

Prevalence of Depression and its Associated Factors among Adult Epileptic Patients Following Treatment at Selected Public Health Facilities of Bench Maji Zone, South West Ethiopia, 2017

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Abstract

Background: Depression among epileptic patients has multiple effects: poor quality of life, increased seizure frequency, risk of suicide, increased health care cost and worsened side effects of anti-epileptic medications. It is often under recognized and untreated among these patients.

Objective: To assess the prevalence of depression and associated factors among epileptic patient on treatment follow up at selected public health facilities of Bench Maji zone, south west Ethiopia, 2017.

Methods: Cross-sectional study was conducted in selected public health facilities of Bench Maji zone from March 3- April 3/2017. Simple random sampling was used. Data was collected through face to face interview and analyzed using frequency, percentage and binary logistic.

Result: In this study a total of 244 participants were involved, and the response rate was 98.8%. The overall prevalence of depression was 51.2%. Of these, 60%, 36%, and 4% of the patients were found to have mild, moderate and severe depression respectively. Low educational status (AOR=2.5, CI (1.32, 4.78)), Seizure frequencies ≥ 3 per month (AOR=3.06, CI (1.412, 6.65)), Age onset of epilepsy ≤ 11 years (AOR=4.58, CI (1.94, 10.82)), low anti-epileptic drug adherence (AOR=4.81, CI (2.32, 9.97)) and poor knowledge about epilepsy (AOR=2.77, CI (1.5,5.12)) were found to be independent predictors of depression among epileptic patients.

Conclusion and recommendation: Considerable amount of epileptic patients had depression that may predispose them to different health related problems. Low educational status, seizure frequencies, age at onset of the epilepsy, low antiepileptic drug adherence and poor knowledge about epilepsy were found to be contributing factor to the depression.

Keywords: Depression; Epilepsy; Beck depression inventory-II scale; South West Ethiopia

Introduction

Epilepsy is a group of syndromes characterized by unprovoked, recurring seizures in which individuals are considered as epileptic patient if they have equal or more than two seizures [1]. Approximately 50 million people worldwide are living with this condition [2]. Depressive symptoms in these patients is characterized by the development of symptoms of disturbed Sleep, decreased energy, loss of interest, tiredness and generally which interferes with the daily activities of the patients [3].

There is overwhelming evidence that, people with epilepsy (PWE) have a number of psychosocial difficulties; of which depression is the one greatly affecting their quality of life [4]. Epileptic patients have a high tendency to develop depression and the rate in these patients is significantly higher than the rate of depression in patients with other chronic diseases and the general population [5,6].

Depression in PWE is a common and worldwide problem with the prevalence between 9 and 55% in developed countries [7-9]. The

problem is more significant in the developing countries, particularly in sub-Saharan Africa with the prevalence more than 51%, though it is not well documented [10,11]. In our country Ethiopia; studies showed that, the prevalence rate was about between 45.2% and 49.3% [12].

Epilepsy can cause depression as it brings about social discrimination. This can lead to undermining, reduced self-worth and a hostile perspective towards life. Epileptic patients have a risk of either becoming unconscious or falling in public and the condition lead them to social embarrassment which amounts for depression in epileptic patients. All these consequences lead to depression and in turn depression in these patients can lead them to different psycho-social problems. These problems can affect patients' performance such as; deprived treatment adherence, reduced quality of life, joblessness, decreased educational status, high burden of health care cost and increased risk of suicide [8,13-16].

There is shortage of research done about the prevalence of depression and its factors among epileptics in developing country including Ethiopia. Despite the different measures taken, the prevalence remained too high in different part of the world particularly in developing countries [6,7].

In additions to previously studied predictors of depression in epileptics, perceptions of epileptics about their illness may be suggested factor and it should be investigated. In Ethiopia few studies were conducted to assess the prevalence of depression among epileptic patients. The prior studies conducted in Jimma university specialized hospital and university Gondar hospital which were different from current study site in socio cultural context and belief in disease causation. There is no similar prior study in this particular zone. In addition to this, the zone has diversified ethnicity with many epileptic patients lived, still the magnitude of depression and its predictors on them is not known. Thus, the main purpose of this study was to assess the prevalence and associated factors of depression among people with epilepsy attending at public health facilities of Bench Maji zone, south west Ethiopia, 2017.

