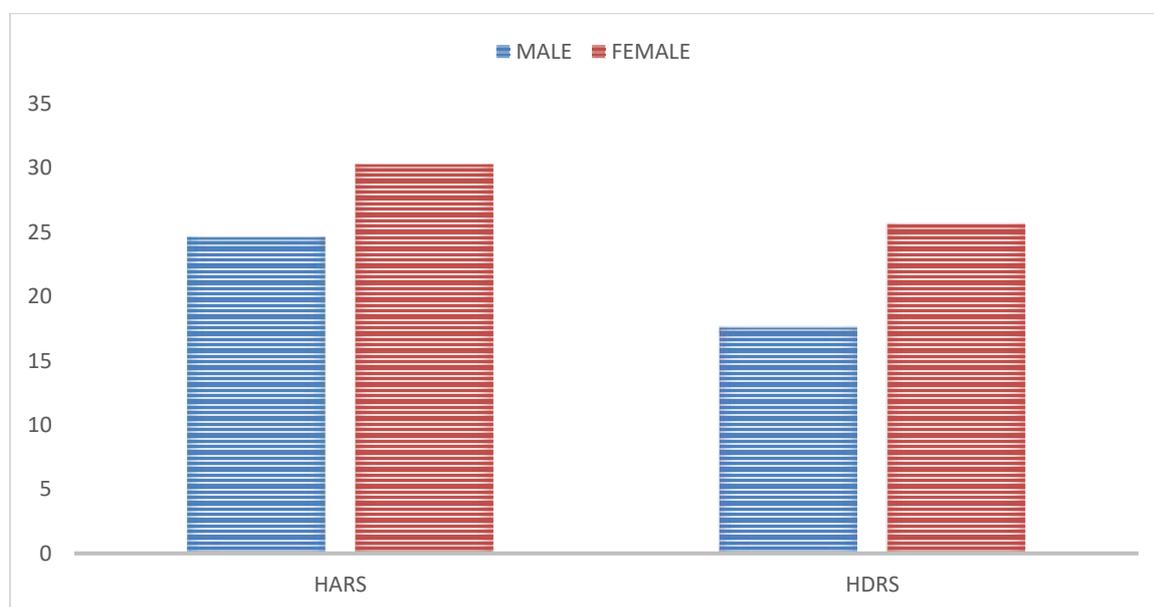
On the HARS scale, 27% of patients had anxiety levels that were above normal, ranging from mild to severe. On the HDRS scale, only 21% of patients reported having mild to major depression. The remaining 52% of subjects did exhibit some signs of depression or anxiety, but they fell within the typical HADS and HARS range (Figure 1).

**Table 2: Anxiety and Depression Prevalence**

Socio demographic profile	HARS	p VALUE	HDRS	p VALUE
<b>Gender</b>				
Male n=55	14	0.54	10	0.32
Female n= 45	11		11	
<b>Marital status</b>				
Married 71	30	0.61	15	0.87
Single 21	23		8	
Divorced 08	4		4	
<b>Domicile</b>				
Rural 36	7	0.83	6	0.68
Semi urban 20	6		6	
Urban 44	12		8	
<b>Seizure type</b>				
Partial 59	25	0.02	15	0.69
Generalised 41	10		7	

