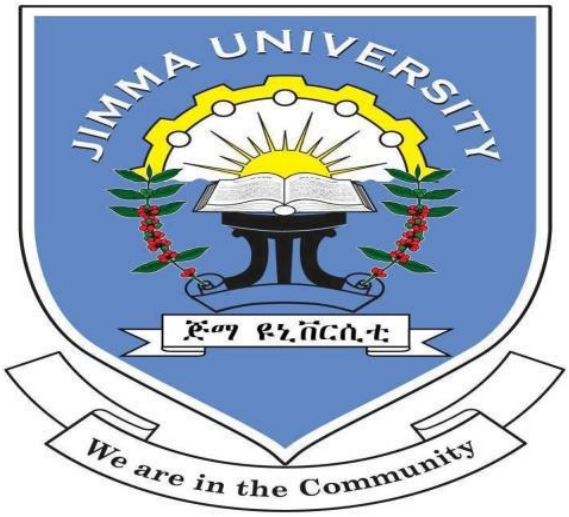
PSYCHOMETRIC PROPERTIES OF HAMILTON DEPRESSION RATING SCALE AMONG PEOPLE WITH EPILEPSY IN JIMMA UNIVERSITY MEDICAL CENTER, NEUROLOGICAL CLINIC, SOUTHWEST, ETHIOPIA, 2020



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VALIDATION OF HAMILTON DEPRESSION RATING SCALE AMONG PEOPLE WITH EPILEPSY IN JUMC, NEUROLOGICAL CLINIC, JIMMA, ETHIOPIA, 2020

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Abstract

Background

Depression is one of the common comorbid mental disorders in people with epilepsy. Thus, early detection and treatment of depression in people with epilepsy using clinically validated instrument is vital for the improvement and overall health outcome of people suffering from epilepsy. Hamilton depression rating scale is one of the widely used depression screening tool validated in different languages for various population groups. However, the scale is not validated in Ethiopia both for clinical as well as the general population.

Objective: This study aimed to assess the psychometric properties of Hamilton Depression Rating Scale 17-item screening tool among Afaan Oromo speaking epileptic patients in Jimma University Medical Center, Jimma, Ethiopia.

Methods: Facility based cross sectional study design was conducted in Jimma University Medical Center among 133 study participants, using consecutive sampling method. Criterion validity was assessed against mini international neuropsychiatric interview. The Cronbach's alpha coefficient was used to evaluate internal consistency. Cut-off score, sensitivity, specificity, positive and negative predictive value were determined by receiver operating characterized analysis. Statically Package for Social Science - version -23 software was used for analysis.

Result: A total of 133 participants (mean age 31.7 years, SD ± 10.7, 64.7% male) were included with 100% response rate. The translated Afan Oromo version of Hamilton depression rating scale showed no difficulty for understanding. The internal consistency showed acceptable result with Cronbach's alpha score of- α=0.74. The Pearson correlation coefficient result for criterion validity revealed strong association(r=0.88). Receiver operating characteristic (ROC) analysis revealed that sensitivity and specificity of Hamilton Depression Rating Scale 17-item (HAMD-17) were 0.92 and 0.91 respectively together with 0.96 negative predictive value (NPV) and 0.87 positive predictive value (PPV) at cut-off score of 9 and above. Area under the ROC curve was 0.96.

Conclusion and recommendation: The HAMD-17 considered to be a valid and reliable depression assessment tool, with a cutoff score ≥ 9 for people with epilepsy in Afaan Oromo version. Hence, the use of the Afaan Oromo version of HAMD-17 as validated tool for people with epilepsy is recommended for clinicians as well as researchers to screen for depression.

Key words: Hamilton depression rating scale, validation, depression, epilepsy, Ethiopia

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List of Abbreviation and Acronyms

AUC- Area Under Curve

BDI- Beck Depression Inventory

COVID-19- Coronavirus Disease -19

DALY-Disability Adjusted Life Years

DSM -Diagnostic and Statically Manual of mental disorder

FPR- False Positive Rate

G.G.S- Guru Gobind Singh

HAMD-17-Hamilton Depression rating scale item- 17

HADS - Hospital Anxiety and Depression Scale

ICD- International Classification of Disease

I-CVI- Item Level Content Validity Index

JUMC - Jimma University Medical Center

LR: Likelihood Ratio

MDD- Major Depressive Disorder

MINI- Mini International Neuropsychiatric Interview

NDDIE- Neurological Disorder Depression Inventory for Epilepsy

PPV/NPV- Positive Predictive Value /Negative Predictive Value

ROC –Receiver Operating Characteristics

SPSS- Statically Package for Social Science

TPR- True Positive Rate

WHO- World Health Organization

1: Introduction

1.1 Background

Depressive disorder is one of the most common mental disorders that negatively affects individual feeling, thinking, and behavior (1). Depression is one of the common co-morbid mental disorders in chronic medical diseases with 12-month time prevalence ranges between 8%-17%. Factors such as: functional disability, frequency of emergency department visits, and duration spent in bed due to chronic medical illness were significantly associated with depression (2).

