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Bushra Khalid
Pakistan Institute of Medical Sciences, Islamabad, Pakistan

Zaid Waqar
Pakistan Institute of Medical Sciences, Islamabad, Pakistan

Zakir Jan
Pakistan Institute of Medical Sciences, Islamabad, Pakistan

Soban Khan
Pakistan Institute of Medical Sciences, Islamabad, Pakistan

Amina Saddiqa
Pakistan Institute of Medical Sciences, Islamabad, Pakistan

See next page for additional authors

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Authors

Bushra Khalid, Zaid Waqar, Zakir Jan, Soban Khan, Amina Saddiqa, Anum Irfan, Waleed Malik, Samer Naik, Naheed Afzal, and Hira Abbasi

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PSYCHIATRIC COMORBIDITY IN PEOPLE WITH EPILEPSY

Bushra Khalid[1], Zaid Waqar[1], Zakir Jan[1], Soban Khan[1], Amina Saddiqa[1], Anum Irfan[1], Waleed Malik[1], Samer Naik[1], Naheed Afzal[1], Hira Abbasi[1]
[1]*Pakistan Institute of Medical Sciences, Islamabad*

Corresponding author: Zaid Waqar *Department of Neurology, Pakistan Institute of Medical Sciences, Islamabad* ***Email:*** *chikky789@gmail.com*

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ABSTRACT

Background and Objective:
People with epilepsy often experience psychiatric comorbidity. This study aims to investigate the relationship among seizure regulation, psychiatric comorbidity, and antiepileptic drug use in a group of individuals with epilepsy in Pakistan.

Methods:
This is an observational study conducted at Pakistan Institute of Medical Sciences, over a period of six months (1st June – 31st Dec 2022). One-hundred-twenty people (sample size) with epilepsy above the age of 18 with confirmed diagnosis of epilepsy were included in the study who completed a questionnaire that assessed their seizure control, psychiatric comorbidity, and antiepileptic drug use. Data was analyzed using SPSS version 25

Results:
The majority of participants (80.8%) reported effective seizure control , while 19.2% reported ineffective seizure control . Regarding psychiatric comorbidity, 84.2% of the participants reported some form of psychiatric comorbidity, with depression being the most commonly reported (31.7%). In terms of antiepileptic drug use, 69.2% of the participants reported being on monotherapy, 28.3% reported being on polytherapy, and 2.5% reported not being on any medication.

Conclusion:
People with epilepsy have a significant likelihood of experiencing psychiatric comorbidity which highlights the need for screening and therapy.

Keywords: Epilepsy, seizure regulation, psychiatric comorbidity, antiepileptic drugs, monotherapy, polytherapy

INTRODUCTION

Epilepsy is a neurologic disorder categorized by recurring seizures, affecting over 70 million individuals worldwide.[1] While seizures are the hallmark of epilepsy, many people also experience psychological comorbidities, including depression, anxiety, and cognitive dysfunction.[2] A meta-analysis of 50 studies found that the occurrence of depression was considerably more common in people with epilepsy compared to the general population.[3,4] Similarly, a systematic review of 45 studies found that anxiety conditions were more common in people with epilepsy compared to the general population.[5]

Studies show that people with depression or anxiety have a higher risk of poor seizure regulation.[6,7] Identifying the risk variables linked with psychological comorbidity in people with epilepsy is crucial for developing appropriate screening and therapy protocols.[8] The objective of this analysis is to investigate the prevalence of psychological comorbidity in people with epilepsy, identify the most common types of psychological comorbidities, and explore the risk factors linked with psychological comorbidity. Additionally, this study examined the effect of psychological comorbidity on life satisfaction and seizure regulation among people with epilepsy.

METHODS

This was a cross-sectional observational study that was conducted at Pakistan Institute of Medical Sciences for a period of six months (1st June to 31st December, 2022). This study was approved by the Institutional Review Board of the hospital in Islamabad. Informed

consent was obtained from all participants before their inclusion in the study, and all data was kept confidential. Sample size of 120 was calculated using non-probability random sampling on WHO sample size calculator.