**Prevalence of depression and anxiety**

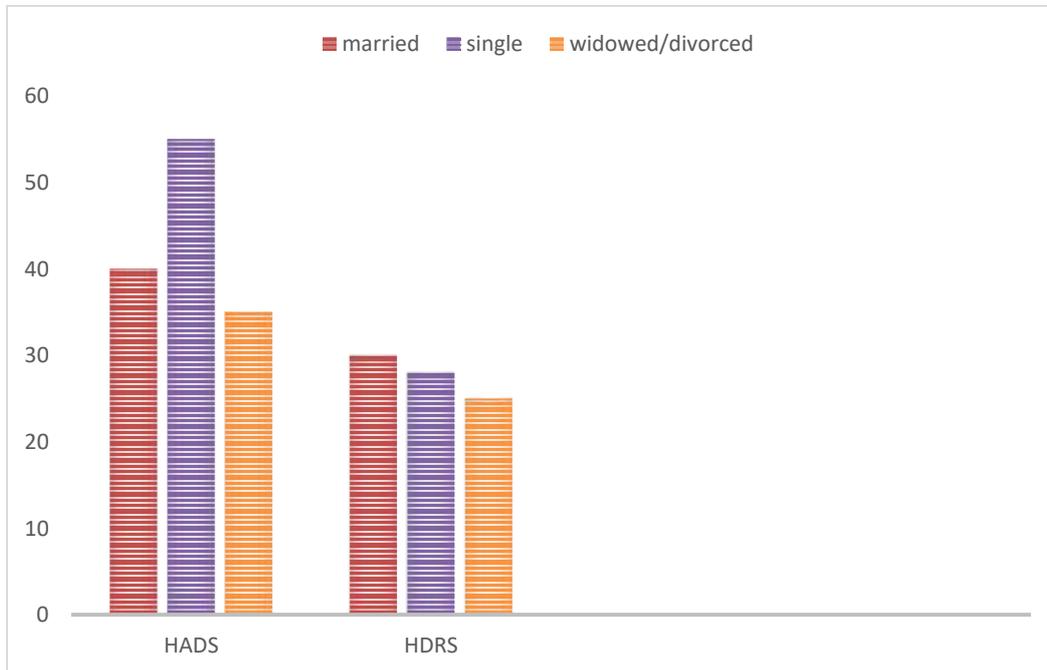
When compared to male patients, who had corresponding prevalences of depression and anxiety of 17.54% and 24.56%, it was shown that female patients had higher rates of both depression (25.58%) and anxiety (30.23%). (Figure 2). The majority of the patients exhibited mild to moderate levels of anxiety and depression. None of the patients had significant depression, although 6.97% of the female patients (n=3) did have severe anxiety. But there was no discernible relationship between depression (p=0.329) or anxiety (p=0.527) and gender (Table 2).



**Figure 2: Prevalence of anxiety and depression according to gender.**

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When the results were broken down by marital status, it was discovered that both married and single patients had high prevalences of anxiety (42.25% and 52.38%, respectively). Additionally, unmarried persons (33.33%) have more depression than married people (28.16%). Participants who had been divorced or widowed also frequently reported having anxiety and depression symptoms (37.5 and 25%, respectively) (Figure 3)

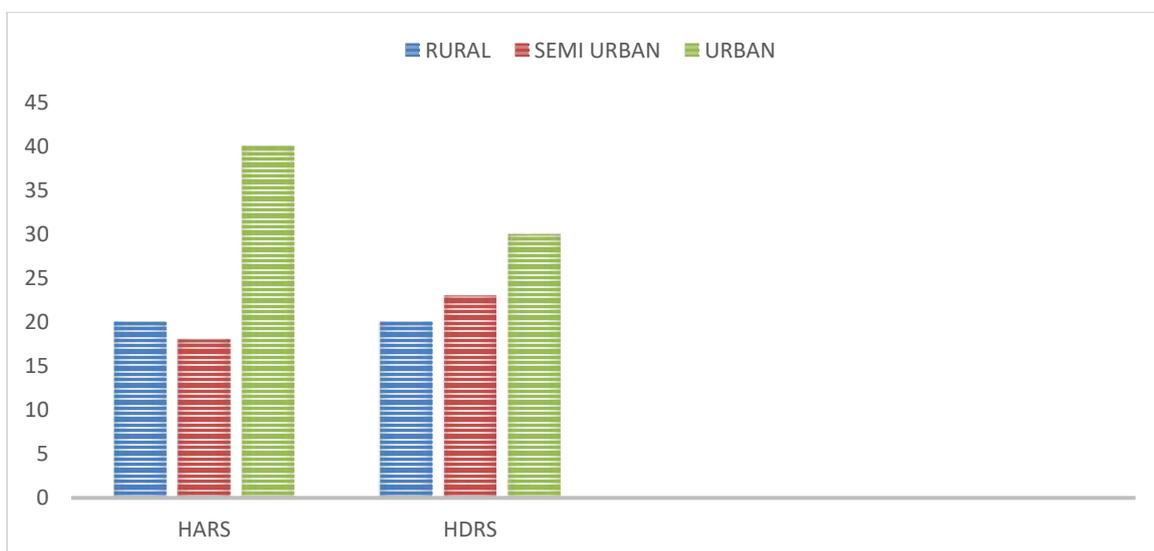


**Figure 3: Prevalence of anxiety and depression according to marital status.**

Here also, no significant correlation was observed between anxiety ( $p=0.662$ ) and depression ( $p=0.870$ ) in relation to marital status of the patients (Table 2).

### **In accordance to domicile,**

Results according to domicile showed that both anxiety and depression was highly prevalent among those from urban background.