The association between depression and comorbid chronic medical illness thought to be the psychobiological and behavioral changes related to depression that increases the risk of chronic medical illness. The course of chronic medical illnesses may worsen since comorbid depression may associated with poor adherence, sedentary life styles, medical costs, risk of obesity, and functional impairment (3).

Depression is one of the most frequently prevalent psychiatric disorder in epileptic patients. In neurological disorders particularly in epilepsy the rate of depression is high varies from 20% to 55%, and also the risk of suicide has been estimated to be 10 times higher than general population (4). Furthermore, comorbid depression in epileptic patients may be induced with anti-epileptic medication used to treat epilepsy or surgical treatment used to treat intractable epilepsy (5).

Epileptic patients with comorbid depression despite controlling seizure frequency exhibited significantly poorer performance on executive function, language, memory, and measures of intelligence. People with epilepsy who have comorbid depression found to be under recognized and under treated for their psychiatric condition despite studies shown high comorbidity. The result is that neglecting for psychiatric condition in people with epilepsy might be resulted in poor treatment outcome (6).

Epileptic patients do not receive their appropriate services for their conditions, especially in developing countries. systematic review undertaken to investigate the magnitude, cause and intervention strategy in developing countries revealed the overall estimated treatment gap was 56%. Inadequate skilled manpower was one of mainly attributed factors for estimated treatment gap (7). Despite both depression and epilepsy are important public health issues, yet missed undetected and misdiagnosed, hence valid and reliable depression screening instruments for people with epilepsy is required. So, the current study was conducted among epileptic patients to investigate the psychometric properties of HAMD-17.

1.2 Statement of the problem

Community-based studies have showed that the prevalence of depression in people living with epilepsy was lies between 4-37% (8). The magnitude of depression is more prevalent in people with epilepsy comparing with those without epilepsy. The life time prevalence of depression in general population is 10% while 17% for people with epilepsy even more than 30% for those who are drug-resistant focal epilepsy. Relating with this the risk of suicide also high in people with epilepsy which explained by the life time prevalence of suicidal ideation was 25% in epileptic patients comparing with those without epilepsy (13.3%) (9).

Other study conducted in Korean tertiary-care hospitals was also revealed that depression was most frequently common in people with epilepsy than in healthy controls. It has been shown that 27.8% of people with epilepsy and 8.8% of healthy individuals were found to suffer from depression (10). Studies that have examined epileptic patients who admitted for surgical evaluation found that the life time prevalence of depression fulfilling DSM diagnostic criteria has been estimated at 24-35 % (11,12).

In Ethiopia population-based study shown that depression was strongly associated with mortality and disability, with high chance of experiencing more than 15 disability days in a month. In the study at base line the depression point prevalence was 26% (13).

Epilepsy is chronic neurological disorder most commonly comorbid with psychiatric disorders. The most frequently reported psychiatric comorbidity is depression with reaching point prevalence of 62% (8,14). This close relationship might be due to both biological and psychosocial stressors. According to neuro imaging and neurobiological studies the biological attribution to this linkage is based on neuro chemical and neuro anatomical principles (15,16). Moreover it supported by epidemiological studies suggesting bidirectional relationship between depression and epilepsy, that indicates the depression is not merely occur following epilepsy it may precede occurrence of the epilepsy (17), they may have common underline neurobiological cause (16).

On the other hand, the burden of epilepsy accounts for more than 7 million DALY which was 0.5% of the whole global burden of disease in 2000. Around 90% of the global burden of epilepsy is to be found in developing countries with the highest levels of premature mortality and low socio-economic status (18) .

In other side epilepsy is chronic neurological illness which result in both social discrimination and everyday life limitation (19). As a chronic neurological disease, this linked to psychological disturbance and poor quality of life for people with epilepsy (20).

Despite depression is highly prevalent in epilepsy its continues to be under diagnosed and untreated in epileptic patients (21)**.** It has been shown that up to 52% of epileptic patients with depression were inadequately treated and often not diagnosed (22). This could be due to inadequate skilled man power, limitation of validated screening tools and lack of knowledge. The result is that epilepsy is complicated by depression that affect morbidity, mortality, and cause a greater impact on the quality of life than epilepsy (23).

