

Prevalence of Depressive Disorder among Patients with Epilepsy: a cross-sectional study

Anup Devkota^{1*}, Sapana Ghimire², Sheela Thapa³

¹Department of psychiatry, Karnali Academy of Health Sciences, Jumla

²Department of community medicine, Kathmandu University School of Medical Sciences

³School of nursing and midwifery, Karnali Academy of Health Sciences

***Corresponding Author:**

Dr. Anup Devkota, Email: doctor.devkota@gmail.com

ABSTRACT

Background: Epilepsy is the most common neurological disease in the general population. Depression when comorbid in individuals with epilepsy contributes to low quality of life. As the epilepsy clinics do not routinely assess for major depression substantial opportunity exists to improve the quality of care for many people with epilepsy. The objective of the study was to study the prevalence of depressive disorder and associated factors in individuals with epilepsy.

Methods: A cross-sectional study was conducted at the teaching hospital of Karnali Academy of Health Sciences, Jumla. Sixty patients with epilepsy meeting the inclusion criteria of the study were enrolled in the study. Data was collected using Patient Health Questionnaire-9 (PHQ-9) via face-to-face interview.

Descriptive statistics was presented as frequency and percentages. Association between variables was assessed with Chi-square test. P-value of <0.05 was considered as statistically significant.

Results: The mean age of the participants in years was 32.45 ($\pm$ SD 10.39). Majority of the participants were married (80%) and between 25-34 years of age (33.3%). Among the participants, 33.3% were farmers and 8.3% were housewives by occupation. The majority of the participants were literate (38.3%) and male (65%). The prevalence of depression was 55%. Various variables like age, sex, caste, education and occupation showed no association with depression.

Conclusion: The prevalence of depression was more than half in individuals with epilepsy. The study recommends for screening of depressive disorder among individuals with epilepsy by attending clinicians on a regular basis.

Keywords: depressive disorder, epilepsy, comorbid, prevalence

Access this article		Online Article Info.	
QR Code	How to cite this article in Vancouver Style?		
	Devkota A, Ghimire S, Thapa S. Prevalence of Depressive Disorder among Patients with Epilepsy: a cross-sectional study. Journal of Karnali Academy of Health Sciences. 2021; 4(2)		
	Received: 6 February 2021 Accepted: 23 August 2021 Published Online: 30 August 2021		
	Source of Support: Research Centre, Karnali Academy of Health Sciences. Conflict of Interest: None		
Copyright: © 2021 by author(s) in which author(s) are the sole owners of the copyright of the content published. Licensing: The Journal follows open access publishing policy, and is available freely in the website of the Journal and is distributed under the terms of the Creative Commons Attribution International License 4.0 under the CC-BY 4.0  license, and the author(s) retain the ownership of the copyrights and publishing rights without restrictions for their content, and allow others to copy, use, print, share, modify, and distribute the content of the article even in commercial purpose as long as the original authors and the journal are properly cited. Disclaimer: The statements, opinions and data contained in this publication are solely those of the individual author(s) and contributor(s). Neither the publisher nor editor and reviewers are responsible for errors in the contents nor any consequences arising from the use of information contained in it. The Journal as well as publisher remains neutral with regards to any jurisdictional claims in any published articles, its contents and the institutional affiliations of the authors.			

INTRODUCTION

Epilepsy is a common neurological condition characterized by recurrent seizures and abnormal electrical activity in the brain that causes an involuntary change in movement of the body or function, sensation, awareness, or behavior.¹ Epilepsy is the most common chronic neurological disease in the general population. It affects approximately 1% of the US population.²

There is no recent data regarding the prevalence of epilepsy in Nepal. A door-to-door survey conducted in 823 households revealed a prevalence rate of 0.73 for generalized tonic clonic seizure.³ A study from Eastern Nepal showed mood (mainly depression) 23% and anxiety disorders 15% as the most common psychiatric co-morbidities in persons with epilepsy.⁴