Methods and Materials

Study area & design

A facility based cross-sectional study design was conducted in selected public health facilities of Bench maji zone from March 3-April 3 /2017.

Bench maji zone is located in southern nation nationalities of regional state of Ethiopia. It is situated at about 561 km away from Addis Ababa, the capital city of Ethiopia, in the Southwest direction. There are a total of 219 health facilities in the zone consisting of one Teaching hospital, one district hospital, 35 Health Centers and 182 Health posts, all of these serving around 760313 peoples.

There are 541 adult epileptic patients attending at selected public health facilities of Bench Maji zone and they are attending at health facilities of Mizan Tepi university teaching hospital (200); Bachuma hospital (110); Shewa Bench health center (89); Sheko health center (72) and Mizan health center (70). The study was conducted from March 3-April/2017.

Sample size determination and sampling technique

To determine the sample size for the study, the following assumption is considered, prevalence of depression in epilepsy taken from study done in Jimma university specialized hospital in 2012, $P=49.3$ and this is taken as $(p=0.493)$, margin of error (0.05) and standard normal distribution value for the 95% confidence interval (1.96) are considered. After using correction formula and addition of 10% none response rate, the final sample size was 247. The study participants were selected by using simple random sampling technique. Proportion allocation to the health facility was used to get calculated sample.

Data collection procedure

Different data collection tools were used to collect relevant information based on the study objectives. Beck depression inventory scale II (BDI II) is used to assess the depression on these patients. Pre-test of the questionnaire for clarity and consistency of the questions was done one week prior to the actual data collection. Then necessary correction was made based on the feedback of the data collectors.

By using face to face interview questionnaire, information about epileptics about depression, socio demographic characteristic of the respondents, major factor contributing for the depression and another

related data was collected. The principal investigator was coordinating the overall activity of the study.

Data was collected, cleared, edited and analyzed using frequency, percentage and binary logistic. The result was presented using tables and diagrams as needed.

The quality of data was ensured through proper training of data collector and pre-test of the questionnaire and close supervision of data collectors. All collected data was checked for completeness, accuracy and consistency by the principal investigator and communicated to the data collectors on the next day.

Ethical consideration

The study was approved by Institutional review board of Jimma University. Permission letter was provided to the administrators of each respective health facility of study site before data collection. The purpose and procedure of data collection was clearly stated and confidentiality and privacy was ensured. The right to refuse or to withdraw from the study was also informed for the participants. There were no risks or hazards for the participants. Those participants with moderate to severe depression were referred to the psychiatric clinics for early treatment.

Results

Among the total of 244 participants, 163 were males and the mean age was 30 years More than half 126 (51.6%) of respondents were married and almost half of them 123(50.4%) were protestant religion followers. Widely held (42.6%) ethnic group was Bench and more than half 132 (54.1%) of participants were dweller of rural (Table 1).

Characteristics	Response	Frequency	Percent
Sex	Male	160	65.6
	Female	84	34.4
Age	18-24	83	34
	25-34	82	33.6
	35-44	47	19.3
	>=45	32	13.1
Marital Status	Single	99	40.6
	Married	126	51.6
	Divorced	7	2.9
	Widowed	12	4.9
Religion	Protestant	123	50.4
	Orthodox	77	31.6
	Muslim	43	17.6
	Catholic	1	0.4
Ethnicity	Bench	104	42.6
	Kaffa	92	37.7
	Sheko	38	15.6

	Menit	8	3.3
	Amhara	1	0.4
	Other*	1	0.4
Residence	Rural	132	54.9
	Urban	112	45.1

Table 1: Socio Demographic Characteristics of Epileptic Patients in Public Health Facilities of Bench Maji Zone, South West Ethiopia, 2017. (N=244), Ethnicity (Other* Tigre).

More than two third (82.4%) of them were living with their family and majority 56 (23.0%) of participants neither read nor write. About 102 (41.8%) of participants were farmer and majority 108 (44.3%) were have monthly income less than six hundred Ethiopian Birr (Table 2).

