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

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**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 (± 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

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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.⁵ 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.⁶ 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.⁷ 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 (± 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)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percent (%)</th>
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<td><strong>Sex</strong></td>
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<td>Male</td>
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<tr>
<td>Female</td>
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<td>35.0</td>
</tr>
<tr>
<td><strong>Age</strong></td>
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<tr>
<td>45-54</td>
<td>10</td>
<td>16.7</td>
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<td></td>
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<tr>
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</tr>
<tr>
<td>Unmarried</td>
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<td>20.0</td>
</tr>
</tbody>
</table>

![Graph 1: Distribution of participants according to ethnicity (n=60)](image1)

![Graph 2: Distribution of participants according to education level (n=60)](image2)
**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%. 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%. The prevalence rate of depression in our study is higher than the study done by Tegegne et al. (2015), Kiko et al. (2013) and Phabphal et al. (2007).

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. 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. and Nidhinandana et al. The authors did not find any association between depression and duration of seizure in the latter studies.

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. concluded that depression in epilepsy may result from the use of more anticonvulsant 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**