Psychiatrists are concerned with epilepsy as the former may present as a differential diagnosis in some psychiatric disorders. Thirty to fifty percentages of all persons with epilepsy have psychiatric difficulties sometime during the course of their illness.²

The common presentations of inter-ictal depression in persons with epilepsy are anhedonia, decreased appetite, low energy, and sleep disturbance. Agitation, psychotic features and impulsive self-harm are more frequent in depression co-morbid with epilepsy than in lone depression.⁵ Causes of depression in individuals with epilepsy are genetic loading and abnormalities in synthesis of noradrenaline, dopamine, 5-hydroxytryptamine and gamma amino butyric acid. Other etiologies are social stigma, discrimination and restriction in activities in daily life.⁶

Depression when co-morbid in individuals with epilepsy contributes to low quality of life.⁷ Many epilepsy patients are ambivalent about accepting a psychiatric diagnosis due to the anticipatory fear of additional discrimination.⁸ As the epilepsy clinics do not

routinely assess for major depression, they deprive the affected patients of subsequent treatment. In this regard substantial opportunity exists to improve the quality of care for many people with epilepsy.⁹ There is no study on prevalence of co-morbid depression in individuals with epilepsy from Karnali province of Nepal. The objective of the study was to study the prevalence of depressive disorder and associated factors in individuals with epilepsy.

Material and methods

A quantitative cross-sectional analytical study was conducted at the teaching hospital of Karnali Academy of Health Sciences, Jumla. Sixty patients had attended psychiatry OPD during the study period: from 3rd April to 2nd October 2020.

Individuals with epilepsy aged eighteen years and above who attended the psychiatric outpatient department during the above-mentioned period were included in the study. Patients with medical co-morbidities: hypertension, diabetes, bronchial asthma, anemia, thyroid dysfunction were excluded from the study. Patients diagnosed with psychiatric disorders prior to the onset of epilepsy were not included in the study.

The study tool consisted of three sections. The first section comprised socio demographic details of the participants. The second section consisted of a checklist to rule out various medical and psychiatric co-morbidities. The last section included a psychometric scale for depression. In this study Patient Health Questionnaire-9 (PHQ-9)¹⁰ was used to identify depression.

Data was collected from each individual via interview using the above-mentioned study tool. Informed written consent was obtained from all the participants before their enrollment in the study. Confidentiality was maintained by keeping code numbers in

questionnaires after data collection. Information obtained was solely used for the purpose of the research.

Data thus collected were coded, cleaned and entered into Microsoft Excel 2007 and transferred to Statistical Package for Social Sciences version 21 for analysis. Descriptive statistics was presented as frequency and percentages. Association between variables was assessed with Chi-square test. P-value of <0.05 was considered as statistically significant.

Ethical approval was taken from the Institutional Review Committee of Karnali Academy of Health Sciences. (Ref no. 2076/2077/02)

Results

The mean age of the participants in years was 32.45 ($\pm$ SD 10.39). Majority of the participants were between 25-34 years of age (33.3%) followed by the age group 18-24 (28.3%). Majority of participants were married (80%) while 20% were unmarried.

Figure 1 shows distribution of participants according to ethnicity. Majority of participants were Chhetri (38.3%) followed by Brahmin (26.7%). Figure 2 shows majority of participants were literate (38.3%) followed by participants who had middle school education (20%). Figure 3 shows distribution of participants according to occupation. Majority of participants were farmers (33.3%).

During the study period of six months at Teaching Hospital of Karnali Academy of Health Sciences sixty epileptic patients participated in the study. Among sixty patients, the author found depression in thirty-three patients (55%).

Table 2 shows that there is no any association between different variables (age, sex, marital

status, alcohol intake, duration of illness and number of anti-epileptic drug) with depression.