Living Status	With family	201	82.4
	Alone	23	9.4
	With relatives	19	7.8
	Other*	1	0.4
Educational status	Can't read & write	55	22.5
	Only read & write	27	11.1
	43191	47	19.3
	43317	42	17.2
	43382	25	10.2
	43445	16	6.6
	College & university	32	13.1
Occupation	Farmer	102	41.8
	Gov't employee	43	17.6
	Student	43	17.6
	Daily laborer	28	11.5
	House wife	13	5.3
	Job less	10	4.1
	Other*	5	2
Monthly income in ETB	<600	108	44.3
	601-1400	93	38.1
	1401-2500	9	3.7
	2501-3500	19	7.8
	3501-5000	15	6.1

Table 2: Living status, educational back ground, occupation and income level of Patients in Public Health Facilities of Bench Maji Zone, South West Ethiopia, 2017. (N=244). Living status (other * home less), Occupation (other* merchant, Tailor).

Depression among Epileptic Patients

Concerning to depression among participants, 125(51.2%) of them were found to have depression (Figure 1).

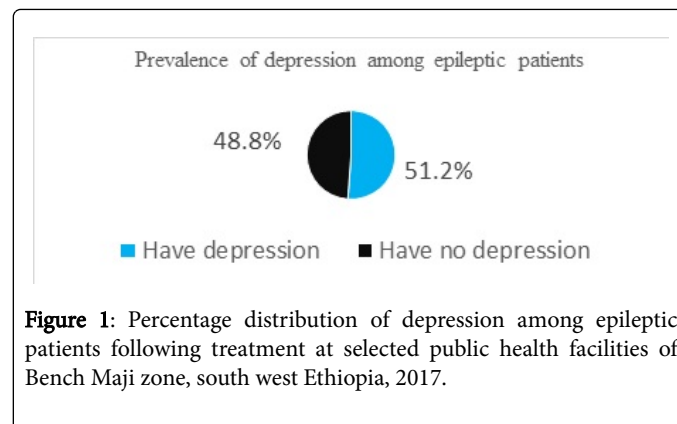


Figure 1: Percentage distribution of depression among epileptic patients following treatment at selected public health facilities of Bench Maji zone, south west Ethiopia, 2017.

Regarding to the level of depression among participants with depressive symptoms, more than half 75(60%) of them were have mild depression, 45(36%) were have moderate depression and 5(4%) of them had severe depression (Figure 2).

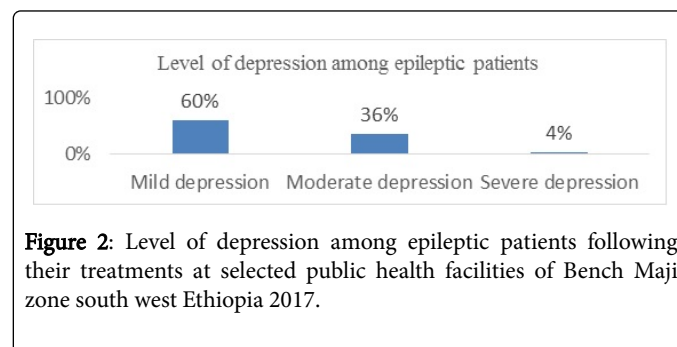


Figure 2: Level of depression among epileptic patients following their treatments at selected public health facilities of Bench Maji zone south west Ethiopia 2017.

Clinical Related Variables

238(97.5%) of participants had no family history of depression, More than half 134(54.9%) them were have no seizure attack during last month at the time of the study. Half of the respondents were have an age onset of epilepsy between 12 and 24 years old and nearly half (48.8%) of them had stayed with epilepsy for more than eleven years. Majority of patients (90.6%) were have no other comorbidity with their epilepsy and most (88.9%) of them were receiving single AEDs (Table 3).

Clinical related variables	Response	Frequency	Percent
Family hx of depression	Yes	6	2.5
	No	238	97.5
Seizure frequency	None	134	54.9
	1-2	57	23.4
	≥ 3	53	21.7
Age at onset of disease in years	≤ 11	55	22.5
	12-24	122	50

	≥ 25	67	27.5
Duration of illness in years	<1	22	9.0
	2-5	22	9.0
	6-10	81	33.2
	≥ 11	119	48.8
Comorbidity	Yes	23	9.4
	No	221	90.6
Therapy	Mono therapy	217	88.9
	Poly therapy	27	11.1

Table 3: Clinical related characteristics among epileptic patients following treatment at public health facilities of Bench Maji zone south west Ethiopia, 2017, (N=244).