**Figure 4: Prevalence of anxiety and depression according to domicile.**

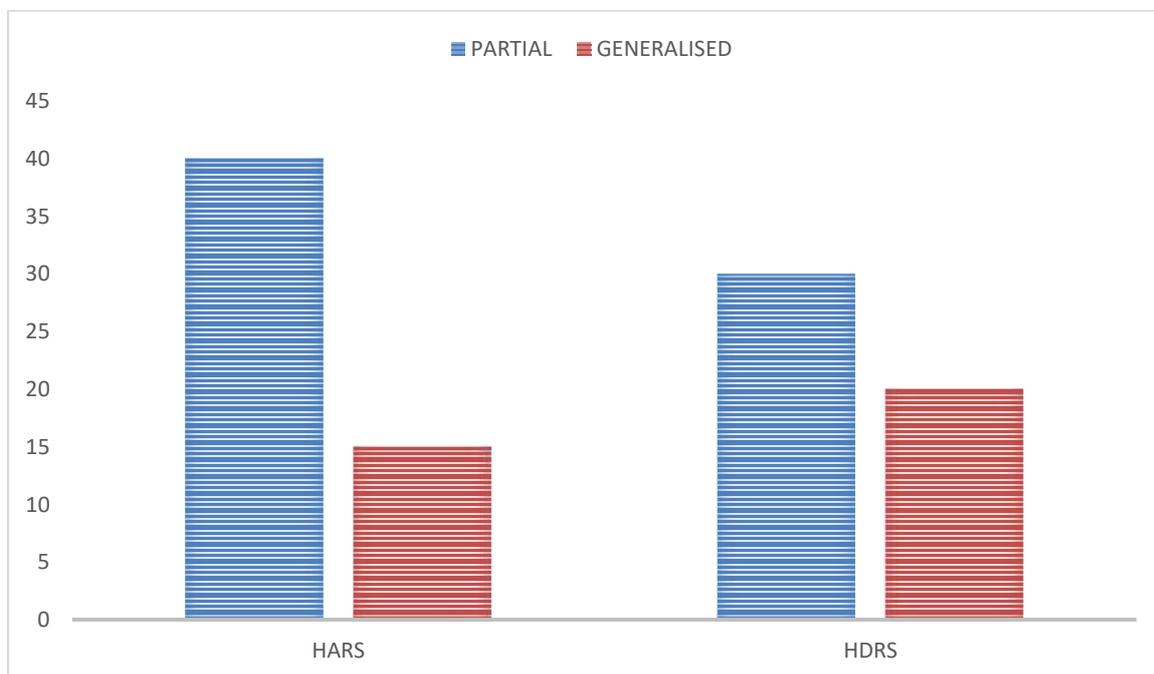
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However, anxiety (35%) was more than depression (22.5%). Similar results were seen in patient from rural background in whom also anxiety (21.05%) was more prevalent than depression (18.42%). Epilepsy patients from semi-urban background shows similar rates of anxiety and depression that is 22.5% (Figure 4).

No significant correlation was observed between anxiety (p-0.897) and depression (p-0.688) and patient with epilepsy according to their domicile (Table 2).

**In accordance to seizure type:**

Upon depicting the results according to seizure type, it was observed that patients with partial seizures had more prevalence of both anxiety (n=22, 34.92%) and depression (n=14, 22.22%) than those with generalized epilepsy. Most of the patients with partial epilepsy had mild to moderate anxiety (n=20, 31.74%) and only 3.17% (n=2) had severe grade of anxiety. In contrast, partial seizures patients scored mild to moderate depressive symptoms on HDRS scale. Most of the patients with generalized epilepsy had mild to moderate anxiety (n=4, 10.81%) and depression (n=7, 18.91%) on HARS and HDRS scale respectively (Figure 5).



**Figure 5: Prevalence of anxiety and depression according to seizure type.**

Significantly (p-0.020\*) higher anxiety was seen in patients with partial epilepsy than those with generalized epilepsy. However, in contrast no significant correlation was observed between depression (p-0.695) and between the two-epilepsy types (Table 2).

**Distribution of samples based on SEIZURE TYPE VS QUALITY OF LIFE**

Seizure Type	N	Mean	S.D	Chi Square	Significance
Generalised	74	66.35	9.83	1.437	P>0.05ns
Partial	26	72.14	10		
Total	100	67.6	9.33		

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According to the aforementioned table, the mean score generalisation was 66.35, while the mean score for the partial seizure types was 72.14, indicating a high quality of life. The chi square is not significant at the 0.05 level, hence the observed difference is not significant.