Table 1: Socio demographic characteristics of the participants (n=60)

Variables	Frequency	Percent (%)
<i>Sex</i>		
Male	39	65.0
Female	21	35.0
<i>Age</i>		
18-24	17	28.3
25-34	20	33.3
35-44	13	21.7
45-54	10	16.7
<i>Marital Status</i>		
Married	48	80.0
Unmarried	12	20.0

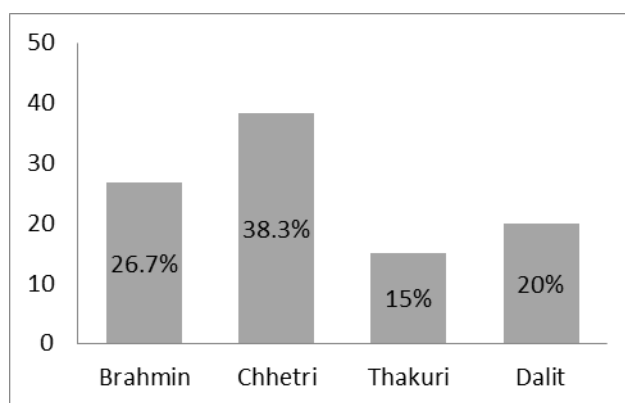


Figure 1: Distribution of participants according to ethnicity (n=60)

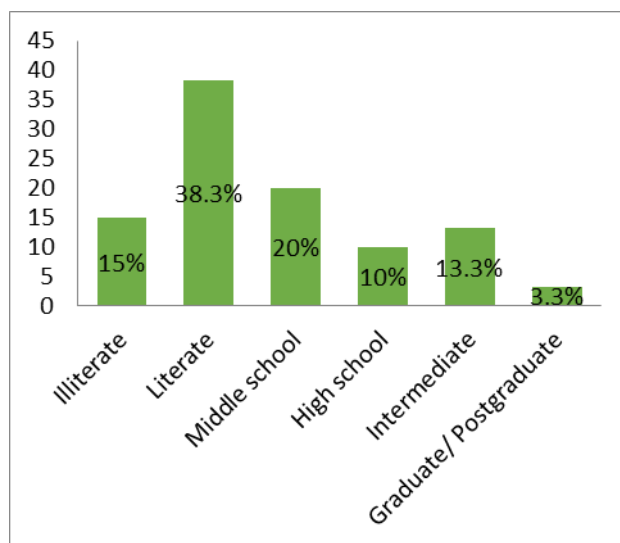
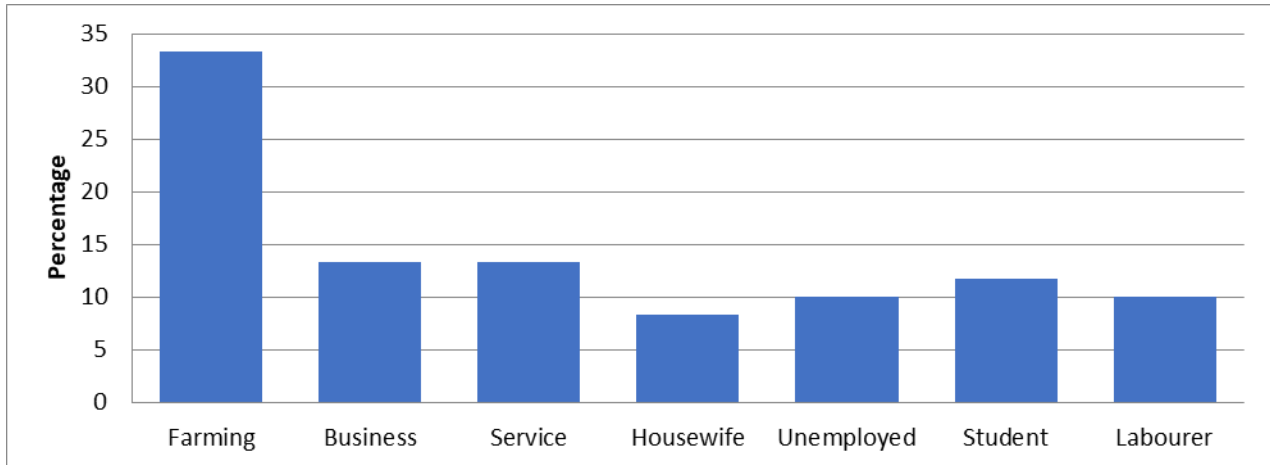