Since depression is found to be high burden globally and evidenced high prevalent in epileptic patient, disability and poor quality of life related with depression. Therefore, early detection and treatment of depression in epilepsy is important as screening depression in epileptic patients resulted in ten times higher rate of diagnosis (24). However currently only limited number of validated psychometric depressive assessment instruments in epilepsy, such as the beck depression inventory (BDI**)** (25,26) and the Neurological disorder depression inventory for epilepsy (NDDIE) (27), the hospital anxiety and depression scale (HADS) (25,26) and the Hamilton depression rating scale (HAMD-17) (23,28)**.**

As detection is the step stone for appropriate treatment which increase quality of service (29), valid and reliable tool is required for people with epilepsy to overcome impact of depression through early detection and intervention. This may be important for improving quality of life as well as good treatment outcome in epileptic patients. Thus, the current study aimed to validate the psychometric properties of Hamilton depression rating scale (HAMD-17) Afaan Oromo version among epileptic patients in JMC, Ethiopia.

1.3 Significance of the study

The finding of study will be helpful in various areas. It might be important in improving quality of health service given to epileptic patients through adding standardized screening tool for early detection of comorbid depression by non-mental health professionals and need for psychiatric consultation. It might also enable any clinicians to assess for depression with minimal burden of resources and referral of patients to psychiatric department for further evaluation and management.

The study finding will also help researchers who are interested to conduct study on depression among people with epilepsy as validated screening tool. It will also useful for researchers who are interested to validate the tool for other population of study or to other language.

2: Literature review

2.1 prevalence of depression in people with epilepsy

A cross-sectional study employed in 2011 in Brazil reported a prevalence rate of 39.4% and 24.4% for anxiety and depression respectively among people with epilepsy. Associated factors for comorbid depression among epileptic patients include, unemployment, age above 41 and lower age of schooling (30). Study in G.G.S. Medical College, Faridkot revealed that the overall prevalence of depression among epileptic patient was 25% with 67% and 33% of them were diagnosed for mild and moderate depression respectively (31). In another cross-sectional study in south of Thailand the authors reported that, 20%, and 39% of study subjects were met the diagnosis for anxiety and depression among epileptic patients respectively (32).

A comparison study undertaken in Egyptians revealed that, the rate of depression was high among people with epilepsy than healthy subjects, in which 25% of epileptic subjects were diagnosed for depressive disorder (33). A cross-sectional study in south east Nigeria showed that the overall prevalence of depression among people with epilepsy was 85.5% with 68.7% of them were minimal, 12%mild and 4.8% moderate (34).

Institution based study conducted in Northwest Ethiopia revealed that the point prevalence of depression in epileptic patients was 45.2%, of them 29.6 % mild, 14.8 % moderate and 0.8 % were severely depressed patients. Early onset of illness, Lower educational status, seizure frequency, multiple drugs and non-compliance to anti-epileptic drugs were factors statistically associated with depression (35).

Study in Amanuel specialized mental health hospital reported the overall prevalence of 32.8%, and 33.5% for depression and anxiety respectively among people with epilepsy. Poly-therapy of anti-epileptic drugs, inability to read or write and perceived stigma were associated with depression while frequency of seizure, Monthly income and side effects of anti-epileptic medications were significantly associated with both anxiety and depression (36)**.** Another hospital based cross-sectional study conducted in Jimma university hospital showed that depression rate was high among epileptic patients. In the study prevalence of depression among epileptic patients was 49.3%. of these 39.9% mild, 38.5% moderate, and 21.6% were severe depressed patients (37).

2.2 Brief Description on Depression Screening Instruments and HAMD-17

There is various range of depression screening instruments available which used by researchers as well as at clinical trials with various extent of psychometric properties. The reliability and validity of these screening tools were assessed by numerous studies for various study population. However currently only limited number of validated psychometric depressive assessment instruments in epilepsy, such as the beck depression inventory (BDI**)** (25,26) and the Neurological disorder depression inventory for epilepsy (NDDIE) (27),the hospital anxiety and depression scale (HADS) (25,26) and the Hamilton depression rating scale (HAM-D17) (23,28)**.**

One of these tools is Hamilton depression rating scale which commonly used by clinicians and researchers. Hamilton Depression Rating Scale (HAMD) is the most widely used measure of depression which was developed by Max Hamilton in the late 1950s and published in 1960 for purpose of assessing the effectiveness of the first generation antidepressants (38,39)**.**

The original HAMD included 21 items, but the last four items should not score as they do not indicate the severity of depression rather used to provide additional clinical information (39).