***Distribution of samples based on SEIZURE DURATION VS QUALITY OF LIFE***

Seizure Duration	N	Mean	S.D	Chi Square	Significance
(< 5yrs)	24	68.9896	11.61555	0.955	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		

From the above table, 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 ratios not significant at 0.05 level.

***Distribution of samples based on SEIZURE FREQUENCY VS QUALITY OF LIFE***

Seizure Frequency	N	Mean	S. D	Chi Square	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		

From the above table , 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 Fratio is significant at 0.05 level.

**DISCUSSION**

In the current study, 27% of epilepsy patients reported anxiety, while 21% reported depression. According to several research, the prevalence of anxiety in epilepsy patients ranges from 15% to 28%. Similarly, the prevalence of depression in epilepsy patients ranges from 9% to 55%, according to various studies.

The authors of the current cross-sectional outpatient investigation discovered that anxiety was more common than depression. The severity of anxiety symptoms was higher.<sup>6-9</sup>

Depression is characterised primarily by mild to moderate grades. In their studies, Angeli et al. and Fiordeli et al. reported the same result<sup>10,11</sup>. These findings, however, were at odds with data from multiple studies by Ettinger et al., Gaitatziz et al., and Strine et al. that revealed mood disorders, particularly depression, were more common than anxiety disorders.<sup>12-14</sup>

Compared to men, women were more affected by comorbid conditions such anxiety and depression. This finding was consistent with a 2010 study by Toth et al. On anxiety and depression severity ratings, women score higher than men do. One of the causes may be that

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men have an advantage over women in this area because men are the family breadwinners and possess better coping mechanisms. Additionally, family members were restrained and did not seek therapy for female patients.

Contrary to rural communities, it was found that urban and semi-urban inhabitants had higher levels of anxiety and depression symptoms.

This research supported the idea that fewer psychosocial support, unemployment/absenteeism from job, concerns, and relatively less support in nuclear families among urban residents play a part in this. People from rural backgrounds also believe that fate and god's will are to blame for their illnesses.

Additionally, a number of studies—including those by Perini et al, Dikmen et al, Rodin et al, and Shukla et al—have highlighted those individuals with partial epilepsy experience depression and anxiety more frequently than those with generalised epilepsy.<sup>15-17</sup>

The results of the current investigation were consistent with those of the aforementioned researchers because it was discovered that co-morbid anxiety and depression were twice as common in partial epilepsy than in generalised epilepsy. It was found that temporal lobe involvement may be linked to higher affective alterations. Patients with partial epilepsy have a higher likelihood of acquiring aura, which causes anticipatory anxiety, because of this temporal lobe association. This provides a logical explanation for the melancholy and anxiety experienced by people who have partial seizures.

Seizure frequency predicts psychiatric morbidity, according to David.F. Smith et al. (1991). Our study's statistically significant findings that seizure frequency promotes psychiatric morbidity were in line with this study's findings. According to Deirdre P., et al. (2008), stigma and seizure frequency predict patients' quality of life. Seizure frequency and seizure type predict quality of life, according to Baker GA., et al. This study's findings are consistent with our own, which showed that epilepsy patients with poor quality of life experienced more frequent seizures.

Contrarily, in our study, seizure type had no statistically significant impact on the participants' quality of life. In our study, patients with higher levels of literacy had better life quality than illiterate epileptics, who had worse quality as seen from the table. However, this result was at odds with L.S. Boylan et al 2003.'s discovery that depression does not predict seizure frequency but rather quality of life.

This study had a number of drawbacks. One drawback was the use of a limited sample size and data gathered from a tertiary epilepsy center. Additionally, we examined the point prevalence rates rather than the lifetime prevalence rates for both psychiatric diseases., although it is unlikely that making the comparisons utilizing the life time prevalence would have yielded different results.

### **CONCLUSION**

In conclusion, the present study showed that individuals with partial epilepsy are more prone to comorbid disorders like depression and anxiety, with females commonly affected more than males.

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Such psychiatric morbidities like depression and anxiety frequently go unrecognized and untreated, while it should also be addressed while evaluating the patients with epilepsy. Advances in understanding the psychiatric comorbidity in epilepsy will improve the overall treatment and quality of life of patients with epilepsy.

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***Conflict of Interest***

The author(s) declared no conflict of interest.

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