



1. MBBS, FCPS
Assistant Professor
Department of Neurology
LUMHS.
2. MBBS, FCPS
Assistant Professor
Department of Neurology
LUMHS.
3. MBBS, FCPS
Assistant Professor
Department of Neurology
LUMHS.
4. MBBS, MCPS (Family Medicine),
M. Phil (Pharmacology)
Assistant Professor
Department of Pharmacology
Isra University.
5. MBBS, FCPS
Assistant Professor
Department of Neurology
LUMHS.

Correspondence Address:
Dr. Abdul Hafeez Bughio
Assistant Professor Department of
Neurology
Liaquat University of Medical and
Health Sciences Jamshoro.
dr.hafeez80@hotmail.com

Article received on:

19/04/2018

Accepted for publication:

15/11/2018

Received after proof reading:

18/04/2019

INTRODUCTION

Epilepsy is a brain disorder that is characterized by an enduring predisposition to generate epileptic seizures and the seizure is defined as an abnormal hyper synchronous discharge of the cortical neurons. Epilepsy is also a collection of variety of disorders with underlying brain dysfunction resulting from a various causes.¹ Epilepsy have variable clinical presentations, causative factors, approach to diagnosis, and treatment options. Mood disorders like depression and nervousness are common in individuals with epilepsy but difficult to determine either it is per-ictal, ictal, preexisting or persist as constant interictal phenomena; whatsoever depression and anxiety put additional burden on cognitive functions of brain, that are further worsened by the increased frequency of seizures, involvement of dominant behavior related areas of brain in particular temporal lobe in, and certain anti-epileptic drugs.^{1,2}

Several studies, suggest that depression is highly

EPILEPSY; ASSOCIATION WITH DEPRESSION AND GENDER DISTRIBUTION

**Jai Perakash¹, Abdul Hafeez Bughio², Muslim Ali Lakhair³, Ashique Ali Arain⁴,
Muhammad Aslam Rind⁵**

ABSTRACT... Introduction: Epilepsy is among most frequent disorders visiting for neurology consultations while depression is documented as comorbidity with epilepsy that further disturbs the social life of such patients. **Objectives:** To find out the frequency of depression and difference in severity, age and gender among known epileptic patients visiting for neurology consultations at tertiary care hospital. **Study Design:** Cross sectional study. **Setting:** Neurology outpatient clinic and neurology ward LUMHS. **Period:** August 2017 to January 2018. **Material and Methods:** Epileptic patients (129) fitting into the inclusion criteria were selected for study under informed consent on proforma using SSDS (Siddiqui Shah Depression Scale). **Results:** Mean age of study population was 26.2 ± 11.1 (range 15 to 60) years and Male, Female ratio was 1.6: 1. Depression was found in 77 (59.7%) patients with 34 (44.1%) mild, 21 (27.3%) moderate and 22 (28.6%) had severe depression. **Conclusion:** High prevalence of depression is seen in epileptic patients. There was male preponderance distribution in the study. There is no significant difference among the genders and age groups regarding severity depression.

Key words: Epilepsy, Depression, Severity of Depression, Siddiqui Shah Depression Scale (SSDS).

Article Citation: Perakash J, Bughio AH, Lakhair MA, Arain AA, Rind MA. Epilepsy; association with depression and gender distribution. Professional Med J 2019; 26(5):776-779. DOI: 10.29309/TPMJ/2019.26.05.3476

prevalent among epileptic individuals and also have increased incidence of (40–60% percent) thus depressive symptoms of epileptic patients are troublesome in diagnosis, treatment and impose social and economic misfits.^{3,12,13} it has been also hypothesized by few researchers that there is a close relation between focus of seizures and depression, predominantly depression is more common in patients with temporal lobe epilepsy involving dominant hemisphere; however it is very difficult to establish the relationship of symptomatology and epileptic seizures from published research.^{4,6}