Knowledge of People Living with Epilepsy about their Epilepsy

The mean knowledge score was 5 with the minimum score of 0 and maximum score of 10. One hundred thirty (53.3%) of the respondents had scored below mean and were have poor knowledge about their illness. One hundred fourteen (46.7%) of participants had scored above mean knowledge score and were have good knowledge about their epilepsy (Figure 3).

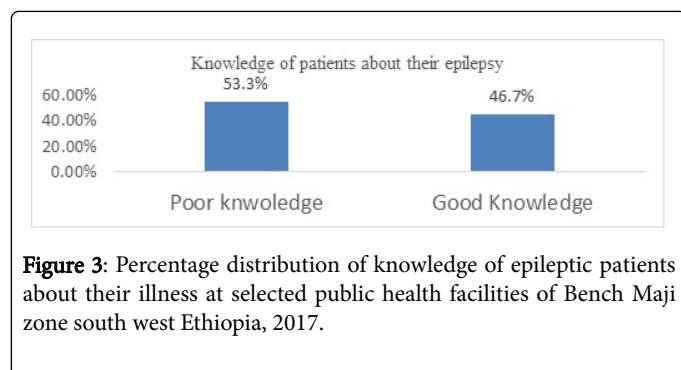


Figure 3: Percentage distribution of knowledge of epileptic patients about their illness at selected public health facilities of Bench Maji zone south west Ethiopia, 2017.

Social Support

Measurement by the Oslo Three Items Social Support Scale revealed that 115(47.1%) of respondents received poor social support, 104(42.6%) of them received moderate social support and 25(10.3%) were have strong social support (Figure 4).

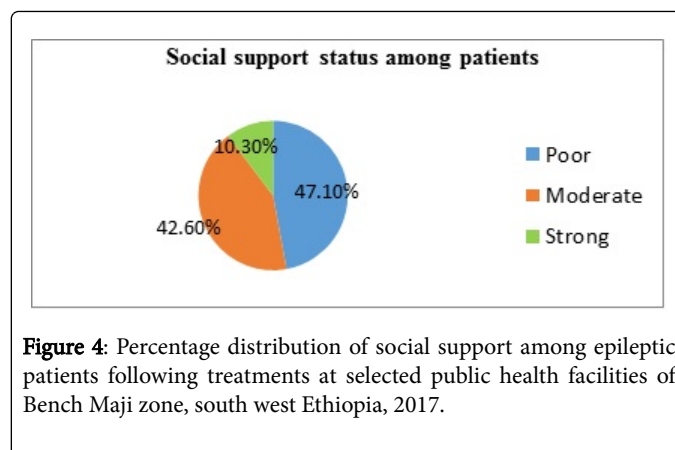


Figure 4: Percentage distribution of social support among epileptic patients following treatments at selected public health facilities of Bench Maji zone, south west Ethiopia, 2017.

Stigma

One hundred sixty eight (68.9%) of respondents were have not felt stigma and 76(31.1%) of participants had felt stigma (Figure 5).

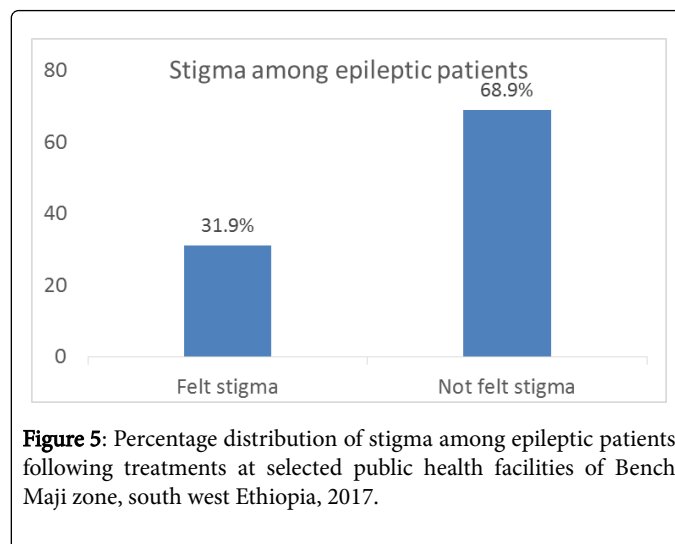


Figure 5: Percentage distribution of stigma among epileptic patients following treatments at selected public health facilities of Bench Maji zone, south west Ethiopia, 2017.