Therefore, the 17-items version HAMD has become standard and extensively used at clinical trial for several years. However, despite widely used many investigators found limitation of the instrument and trying to improve it. The mainly recognized limitations of the original HAMD-17 were failure to cover entire MDD symptoms, the inclusion of items which represent different construction, and the unfair weight attributed to different variables domains, as example insomnia may be scored up to six, while fatigue only up to two. As its widespread use for many years, the Hamilton depression rating scale 17-items is the most popular clinician administered depression severity assessment tool in both clinical and research area (40).

The tool used for assessing patients level of depression before, during and after treatment based on HAMD-17 scores of 1-7 taken as being normal,8-16 mild depression, 17-23 moderate and score more than 24 considered as severe depression (41) **.** The scale was validated for epilepsy patients for various languages and cultures (23,28).However, yet it is not validated in most of sub Saharan African countries including Ethiopia for both general population as well as clinical settings.

2.3 Psychometric properties of Hamilton depression rating scale

Study conducted in Brazilian samples to assess the psychometric properties of Hamilton depression rating scale and montgomery–asberg depression rating scale in depressed and bipolar I patients found that reliability properties for both scales indicates good. The internal consistency results for the HAM-D-17 total, according to Cronbach's Alpha (α) were α =0.83 (V0), α =0.71 (V4) and α =0.85 (V8), showing excellent reliability (42).

Study conducted among 120 adult outpatients with epilepsy to assess the Validation of the Hamilton Rating Scale for Depression by using Mini International Neuropsychiatric Inventory (MINI) showed that Cronbach's alpha coefficient was 0.824 for the 17-item version and 0.833 for the 21-item version. Area under the curve of 17-items and 21-item version were 0.896 and 0.899 respectively as determined by Receiver operating characteristic. In the study the HAMD-17 showed the best psychometric properties compared to the HAMD-21 and, with a cutoff score of 6, a sensitivity of 94%, a specificity of 80%, a positive predictive value of 46%, and a negative predictive value of 99% (23).

Other study conducted to assess psychometric properties of the Hamilton Depression Rating Scale in multiple sclerosis showed internal consistency was fair with Cronbach's alpha=0.8. Convergent and divergent validity were good with respect to neuropsychiatric inventory (NPI) subdomain of depression (rrho = .85) and with respect to remaining NPI subdomains (rrho\.30) respectively. For sample of multiple sclerosis cut-off 14.5 was identified with good sensitivity (93%) and specificity (97%) for the diagnosis of major depression. In the study with this cut-off point 44.2% of patients were met criteria for major depressive disorders (43)**.**

Poland study employed 96 study subjects of people with epilepsy to validate the Polish Version of the Hamilton Rating Scale for Depression in patients with epilepsy by using Structured Clinical Interview (SCID-I), found that the 17-item polish version Hamilton depression rating scale was reliable and valid in the epilepsy with cut-off score of 11 points.

Areas under the curve was approximately 0.9 as indicated by ROC analyses. It demonstrated best psychometric properties with specificity of 89.3%, sensitivity of 100, positive predictive value 72.4%, and negative predictive value of 100% (28).

Study undertaken in Bulgaria among 106 patients with epilepsy to assess the validity of Hamilton depression rating scale as screening tool for depression was found that the internal consistency which measured by Cronbach's was 0.74. Maximal discrimination cut-off score between depressed and non-depressed was obtained at 8/9 (sensitivity 0.93, specificity 0.98). NPV (1.0) and High sensitivity (0.93 show the screening properties at the same cut-off score. Diagnostic properties of the tool showed by PPV and high specificity at cut-off 9/10. The concurrent validity of the HAMD-17 with ICD-10 criteria for depressive disorders in people with epilepsy was indicated by area under the ROC curve (AUC=0.746) (44).

Study aimed to validate the Chinese version of HAMD-17 among 191 people with epilepsy proved that the tool to be valid and reliable with cut-off score of 9, for screening of depression in adult epileptic patients. HAMD-17 was evaluated against MINI for the measurement of depression in the study. The internal consistency was explained by Cronbach's alpha score of 0.832 and AUC for the study was 0.983, which revealed high level of diagnostic performance respect to gold standard**.** Chinese HAMD-17 showed best psychometric properties with sensitivity 96.7%, a specificity of 93.8%, a PPV of 74.4%, a NPV of 99.3%, and a YI of 0.905 (45). Another study employed among 214 adult psychiatric outpatients to assess the Psychometric properties of Chinese HAMD-17 and HAMD-6 versions with Mokken scale analysis and item analysis also showed that the HAMD-6 was a moderate unidimensional scale (Hs = 0.44) while the HAMD-17 was not (Hs = 0.26). Both versions had comparable reliability ($\alpha = 0.79$) and validity ($r = 0.91$). For prediction of depression remission best cutoff score for HAMD-17 was ≤ 7 while for HAMD-6 was 4 (46)**.**

In another study employed in Lebanon to assess the validity of Hamilton depression rating scale for depressed patient authors reported that sensitivity and specificity were 0.806 and 0.825 respectively at cut off score of 7.5. Area under the curve and Cronbach's alpha were 0.837 and 0.862 respectively (47).