Figure 2: Distribution of participants**according to education (n=60)****Figure 3: Distribution of participants according to occupation (n=60)****Table 2: Association of different variables with depression**

Variables		Depression N (%)	No depression N (%)	p-value**
Age (in years)	≤25	11(18.33)	10(16.66)	0.76
	>25	22(36.66)	17(28.33)	
Sex	Male	19(31.66)	20(33.33)	0.18
	Female	14(23.33)	7(11.66)	
Marital Status	Married	26(43.33)	22(36.66)	0.79
	Unmarried	7(11.66)	5(8.33)	
Alcohol intake	Yes	11(18.33)	11(18.33)	0.55
	No	22(36.66)	16(26.66)	
Duration of illness (in years)	≤5	24(40)	21(35)	0.65
	>5	9(15)	6(10)	
AED*	Monotherapy	28(46.66)	22(36.66)	0.72
	Polytherapy	5(8.33)	5(8.33)	

** Chi-square test was used to calculate p-value

*AED: Anti-epileptic drug

DISCUSSION

In this study the prevalence of depression was 55%. Various studies have shown the prevalence of depression among epileptic patients as low as 9% to high as 55%.^{11,12,13,14} This varied prevalence may be due to differences in methodology, site of studies and the different psychometric scales used. It may also be due to socio-cultural variation.

A hospital-based study from Kathmandu found prevalence of depression in individuals with epilepsy to be 37%.¹⁵ The

prevalence rate of depression in our study is higher than the study done by Tegegne et al.¹⁶(2015), Kiko et al.¹⁷(2013) and Phabphal et al. (2007).¹⁸

In the present study, patients who were above 25 years of age (36.6%) were more depressed than patients who were equal to and below 25 years of age (18.3%). However, no relationship could be established between age and depression. Similarly, the study done by Nidhinandana et al.⁹ did not find any

association between depression and difference in age of participants. In this study, although it was statistically insignificant, married participants (43.3%) had more depressive symptoms than unmarried participants (11.6%).

In the current study, depression was more prevalent among individuals suffering from epilepsy for duration equal to or less than five years (40%) when compared to individuals suffering from illness for more than five years (15%). However, this finding was not statistically significant. The finding was similar to the study done by Adhikari et al.¹⁵ and Nidhinandana et al.⁹ The authors did not find any association between depression and duration of seizure in the latter studies.^{9,15}

This study revealed depression to be more among patients taking a single antiepileptic drug (46.6%) when compared to patients taking two or more antiepileptic drugs (8.3%). Conversely, the study done by Mendez et al.¹⁹ concluded that depression in epilepsy may result from the use of more

antiepileptic drugs. This discrepancy in findings between the two studies may be due to the predominance of different seizure types.

Limitations: This study included patients from a single tertiary care centre. The clinical profile of patients could have been different for the primary care centers. Generalizability of the findings of the study may be limited due to small sample size.

CONCLUSION

The prevalence of depressive disorder was more than half in the individuals with epilepsy. Various variables like age, sex, caste, education and occupation showed no association with depression. We recommend for screening of depressive disorder among individuals with epilepsy by attending clinicians on a regular basis.

REFERENCES

1. Fisher RS, Acevedo C, Arzimanoglou A, Bogacz A, Cross JH, Elger CE, et al. ILAE official Report: a practical clinical definition of epilepsy. *Epilepsia*. 2014;55(4):475–82. <https://doi.org/10.1111/epi.12550> [PubMed]
2. Sadock BJ, Sadock VA. Kaplan and Sadock's synopsis of psychiatry. 10th ed. Philadelphia: Lippincott Williams and Wilkins; 2007.
3. Eisler O, Lajtai L. Epilepsy in Nepal. *Epicadec News* 1990;13:5-7.
4. Shakya DR. Psychiatric symptoms and disorders in seizure cases referred to psychiatric out-patient service. *J NeurosciBehav Health* 2013;5:13-9. <https://doi.org/10.5897/JNBH12.013> [Google Scholar] [Link]
5. Jackson M, Turkington D. Depression and anxiety in epilepsy. *J NeurolNeurosurgPsychiatry*. 2005;76(Suppl 1):45–7. <https://doi.org/10.1136/jnnp.2004.060467> [Link]
6. Lowe A. The Impact of Depression in Epilepsy. *Lumina*:21(1):10-12.
7. Yousafzai AU, Yousafzai AW, Taj R. Frequency of depression in epilepsy: a hospital based study. *J Ayub Med Coll Abbottabad*. 2009;21(2):73-5. [PubMed]