Anti-epileptic Drug Adherence

About 103 (42.2%) of participants were have low adherence to their anti-epileptic drugs, 71(29.1%) were have high adherence and 70(28.7%) had medium adherence to their drugs (Figure 6).

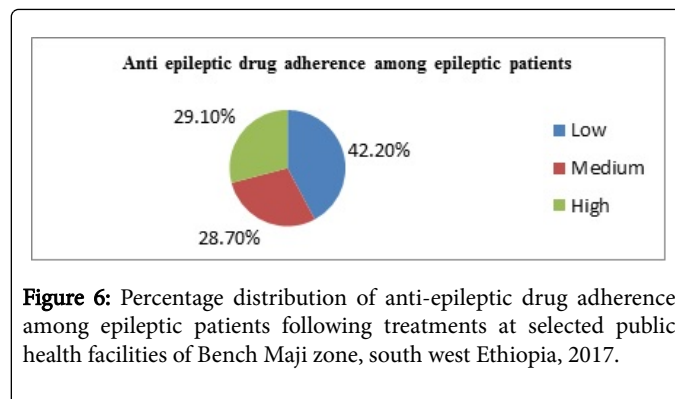


Figure 6: Percentage distribution of anti-epileptic drug adherence among epileptic patients following treatments at selected public health facilities of Bench Maji zone, south west Ethiopia, 2017.

Factors Associated with Depression among Epileptic Patients

The Hosmer and Lemeshow goodness of fit from Binary logistic analysis with P value of 0.23 indicates all predicting variables are good

predictors of depression among epileptic patients. All variables with P value less than 0.25 from bivariate logistic regression analysis were moved to multivariate logistic regression to control confounding variables and to identify independent predictors of depression (Table 4).

Variables		Depression				COR(95%CI)	AOR(95% CI)
		Yes	(%)	No	(%)		
Marital status	Single	56	56.6	43	43.4	1.628(0.958,2.767)	1.467(0.776,2.770)
	Widowed	7	58.3	5	41.7	1.75(0.527,5.812)	1.717(0.383,7.694)
	Divorced	6	85.7	1	14.3	7.50(0.877,64.127)	8.298(0.78,87.57)
	Married	56	44.4	70	55.6	1	
Educational status	No formal education	54	34.1	28	65.9	2.47(1.423,4.293) [†]	2.5(1.32,4.78) ^{**}
	Formal education	71	43.8	91	56.2	1	1
Seizure frequency per month	1-2	36	63.1	21	36.9	2.62(1.382,4.968) [†]	1.91(0.94,3.90)
	≥ 3	36	67.9	17	32.1	3.23(1.652,6.342) [†]	3.06(1.412,6.65) ^{**}
	None	53	39.6	81	60.4	1	1
Age at onset of epilepsy	≤ 11 years	36	65.5	19	34.5	3.18(1.512,6.701) [†]	4.58(1.94,10.82) ^{**}
	12-24 years	64	52.5	58	47.5	1.85(1.008,3.410) [†]	2.797(1.36,5.75) ^{**}
	≥ 25 years	25	37.3	42	62.7	1	1
AED adherence	Low	67	65.0	36	35.0	4.43(2.311,8.497) [†]	4.81(2.32,9.97) ^{**}
	Medium	37	52.9	33	47.1	2.67(1.335,5.337) [†]	3.41(1.547,7.55) ^{**}
	High	21	29.6	50	70.4	1	1
Knowledge	Poor	80	61.3	50	38.7	2.45(1.46,4.10) [†]	2.77(1.5,5.12) ^{**}
	Good	45	39.4	69	60.6	1	1

Table 4: Crude and adjusted odds ratio from logistic regression analysis of predictors of depression among epileptic patients following treatment at public health facilities of Bench Maji zone, south west Ethiopia, 2017, (N=244), [†] Statistically significant at P<0.05 in crude and ^{**} statistically significant at P<0.05 in adjusted logistic regression analysis respectively.