3: Objectives

3.1 General objective

- To assess the validity and reliability of Hamilton Depression Rating Scale 17-item screening tool among epileptic patients in JUMC, Jimma, Ethiopia,2020

3.2 Specific objectives

- To assess the semantic validity of Hamilton Depression Rating Scale 17-item screening tool among epileptic patients in JUMC, Jimma, Ethiopia,2020
- To assess content validity of Hamilton Depression Rating Scale 17-item screening tool among epileptic patients in JUMC, Jimma, Ethiopia,2020
- To assess criterion validity of Hamilton Depression Rating Scale 17-item screening tool among epileptic patients in JUMC, Jimma, Ethiopia,2020
- To assess reliability of Hamilton Depression Rating Scale 17-item screening tool among epileptic patients in JUMC, Jimma, Ethiopia,2020

4: Methods and Materials

4.1 Study Area and period

The study was conducted at Jimma University Medical Center (JUMC) in Jimma town, Oromia regional state, in the southwest Ethiopia. Jimma town is found at distance of 352 km from Addis Ababa, capital city of Ethiopia in the southwestern part of the country. Jimma University Medical Centre is teaching and referral hospital which providing specialized clinical services to about 15 million people in the catchment area. Jimma University has made relentless efforts in extensive renovation and expansion work to make the hospital conducive for service, teaching and research activities (48). Currently, 1523 adult people with epilepsy are getting service in JUMC at neurological clinic. The study was conducted from August 15/2020 to September 15/2020.

4.2 Study Design

Institution based cross-sectional study design was employed.

4.3 source population

All people with epilepsy who have follow up visit at JUMC neurological clinic

4.4 Study population

People who diagnosed for epilepsy and came for follow up visit during study period as well as who fulfill inclusion criteria

4.5 Inclusion and exclusion criteria

4.5.1 Inclusion criteria

People with epilepsy who able to speak Afaan Oromo fluently

4.5.2 Exclusion criteria

Those with severe illness and unable to communicate during data collection period.

4.6 Sample size determination

Sample size was determined by single validation test formula using sensitivity and specificity. Taking anticipated sensitivity (80.6%) and anticipated specificity (82.5%) study in Lebanon (47), and prevalence of depression 49.3% among epilepsy a study conducted in Jimma (37). By considering the following parameters:

N= required sample size

Sn= anticipated sensitivity (80.6%)

Sp=anticipated specificity (82.5%)

α = size of critical region (1- α is the confidence level) 5%

$Z\alpha/2 = Z$ value at (α = 0.05) = 1.96 corresponding to 95% confidence level

L=absolute precision required = 10%

P=prevalence of depression among epileptic patients = 49.3%

Sample size(n) based on sensitivity (Sn) $= \frac{Z^2 1-\frac{\alpha}{2} * Sn(1-Sn)}{L^2 * P}$

$\text{Sn} = \frac{(1.96)^2 * 0.806(1-0.806)}{(0.1)^2 * 0.493}$

N= 121

Non-response rate (10% of n) = 121+12=133

Sample size (n) based on specificity $= \frac{Z^2 1-\frac{\alpha}{2} * Sp(1-Sp)}{L^2 * (1-P)}$

$\text{Sp} = \frac{(1.96)^2 * 0.825(1-0.825)}{(0.1)^2 * (1-0.493)}$, sp =109

Non-response rate (10%) = 11, N= 109+11=120

Finally, 133 participants were taken to involve maximum sample size

4.6 Sampling procedures

The study participants were selected using consecutive sampling technique until the required sample size was fulfilled

4.7 Study Variables

Sociodemographic characteristics

HAMD-17 score

4.8 Operational Definitions

Validity: the ability of a test to identify accurately which individuals have the depression and which do not

Sensitivity: the ability of HAMD-17 to identify correctly those who have depression

Specificity - The ability of HAMD-17 to identify correctly those who have no depression

Internal consistency reliability -The homogeneity or the saturation of items included in the HAMD-17 to measure depression. Cronbach alpha coefficient (α) >0.9- Excellent, >0.8 -Good, >0.7-Acceptable,>0.6-Questionabe,>0.5-Poor, and <0.5- Un acceptable

Inter-rater reliability: The level of agreement between the two interviewers in the same patients.

Content validity: refers to how adequately the questions selected cover the themes that were specified in the conceptual definition of its scope.