It is further added by other researchers that frequent seizure in epileptic patients and refractory seizures have unambiguous relationship with depressed mood⁵ and also affirmed the role of some anticonvulsant medications in development of low mood disorders.⁶ in addition, few other general conditions, like chronic diseases and individual's own vulnerability to low mood disorders, may play significant role

in development of depressive symptoms in epileptic patients.⁷ since the high occurrence of depressive symptoms in epileptic patients, it is likely that depression occurs secondary to underlying pathophysiological alterations associated with epileptic seizures, frequent seizures or anticonvulsant medications, however this relationship is not has not yet confirmed with certainty.⁸

Marked alteration in neurotransmission occurs during certain emotional states, that every individual encounter in routine life same as seizures also evoke changes in neurotransmission in particular at the area of abnormal electrical activity (epileptic focus) that might be the reason of significant mental and emotional turmoil in epileptic patients.

One study conducted by Boylan and colleagues states that fifty four percent patients with epilepsy have depression, and significant percentage suicidal tendency a hallmark of severe depression. However in spite of huge proportion of epileptics suffering from depression still it is under diagnosed entity because of that thirty seven percent of affected individuals remain unaddressed with respect of co-existing depression and only small number is adequately treated with antidepressive treatment.³

Regional study was required on the subject. Therefore there was need to collect data representing our population to gain better understanding of depression in subjects with epilepsy and hence improve patient care. This study identified depression as a co-existing problem with epilepsy and hence improves management of symptoms in such patients.

METHODS AND MATERIALS

This study was descriptive cross sectional study and carried out at neurology outpatient clinic and neurology ward, Civil Hospital Karachi. A total of 129 epileptic cases aged over 15 years were included in this study from August 2017 to January 2018. Sample size was calculated by keeping in mind the proportion (p) of depression in cases with epilepsy 14%⁸⁵ with 6% margin

of error (d). Patients were labeled epileptic if the history of seizures for more than six month, diagnosed on the basis of clinical history and Electroencephalography (EEG) and patients on antiepileptic drugs. The purpose, risk and benefits of the study were explained to the patient and informed consent was taken on a prescribed proforma, from the patients, and they were asked to fill up the Siddiqui Shah Depression Scale (SSDS), Urdu version questionnaire, at the same time. The patients were categorized as follows according to the number of points they scored in SSDS: <26 (No depression), 26 to 36 (Mild depression), 37 to 49 (Moderate depression), ≥50 (Severe depression). After this, a proforma was filled for each patient. Data was analyzed by SPSS version 14. Descriptive statistics was applied to calculate the frequencies and percentages of categorical variables such as gender and depression severity. Mean ±SD was calculated for quantitative variables like age and duration of epilepsy. Stratification was undertaken on age, sex and duration of disease along with severity of depression in epilepsy.

RESULTS

Total 129 epileptics were 61.2% (79), 38.8% (50) male and female with ratio 1.6: 1 respectively in current study. Age as mean was 26.8 ± 10.3 while as range was 15- 60 years with most of subjects 72.1% (93) falling in 16 – 30 range category. Regarding epilepsy duration the mean was 6.6 ± 6.8 years while range was 0.7- 30 years with 87.6%(113) ≤ 15 years and 12.4%(16) > 15 years. (Table-I) (Figure-1)

Depression was diagnosed in 59.7% (77) patients with 34 (44.1%), 21 (27.3%), 22 (28.6%) mild, moderate and severe depression respectively while 40.3% (52) do not complained depressive symptoms. (Table-II) (Figure-2). Depression in female patients was 62% while 58.2% males but non -significant difference p-0.67 statistically. No big difference was found for depression among age groups being high in 31–45 years 65.4%, 16– 30 years 59.1%, and > 45 years 50%. No significant association could be found for severity of depression among the two genders p- 0.28 (Table-III).

