Research Article

The Magnitude of Depression and Factors Associated with it among Epileptic Patients' in Ethiopia: A Systematic Review and Meta-Analysis

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ABSTRACT

Background: The co-occurrence of depression and epilepsy increases the suicide risk by 32 times. Depression in epileptic patients affects medication adherence, increases seizure frequency, and finally reduces the patient's life quality. Despite this, epileptic individuals are not evaluated for depressive illness in most instances. The aim of the current systematic review and meta-analysis is therefore to give concrete evidence on the magnitude and determinants of depression in epileptic patients in Ethiopia.

Methods: A search of databases on Pub Med, Psych-info, Scopus, and EMBASE was conducted systematically. Random effects and quality-effects models were used to illustrate the pooled magnitude of depression and odds ratios of associated factors with a 95% confidence interval. Heterogeneity detected between studies using Cochran's Q- and the I2test. Subgroup and sensitivity analyses were conducted. The presence of publication bias in the study was also checked with Egger's test and funnel plot.

Result: Nineteen full-text articles were assessed for eligibility. Only ten studies were incorporated in the final meta-analysis. The prevalence of depression among patients with epilepsy ranges from 28.3% to 70.8%. The pooled magnitude of depression within epileptic patients in Ethiopia was found to be 43.14 (35.97, 50.31). The pooled prevalence of depression in the Oromia region 46.15% (95% CI (39.97, 52.32), P<0.001), in the Southern Nation Nationality peoples region was 52.07 %, in Central Ethiopia and Amhara region was also obtained to be 36.58%. The pooled prevalence of depression among patients with epilepsy using PHQ-9 was found to be 44.27. the pooled adjusted odds ratio of low educational level 2.64, 95%CI(1.38, 3.90), High perceived stigma AOR 3.22, 95%CI(1.30, 5.14), more than one seizure/month AOR 4.82, 95%CI(2.59, 7.05), and poor medication adherence AOR 3.33,95%CI (1.93, 4.73),

Conclusion: The pooled prevalence of depression among patients with epilepsy in Ethiopia was huge. The pooled adjusted odds ratio of associated factors with depression was low educational level, poor medication adherence to antiepileptic drugs, high perceived stigma, and seizure frequency more than once per month.

Keywords

Systematic review; Meta-analysis; Pooled evidence; Depression; Ethiopia; Epilepsy

Introduction

Mental and behavioral disorders a major public health concern worldwide. They contribute around 19% of all years of life lost due to disability in Eastern Sub-Saharan Africa [1]. Mental illness highly affects patients' overall health, economic a fire, and social integration. The magnitude and severity of other conditions, such as cardiovascular diseases,

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communicable diseases, and intentional/unintentional injuries, are associated with reduced mental health [2].

A depressive disorder is a serious medical illness that affects one's thoughts, feelings, behavior, mood, and physical health. It is a life-long condition in which time of wellness interchange with recurrences of illness [3]. Although the depressive disorder can and does affect people of all ages, from all walks of life, the risk of becoming depressed is increased by poverty, unemployment, life events such as the death of a loved one or a relationship break-up, physical illness, and problems caused by alcohol and drug use [4]. Even if effective treatment exists, major depression is the second leading cause of YLD both globally and in the sub-region of Eastern Sub-Saharan Africa [5]. Depressive disorder led to the loss of over 50 million Years Lived with Disability (YLD) in 2015 and over 322 million people are estimated to suffer from it, equivalent to 4.4% of the world's population.

Epilepsy is one of the most common neurological disorders which demands immediate medical attention. Globally, epilepsy is the second leading neurological cause of reduced disability-adjusted life years and it affects approximately 10 million people annually. More than 50 million people in the world will have recurrent seizures.

Patients with epilepsy have a high prevalence of psychiatric comorbid disorders. The most common comorbid psychiatric disorder was depressive disorder which reported more often in individuals with self-reported epilepsy than in those without epilepsy. The study evidenced that up to 60% of epileptic patients had associated depressive disorder. The prevalence of depression among patients epilepsy varies in different countries of the world. The prevalence of depression 63% in Gaza strip

governmental hospital,16.3% in Scotland, 20.4%, 21.6% in Nigeria, ranges from 18.1%-48.6% in Ruanda, and 16.5% in Kenya. Thus comorbidity has a significant impact on the medical management of epilepsy and the quality of life of epileptic patients.

The co-occurrence of depressive disorder in epilepsy is associated with poor medication adherence, reduced quality of life, unemployment, lower educational status, and increased burden on health-care services. Similarly, the suicide rate among people with epilepsy is 22% greater than the general population. But also both disorders exist together the risk of suicide increased by 32 times than the general population.

A systematic review conducted by this review illustrated that the prevalence of depression in epileptic patients ranges between 13%-18% which is much higher than healthy populations. The prevalence of depression in epilepsy ranges from 3%-9% in patients with controlled seizures and 20%-55% in patients with uncontrolled seizures. Community-based studies conducted on the epileptic population reported that the rate of depressive disorder ranges from 9% to 22%. Similarly, three hospital-based studies illustrate that the magnitude of depressive disorder high (27%-55%) for patients with epilepsy or medical refractor epilepsy.