Semantic validity -The equivalent meaning of the HAMD-17 items with new language (Afan Oromo version)

Criterion validity: The agreement or correlation of new measure HAMD-17 with gold standard (MINI) at the same point in a time. The correlation coefficient (r)>0.5 is required

Receive operating characteristic- The pilot between TPR and FPR across a series of cutoff points and important to show the ability of test HAMD-17 detect depression.

4.9 Data collection procedures and instruments

4.9.1 Data collection procedures

The data was collected by two BSc psychiatry professionals and two clinical nurses through face to face interview method after they receive practical training on procedure of data collection and regarding of tools included in data collection instruments. The interview was interchangeable after every case to reduce item-order effect. The initial participant was first interviewed by clinical nurse using HAMD-17 and then was interviewed by blinded psychiatric professional who guided by MINI immediately. The next participant was first interviewed by psychiatric professional using MINI later he/she was interviewed by clinical nurse using HAMD-17, then the order was continued in the same manner. After administering the MINI, the psychiatric professionals gave their overall clinical judgment as to whether the participant was suffering from depression or not

4.9.2 Instruments

4.9.2.1 Socio-demographic data

Socio-demographic questionnaires such as: age, sex, religion, ethnicity, education level, marital status, occupation and current residency were included to record relevant background information.

4.9.2.2 Hamilton depression Rating scale (HAMD-17)

Hamilton Depression Rating Scale (HAM-D) is the most widely used measure of depression which was developed by Max Hamilton in the late 1950s and published in1960 for purpose of assessing the effectiveness of the first generation antidepressants (38,39)**.** The scale was considered to be gold standard for more than 40 years (49). However, despite widely used many investigators found limitation of the instrument and trying to improve it. The mainly recognized limitations of the original HAMD-17 were failure to cover entire MDD symptoms, the inclusion of items which represent different construction, and the unfair weight attributed to different variables domains, as example insomnia may be scored up to six, while fatigue only up to two (50).

The tool still widely used to follow the effectiveness of anti-depressant medication in clinical settings by health professionals for already diagnosed depressive patients. The interview typically taken within 20 minutes.

Hamilton Depression Rating Scale (HAMD-17) version is the most commonly used scale with eight of the 17 items rated on 5-point scale (0=not present to 4 =severe) and the left 9 items rated on a 3-point scale (0-2) with minimum total score of 0(least sever) and maximum score of 50 (most sever).

Based on HAMD-17 scores of 1-7 taken as being normal,8-16 mild depression, 17-23 moderate and score more than 24 considered as severe depression (41)**.** Reduction in HAMD-17 total score by ≥ 50% from baseline taken as improvement (40).

More than 70 reviewed studies have shown that the internal, inter-rater and retest reliability are adequate for global score but weaker for individual items (49).When compared with BDI-II met- analysis reported that HAMD was more sensitive to change on retesting after therapeutic treatment, that is why it used widely at clinical settings (51)

4.9.2.3 Gold standard reference

Mini International Neuropsychiatric Interview (MINI) is efficient diagnostic instrument for a large psychiatric disorder in line with DSM criteria including suicidality and anti-social personality assessing questions. It has been validated for several populations into different languages and available as gold standard worldwide. It also validated for people with epilepsy and considered as gold standard for clinical research (52).

4.10 Data quality control

The tools were translated to local language (Afaan Oromo) and translated back to English before data collection period. One-day training was given for data collectors before data collection concerning purpose of the study, issue of consent and privacy of participants, and detail information about the tools and to be familiar how to fill the tools. Pre-test was done on 10% of the sample size at Agaro hospital, before the start of actual data collection and encouraged to comment on acceptability, clarity and cultural equivalence of items. Regular supervision and support were given for data collectors by the supervisor. The collected data was reviewed and checked for missing data, completeness and consistency before data entry.

4.11 Data processing and analysis

After checking the data for completeness and consistency, it was coded and entered in to the computer using Epi Data version 3.1, then exported to statistical Package for Social Science (SPSS) version-23 for analysis. Socio demographic characteristics were analyzed through descriptive statistics.

The internal consistency reliability of HAMD-17 was determined. Inter-rater reliability among two clinicians for the tool was determined through 20 participants independent of the sample size. Sensitivity, specificity and the area under the curve (AUC) for various HAM-D17 cut-off scores were calculated with receiver operating characteristics (ROC) analysis. The criterion validity of HAMD-17 against MINI was assessed by using Pearson correlation coefficient.

Semantic Validity: HAMD-17 items were translated to Afaan Oromo language by two independent bilingual translators (MSC professional in mental health from Metu University and MSC mental health student from Jimma University). Then, it was again back translated into English by other experts (two Afaan Oromo linguistics) who are blinded in the initial translation from Jimma University Afaan Oromo Language Department. Then further investigation was undertaken for difficulty items for translation and reached on common consensus.