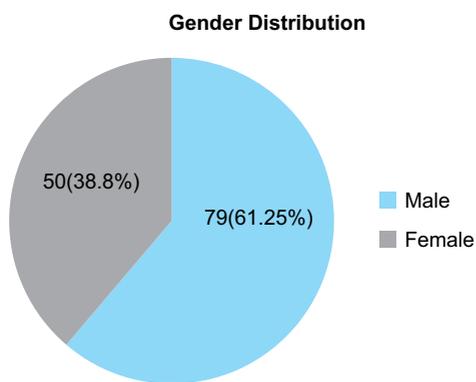


Figure-1. Pie chart of male and female distribution of study population

Age Range	Frequency
16-30	93(72.1%)
31-45	26(20.2%)
>45	10(7.8%)
Duration Range(Years)	Frequency
≤ 15	113(87.6%)
≥15	16(12.4%)

Table-I. Frequency of epilepsy regarding age and duration (n = 129)

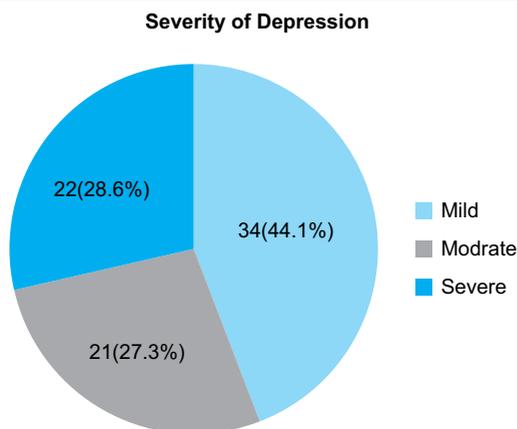


Figure 2. Pie Chart of distribution of severity of depression

Depression	Male	Female	Total	P-Value
Yes	46 (58.2%)	31 (62%)	77 (59.7%)	0.67
No	33 (41.8%)	19 (38%)	52 (40.3%)	
Total	79 (61.24%)	50 (38.76%)	129 (100%)	

Table-2: Comparison of gender regarding depression in epilepsy (n = 129)

Severity	Male (46)	Female (31)	P-Value
Mild	47.82%(22)	38.7%(12)	0.28
Moderate	30.44%(14)	22.6%(7)	
Severe	21.74%(10)	38.7%(12)	

Table-III. Comparison of severity of depression between two genders (n = 77)

DISCUSSION

Depression is becoming more common over globe as independent and associated illness possibly the cause is under diagnosis and unawareness resulting into morbidity and economic loss ending into early mortality (Succide).

Patients with epilepsy have psychosocial and neurological factors that lead to depression and a concern being the risk of exacerbation of seizures following antidepressant therapy.⁹ Prevalence of depression in epileptic population is reported between 40% - 75% a relatively higher figure in contrast to general population that requires considerations.¹⁰ A lifetime depression prevalence is documented 6% -30% in general population while 55% in tertiary care setups.¹¹

Current study found 59.7% which are consistent to Boylan et al reporting the same as 54% in epileptic population.³ Vuilleumier and Jallon reported 20-60% epileptic having depression.¹² Suljic et al, reported a prevalence of 40 to 60% in epileptic subjects.¹³ all falling consistent to present results. Our results regarding gender involvement of male 59.7% and females 40.3% were parallel to Khan KH.¹⁴

Both epilepsy and depression enhance the risks observed in somatic and neurological disorders significantly.¹⁵ Highest frequency was noted in 16-30 age group 62.3% as this age range is crucial for the career so depression leads loss of motivation to move ahead apart from seizures alone similar finding were suggested by Josephson CB et al.¹⁶

CONCLUSION

Depression is highly prevalent in epileptic patients, male preponderance distribution with non-significant association between the two genders.