Inclusion criteria included diagnosis of epilepsy by a neurologist according to International League against Epilepsy (ILAE) criteria, aged 18 years or older, and ability to read and understand Urdu or English. Participants were recruited by means of convenience sampling. Data was collected using a structured questionnaire that included questions about demographic information, type of seizure, education, profession, antiepileptic drug use, seizure regulation, psychiatric comorbidity, and MRI findings. Seizure regulation was determined based on self-reported cadence of seizures in the past six months, with effective seizure regulation defined as less than one seizure per month.

Data was analyzed using SPSS version 25. Descriptive statistics were used to summarize the demographic characteristics of the group and the spread of psychiatric comorbidity. Cross-tabulation was used to examine the relationship between seizure regulation and psychiatric comorbidity, as well as between antiepileptic drug use and psychiatric comorbidity. This was used to investigate the potential risk factors linked with psychiatric comorbidity in people with epilepsy.

RESULTS

The results presented in Table 1 show the distribution of the study participants in terms of various demographic and medical characteristics.

Table 1: Cross-tabulation of Seizure regulation and Psychiatric comorbidity

Seizure regulation * Psychiatric comorbidity Cross-tabulation

			Psychiatric comorbidity		Total
			Yes	No	
Seizure regulation	Effective	Count	67	30	97
		% within Psychiatric comorbidity	75.3%	96.8%	80.8%
	Ineffective	Count	22	1	23
		% within Psychiatric comorbidity	24.7%	3.2%	19.2%
Total		Count	89	31	120
		% within Psychiatric comorbidity	100.0%	100.0%	100.0%

Regarding the type of seizure, 60% of the study participants experienced generalized seizures, 24.2% had focal seizures, 10% experienced secondary generalized seizures, and 5.8% of the participants had unspecified seizures. Demographics showed that half our study participants were men and half were women, mean age was 32 with a standard deviation of 13 years. In terms of education, 41.7% of the participants were uneducated, followed by secondary level education (20.8%), and bachelor's degree (11.7%). The rest of the participants had education ranging from primary to masters level. Regarding profession, about one third of the participants were housewives (28.3%), followed by students (19.2%) and unemployed individuals (20%). The rest of the participants had various professions, such as laborers, shopkeepers, paramedics, drivers, clerks, and teachers.

Regarding antiepileptic drug use, 69.2% of the participants were on monotherapy, 28.3% were on

polytherapy, and 2.5% were not on medication. Regarding psychiatric comorbidity, 31.7% of the participants had depression, followed by anxiety (15.8%) and personality disorders (5.8%). The diagnosis of anxiety and depression was established by HAM-A, and HAM-D scores. About 25.8% of the participants had no psychiatric comorbidity. Remaining patients had psychogenic non-epileptic seizures (PNES) (7.5%), IQ deficit (9%) and psychosis (4%). Regarding seizure regulation, 80.8% of the participants had effective seizure regulation, while the remaining 19.2% had ineffective seizure regulation.

Figure 1 summarizes the findings of MRI brain in the study population.