Content validity**:** To assess the conceptual equivalence or content validity of the tool the translated version of HAMD-17 scale was pre-tested on twenty study participants prior to data collection. The following criteria was used to identify the problematic area during pre-test.

The first criterion was when the respondent disclosed that the meaning of the item is not clear. The second was when the respondent gave a response but failed to elaborate on what he/she understood from the question. The final was when respondent gave examples that indicated misconceptualization of what the question was intended to elicit. Then the discrepancy between semantic and conceptual equivalence was solved by involving both forward and backward translators and the final translated items was used for data collection. Item level content validity index was used by involving three experts (one psychiatrist, and two MSc mental health professionals).

4.11 Ethical considerations

Ethical clearance was obtained from Jimma University Institutional Review Board (IRB) and data collection was started after permission obtained. All the data collected was used only for the purpose of the study and the data collectors were ensured the secrecy of the participants. Participants were fully informed about the aims and methods of the study prior to starting the interview and written informed consent was obtained. To protect the participants from Covid-19 necessary precautions were taken, face mask was wearing, physical distance between participant and data collector was maintained. Participants those who were identified as having depression during data collection were linked to psychiatric clinic for further investigation and intervention.

4.12. Dissemination and utilization of the Result

The result of the study will be disseminated to all relevant organization through presentation and publication. The result will also be summited to JUMC, Psychiatry department, post-graduate library, JU research and dissemination office and for other concerned institution through hard copies/soft copies. Finally, attempts will be made to publish results in international journal to disseminate to worldwide.

5: Results

5.1 Socio demographic characteristics of the respondents

In total, the study had included 133 participants having response rate of 100%. Of all 86 (64.7%) were male and their age ranges from 18-63years (mean 31.7 years, SD ± 10.7). Majority of the respondents 112 (84.2%) were Oromo, followed by Amhara 12 (9%) in ethnicity. Of total participants 55 (48.1%) were not married, 100 (75.2%) were Muslim, 42 (31.6%) were farmer, and 68 (51.1%) were living in urban. Regarding educational status, 62 (46.6%) and 33 (24.8%) had completed primary and secondary school respectively.

Table 1 Socio demographic characteristics of people with epilepsy visiting neurologic clinic at JUMC, 2020 (n=133).

Variable	*Category*	*Frequency*	*Percent (%)*
Sex	Male	86	64.7
	Female	47	35.3
Marital status	Not married	64	48.1
	Married	55	41.4
	Divorced	8	6.0
	Widowed	6	4.5
Ethnicity	Oromo	112	84.2
	Amhara	12	9.0
	Kefa	5	3.8
	Gurage	1	0.8
	Others*	3	2.3
Religion	Muslim	100	75.2
	Orthodox	25	18.8
	Protestant	8	6.0
Residency	Urban	68	51.1
	Rural	65	48.9
Level of Education	Illiterate	28	21.1
	primary(1-8)	62	46.6
	Secondary(9-12)	33	24.8
	College and above	10	7.5
Occupation	Government worker	9	6.8
	Farmer	42	31.6
	Merchant	18	13.5
	House wife	17	12.8
	Daily laborer	30	22.6
	Student	14	10.5
	Other**	3	2.3