RECOMMENDATIONS

1. There needs to conduct certain research of various aspects of epilepsy and its pharmacological management.
2. Early diagnosis of depression may give a better management and thus an improved and much relaxed life to epileptic subjects.
3. Awareness seminars and workshops may prove beneficial for doctor and patient communities for this association to manage and cope with the situation.

Copyright© 15 Nov, 2018.

REFERENCES

1. Fisher RS, Acevedo C, Arzimanoglou A, et al. **ILAE official report: A practical clinical definition of epilepsy.** *Epilepsia*. 2014; 55(4):475-482.
2. Hesdorffer DC, Ishihara L, Mynepalli L, Webb DJ, Weil J, Hauser WA. **Epilepsy, suicidality, and psychiatric disorders: A bidirectional association.** *Ann Neurol*. 2012; 72(2):184-191.
3. Boylan LS, Flint LA, Labovitz DL, Jackson SC, Starner K, Devinsky O. **Depression but not seizure frequency predicts quality of life in treatment-resistant epilepsy.** *Neurology* 2004; 62:258–61.
4. Kanner AM, Balabanov A. **Depression and epilepsy: How closely related are they?** *Neurology* 2002; 58:S27–39.
5. Szatkowski L, Lewis S, McNeill A, Huang Y, Coleman T. **Can data from primary care medical records be used to monitor national smoking prevalence?** *J Epidemiol Community Health*. 2012; 66(9):791-795.
6. Meeraus WH, Petersen I, Chin RF, Knott F, Gilbert R. **Childhood epilepsy recorded in primary care in the UK.** *Arch Dis Child*. 2013; 98(3):195-202.
7. Fiest KM, Dykeman J, Patten SB, et al. **Depression in epilepsy: A systematic review and meta-analysis.** *Neurology*. 2013; 80(6):590-599.
8. Jobe PC. **Common pathogenic mechanisms between depression and epilepsy: An experimental perspective.** *Epilepsy Behav* 2003; 4:S14–24.
9. Agoub M, El-Kadiri M, Chuhebeddine KH, Slassi I, Moussaoui D. **Depressive disorders among epileptic patients attending a specialized outpatient clinic.** *Encephale* 2004; 30:40-5.
10. Cramer JA, Blum D, Reed M, Fanning K. **Epilepsy Impact Project Group. The influence of co-morbid depression on seizure severity.** *Epilepsia* 2003; 44:1578-84.
11. Yousafzai AR, Yousafzai AW, Taj R. **Frequency of depression in epilepsy: A hospital based study.** *J Ayub Med Coll Abbottabad* 2009; 21. Available at <http://www.ayubmed.edu.pk/JAMC/PAST/21-2/Yousafzai.pdf>.
12. Vuilleumier P, Jallon P. **Epilepsy and psychiatric disorders; Epidemiological data.** *Rev Neurol (Paris)* 1998; 154:305-17.
13. Suljic E, Alajbegovic A, Kucukalic A, Loncarevic N. **Comorbid depression in patients with epilepsy treated with single and multiple drug therapy.** *Med Arch* 2003; 57: 45-6.
14. Khan KH, Tahir MH. **Depression amongst epileptic patients.** *Professional Med J* 2005; 12:317-21.
15. Fukuchi T, Kanemoto K, Kato M, Ishida S, Yuasa S, Kawasaki J, Suzuki S. **Death in epilepsy with special attention to suicide cases.** *Epilepsy Res*. 2002; 51:233–6.
16. Josephson CB, Lowerison M, Vallerand I, et al. **Association of depression and treated depression with epilepsy and seizure outcomes: A multicohort analysis.** *JAMA Neurology*. 2017; 74(5). doi:10.1001/jamaneurol.2016.5042.

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Jai Perakash	Study design & Literature review.	
2	Abdul Hafeez Bughio	Manuscript writing & Supervision of study.	
3	Muslim Ali Lakhair	Data collection & Literature review.	
4	Ashique Ali Arain	Data analysis & review.	
5	Muhammad Aslam Rind	Data collection.	