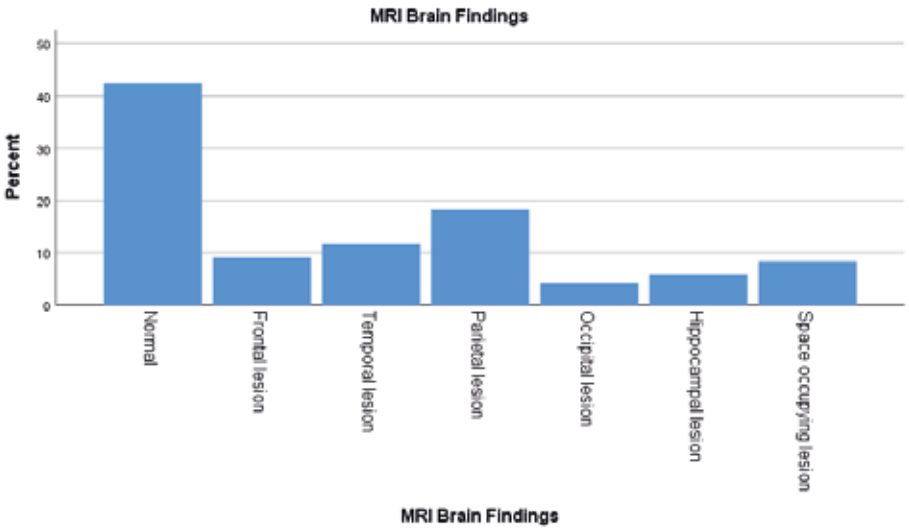

Figure 1: MRI Brain Findings

These results suggest that psychiatric comorbidity is linked with poor seizure regulation in people with epilepsy. The table 2 shows the relationship between antiepileptic drug therapy and psychiatric comorbidity. These results suggest that people on polytherapy have a higher likelihood of having psychiatric comorbidity compared to those on monotherapy.

Table 2: Cross-tabulation of Antiepileptic Drug and Psychiatric Comorbidity

Antiepileptic drug * Psychiatric comorbidity Cross-tabulation

			Psychiatric comorbidity		Total
			Yes	No	
Antiepileptic drug	Monotherapy	Count	55	28	83
		% within Antiepileptic drug	66.3%	33.7%	100.0%
	Polytherapy	Count	31	3	34
		% within Antiepileptic drug	91.2%	8.8%	100.0%
	Not on medication	Count	3	0	3
		% within Antiepileptic drug	100.0%	0.0%	100.0%
Total		Count	89	31	120
		% within Antiepileptic drug	74.2%	25.8%	100.0%

DISCUSSION

This study aimed to investigate the relationship between psychiatric comorbidities and seizure regulation in people with epilepsy. These results suggest that psychiatric comorbidity is linked with poor seizure regulation in people with epilepsy. This finding is consistent with a previous study that has shown a high prevalence of psychiatric comorbidity in people with epilepsy and the negative influence of psychiatric disorders on seizure regulation.[9] The presence of psychiatric comorbidity may lead to non-adherence to antiepileptic medication which could lead to ineffective seizure control .Therefore, these results support the hypothesis that the presence of psychiatric comorbidity is linked with poor seizure regulation in study subjects with epilepsy. Healthcare professionals should consider the assessment and treatment of psychiatric comorbidity as an important aspect of epilepsy management for better seizure control and quality of life .

Our findings suggest that people with epilepsy who had comorbid psychiatric disorders had a lower rate of effective seizure regulation than those without such comorbidities. This is in line with previous studies that have reported a higher prevalence of psychiatric disorders in people on polytherapy of antiepileptic drugs, and those with poor seizure regulation.[10-12] The current study also found a significant association between frontal and temporal lobe lesions and poor seizure regulation, which is consistent with previous studies. [13, 14]

Despite the strengths of this study, including a large group size and the use of logistic regression analysis to control for potential confounding variables, there are several limitations that need to be considered. First, the study was conducted in a single center and may not be representative of the broader population of study subjects with epilepsy. Second, the study design was cross-sectional, which limits the ability to draw causal inferences about the relationship between psychiatric comorbidities and seizure regulation. Third, the study did not consider the duration of epilepsy or the specific types of epilepsy, which may be important variables that contribute to poor seizure regulation.

CONCLUSION

Our findings suggest that psychiatric comorbidities are common in epileptic patients. Psychiatric comorbidities, frontal and temporal lobe lesions, and polytherapy are linked with poor seizure regulation in people with epilepsy. Clinicians should be aware of these variables when developing therapy plans and should consider the use of additional interventions, such as psychiatric care or surgical interventions, to improve seizure regulation.

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Amina Saddiqa; Data collection, data analysis, manuscript writing
Anum Irfan; Data collection, data analysis, manuscript writing
Waleed Malik; Data collection, data analysis, manuscript writing
Samer Naik; Data collection, data analysis, manuscript writing
Naheed Afzal; Data collection, data analysis, manuscript writing
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All the authors have approved the final version of the article, and agree to be accountable for all aspects of the work