Other systematic review and meta-analysis on depression in epilepsy illustrated that the prevalence of active depression in epileptic patients across nine studies reported on 29,891personswas ranges from 13.2% to 36.5% with an overall pooled prevalence of 23.1%. In the 5 studies which constitute 1,217,024 numbers of participants indicated pooled odds of 2.77 active depressions in epilepsy than without epilepsy). In a similar study the pooled prevalence of lifetime depression among5, 454 people

with epilepsy was 13%. Three studies done on 4,195 persons reported the overall odds of 2.20-lifetime depression.

Systematic review and meta-analysis conducted in sub-Saharan countries showed that the depression greatly prevalent (49.3%) in patients with epilepsy and also the pooled magnitude of depressive disorder in epileptic patients was 32.71%. The most frequently associated factors with depression in people with epilepsy were lower educational status, higher perceived stigma, poly-therapy, female gender, the frequency of seizures, having controlled seizures, the duration of epilepsy, and greater age.

The studies reveal that neuropsychiatric conditions contribute to a major burden of disease in Ethiopia. Different literature conducted in Ethiopia illustrated that the prevalence of depression in epileptic patients ranges from 28.3%-70.8%. But the current coverage of neuropsychiatric interventions is in Ethiopia low. However, no previous systematic review and meta-analysis studies were conducted to estimate the pooled the magnitude of depression in epilepsy in Ethiopia. Studying the prevalence of depressive disorders among epileptic patients in Ethiopia is very important and needs to have an estimated pooled data evidenced for integrating mental health service to other medical services. Therefore the purpose of this systematic review and meta-analysis study is to have a summary of pooled evidence in Ethiopia on the magnitude of depression and associated factors of depression in epileptic patients as well as providing a recommendation for future researchers and other stakeholders.

Material and Methods

This systematic review and meta-analysis were in line with the Preferred Reporting Items for Systematic Reviews and Meta-analysis Protocols (PRISMA-P).

Data sources and search strategies

A systematized search of PubMed with no time limitation, Psyc INFO, EMBASE, and Scopus databases was implemented following a detailed search strategy. We conducted our search in PubMed with the following key terms and words: (Prevalence OR epidemiology OR magnitude OR incidence) AND (depressive OR "depressive disorder" OR "depressive symptoms") AND (epilepsy OR epileptic OR seizure OR seizures OR seizing) AND (factor OR risk OR "risk factor" OR determinant) AND Ethiopia. Subject-specific heading as recommended by database searches was used for Scopus and EMBASE searches. Additionally, unpublished articles on WHO websites, non-indexed articles from Google Scholar were searched. Moreover, the reference lists of included studies were manually searched for additional eligible articles. We also contacted authors when further information is required.

Results and Discussion

This is the first of its kind study on systematic review and meta-analysis of the magnitude of depression among patients with epilepsy in Ethiopia to investigators' knowledge. Therefore, the finding obtained from current systematic review and meta-analysis on overall prevalence and risk factors that contribute for the development of depression in patients with epilepsy in Ethiopia will be invaluable evidence to different stakeholders who works to improve depression among epileptic patients and policymakers on this important issue of the country.

The meta-analysis result of this study depicted that the pooled depression among patients with epilepsy high (43.14%) which is a crucial concern of community health in our country, Ethiopia

For his particular systematic review and

meta-analysis, the findings display different information regarding the magnitude of depression. Thus the different magnitude of depression occurs interims of the region where the study being conducted, year of publication that before and after 2016, tools used by thus included studies, sampling techniques employed, and the number of epileptic patients included in each study which is less than and greater than or equal to four hundred. Half of the studies were conducted in central Ethiopia and Amhara region while thirty percent conducted in the southern part of Ethiopia. The remaining twenty percent conducted in the Oromia region which is located southwest part of Ethiopia. Three tools had been utilized to measure depression among patients with epilepsy. Forty percent of the studies incorporated in this meta-analysis used PHQ-9. Remain 60% of the included studies utilize HADS and BDI-II equally to assess depression. Half of the included studies employed a sample size of greater than or equal to 400. Fifty percent of the included studies in this review and meta-analysis employed the systematic sampling technique to select the epileptic patients in Ethiopia. Thirty percent of the studies utilize random sampling techniques. The rest twenty percent of the incorporated studies use the connivances sampling technique to recruit epileptic patients that were participated in the study. The studies incorporated sixty percent of them published in 2016 and after while 40 percent of included studies published before 2016.

Conclusion

In this meta-analysis, the overall pooled prevalence of depression among patients with epilepsy in our country was found to be higher than in other regions. Low educational level, high perceived stigma, more than one seizure/month, and poor medication adherence were factors highly associated with the comorbidity of depression and epilepsy in our county. As per the high magnitude of depression in Ethiopia, the country should give priority to health education about depression, creating awareness to change the cause, treatment options about epilepsy, and depression as well. Another thing, the country should initiate delivering mental health services with other health services in primary health institutions.

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