The table showed that educational status, seizure frequency, age at onset of epilepsy, anti-epileptic drug adherence and knowledge about their illness were independent predictors of depression among epileptic patients.

The likely hood of having depression among epileptics with no formal education were almost three times higher compared to those epileptics with formal education, AOR = 2.5 CI (1.32, 4.78). The odds of depression among epileptics with seizure attack more or equals to three times per month were three times more likely compared to epileptics with controlled seizure, AOR = 3.06 CI(1.412,6.65).

Age at onset of epilepsy is another factor as table showed that the odds of having depression among epileptic patients with their age onset of epilepsy less than 11 years old were five times more compared to epileptic with age onset greater than 25 years, AOR=4.58 CI (1.94, 10.82). The odds of depression among epileptics with age onset between twelve and twenty four were three times more than epileptics with age onset greater than twenty five, AOR 2.797 CI (1.36, 5.75).

The table also showed that the likely hood of having depression among epileptics with poor adherence to their drugs were five times higher compared to those with highly adhered to their drugs, AOR = 4.81 CI (2.32, 9.97). The odds of depression among epileptic patients with moderately adhered to their AED were three times higher compared to epileptic patients highly adhered to their AEDs, AOR = 3.41 CI (1.547, 7.55).

Knowledge about epilepsy was another independent predictor and the likely hood of depression among epileptic patients who didn't know the fact about their illness were almost three times more compared with epileptics patients who know the fact about their illness, AOR = 2.77 CI (1.5,5.12).

Discussion

The overall prevalence of depression in the study population was 51.2%. This finding is relatively high compared to other prior study findings in the country. In jimma proportion was 49.3 [17].

In present study the odds of developing depression among epileptics with no formal education were more likely compared to those with formal education, AOR=2.5 CI (1.32, 4.78). This is consistent with study done in jimma, University of Gondar hospital and Iran [17,12,18]. And this finding was in contrast with study done in Turkey [19] where there was no association between educational level and depression in people living with epilepsy. The possible explanation for this association is those with high educational status can aware and copes with their illness as well as can adjust different psycho socials issue when compared to the illiterates [20].

The odds of depression among epileptics with more frequent seizure attacks were three times more likely compared to epileptics with controlled seizure, AOR = 3.06 CI(1.412,6.65). This finding was supported by study done in Nigeria [11], Bosnia [18] and Pakistan [21] however; in contrast with finding from USA [22]. The possible explanation for this association is having frequent seizure can refrain patients from taking different social involvements. And having seizure in public front can lead them to have poor self-confidence, poor self-esteem and decrease quality of life of the patients which all over can lead them to have depression [14].

In this study depression was more frequent among people living with epilepsy whose onset of epilepsy were early than late onset. This finding was consistent with study done in Bosnia [18] and was in contrast with study done in Jimma University specialized teaching hospital [17], Turkey [19] and china [23]. This associations were suggested by different literatures and this is because of the early occurrence of disease can have different social impacts on individuals from different cultural believes, in which, with that age they cannot cope [24,25].

The current study revealed that depression was common in poor anti-epileptic drug adherer than in high anti-epileptic drug adherer. This is in fact that those who were highly adhered to their anti-epileptic drugs can have controlled seizure than patients with poor adherence and findings revealed that discontinuations and withdrawals of drugs can cause relapse of seizure [21].

This finding suggested that those epileptic who aware the fact about their illness have less depression than that with poor knowledge. Those who know the fact about epilepsy can adjust them self and cope with different psycho social and life issue; as the result would have less depression. This finding is supported by study conducted in other chronic illness as those patients who aware for the fact about their illness can better cope with their illness and would have less depression [26].

Conclusion

In this study depression among epileptic patients were found to be high. Low educational status, early age onset of epilepsy, low anti-epileptic drug adherence, poor seizure controllability and poor knowledge about epilepsy were independent predictors of depression in epileptic patients.

Recommendations

Based on the findings the following recommendations were drawn.

- Hospitals and health center managers should design appropriate screening programs for depression among epileptics in their facilities for early recognition and treatments.

- Health care providers at both hospitals and health centers should routinely screen epileptics for depression.
- Health care providers should provide information regarding the fact about their illness and should strength care receivers' drug adherence for better out come and prevention of depression.

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