8. Schmitz B. Depression and mania in patients with epilepsy. *Epilepsia*. 2005;46:45-9. [[Google Scholar](#)]
9. Nidhinandana S, Chinvarun Y, Sithinamsuwan P, Udommongkol C, Suwantamee J, Wongmek W, et al. Prevalence of depression among epileptic patients at Phramongkutklao Hospital. *J Med Assoc Thai*. 2007;90(1):32-6. [[Pubmed](#)]
10. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med*. 2001;16(9):606-13. [[Pubmed](#)]
11. Mendez MF, Cummings JL, Benson DF. Depression in epilepsy: significance and phenomenology. *Archives of Neurology*.1986;43(8):766-70.[https://doi.org/ 10.1001/archneur.1986.00520080014012](https://doi.org/10.1001/archneur.1986.00520080014012) [[Pubmed](#)]
12. Indaco A, Carrieri PB, Nappi C, Gentile S, Striano S. Interictal depression in epilepsy. *Epilepsy research*. 1992;12(1):45-50. [[Pubmed](#)]
13. Robertson MM, Channon S, Baker J. Depressive symptomatology in a general hospital sample of outpatients with temporal lobe epilepsy: a controlled study. *Epilepsia*. 1994;35(4):771-7. [https://doi.org/ 10.1111/j.1528-1157.1994.tb02510.x](https://doi.org/10.1111/j.1528-1157.1994.tb02510.x). [[Pubmed](#)]
14. Jacoby A, Baker GA, Steen N, Potts P, Chadwick DW. The clinical course of epilepsy and its psychosocial correlates: findings from a UK community study. *Epilepsia*. 1996;37(2):148-61. <https://doi.org/10.1111/j.1528-1157.1996.tb00006.x> [[Pubmed](#)]
15. Adhikari AP, Ojha SP, Chapagai M, Tulachan P. Prevalence of depression in patients with epilepsy: a study from Tribhuvan University- Teaching Hospital. *Journal of Psychiatrists' Association of Nepal*. 2013;2(2):39-42. | <https://doi.org/10.3126/jpan.v2i2.9725> [[Google Scholar](#)]
16. Tegegne MT, Mossie TB, Awoke AA, Assaye AM, Gebrie BT, Eshetu DA. Depression and anxiety disorder among epileptic people at Amanuel Specialized Mental Hospital, Addis Ababa, Ethiopia. *BMC psychiatry*. 2015;15(1):1-7. <https://doi.org/10.1186/s12888-015-0589-4> [[Pubmed](#)]
17. Kiko N. Prevalence and factors associated with depression among patients with epilepsy in a Kenyan tertiary care hospital [dissertation on the internet]. [East Africa]: Aga Khan University; 2013 [cited 2021 April 21]. Available from: https://ecommons.aku.edu/theses_dissertations/578/
18. Phabphal K, Sattawatcharawanich S, Sathirapunya P, Limapichart K. Anxiety and depression in Thai epileptic patients. *J Med Assoc Thai*. 2007;90(10):2010-5. [[Google Scholar](#)][[Pubmed](#)]
19. Mendez MF, Doss RC, Taylor JL, Salguero P. Depression in epilepsy. Relationship to seizures and anticonvulsant therapy. *J NervMent Dis*. 1993;181(7):444-7. [[Pubmed](#)]