Others* = Yem and Wolaita, Others** = drivers and pensioner

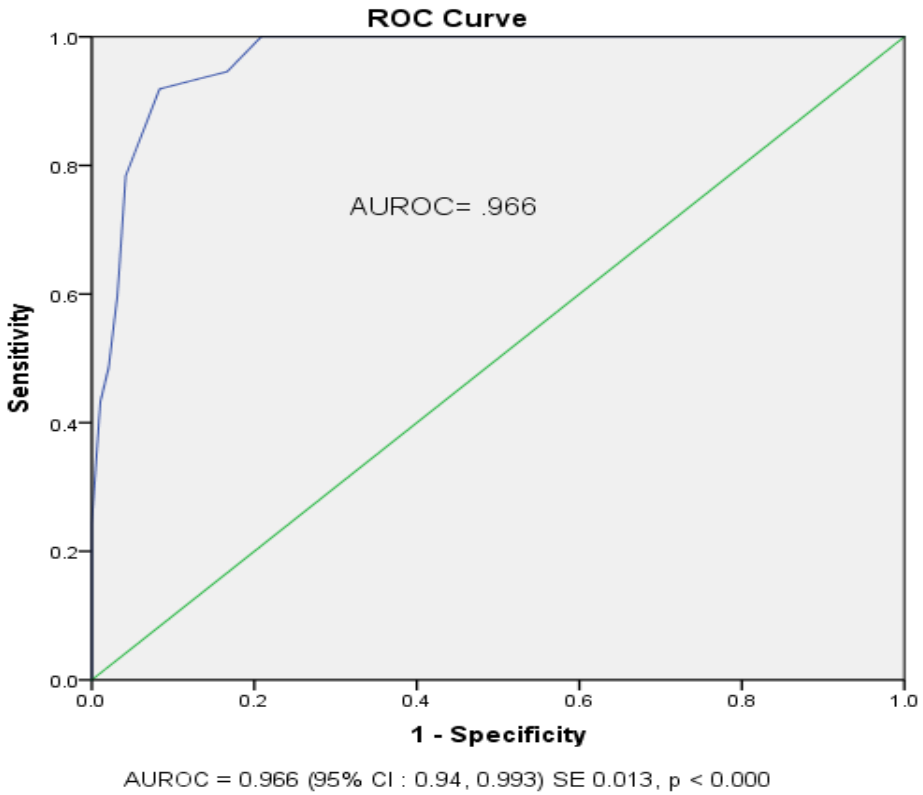
5.2. Semantic Validity

The forward translation of HAMD-17 items was performed by two independent bilingual translators (MSC professional in mental health from Metu University and MSC mental health student from Jimma University). Backward translation of HAMD-17 Afaan Oromo version done by two independent bilingual translators from Jimma University Afaan Oromo Language Department and revealed no discrepancy from the original version. Translators team (psychiatry professionals and Afaan Oromo linguistics) had undertaken further investigation to identify for difficult items for translation and finally reached to consensus as Afaan Oromo version HAMD-17 is understandable and culturally sound able.

5.3 Criterion validity

The Criterion Validity of HAMD-17 was determined using Area under the receiver operating characteristics curve (ROC) analysis. The stated score of area under the curve against gold standard MINI for DSM-V was 0.96 (95% CI 0.94, 0.993), indicating good discriminant power of the test. The bivariate correlation between HAMD-17 and MINI was also showed statistically significant correlation (r= 0.88).

Figure 1 ROC Curve for the HAMD-17 for people with epilepsy visiting neurologic clinic at JUMC, 2020 (n=133).



In our study the optimal cut-off point for HAMD-17 for people with epilepsy is 9 and above. At this cut-off score a sensitivity of 92% and specificity of 91% were obtained respectively together with 87% positive and 96% negative predictive value. At cut-off score of 9 and above with maximum sensitivity and negative predictive value (SN 92%, NPV 96%) the Afaan Oromo version of HAMD-17 showed screening properties. Positive (LR+) and negative (LR-) likelihood ratio at this cut-off point with youden index (0.83) were 10.22 and 0.08 respectively. Higher values of LH+ indicates markedly better information values of diagnostic test, whereas lower (close to 0) of LH- has better information values of negative test.

The sensitivity, specificity, positive and negative predictive values were determined for various cut-off points for the HAMD-17 and the optimum cut-off point was determined by using maximum value of youden index ((sensitivity + specificity)- 1) (table 2). The cut-off point 9 and above showed the maximum youden index of 0.83. As shown from table when the cut-off score to decreased to 8, the youden index value decreased to 0.77. Again when cut-off point escalated to 10, the youden index value reduced to 0.73.

Table 2 Sensitivity, specificity, positive and negative predictive values at different cut-off scores for the HAMD-17 for people with epilepsy visiting neurologic clinic at JUMC, 2020 (n=133).

Cut-off	8	9	10	11	12	13	14	15	16	17
Sensitivity	0.94	**0.92**	0.78	0.59	0.48	0.43	0.24	0.08	0.08	0.05
Specificity	0.83	**0.91**	0.95	0.97	0.98	0.99	1.00	1.00	1.00	1.00
PPV	0.68	**0.81**	0.87	0.88	0.90	0.94	1.00	1.00	1.00	1.00
NPV	0.97	**0.96**	0.92	0.86	0.83	0.82	0.77	0.73	0.73	0.73

5.4 Content validity

The content validity of the translated Afaan Oromo version of HAM-D17 scale was assessed on 20 study participants and 14(70%) of them revealed difficulty for understanding of item 1 and item 7. Item 1(miira gaddaa) and one of its entity "gargaarsa dhabuu" were difficulty to understand and needs further detail explanation, even though the translation was clearly forwarded. Therefore, the item 1"depressed mood" was translated as "miira gaddaa" which means "feeling sad" together with additional option "gammachuu dhabuu" which means "feeling- unhappy". Item 1 entity "Helplessness "which translated as "gargaarsa dhabuu" was understood as if they asked for financial difficulty (loss of financial help). As a result, the term "helplessness" translated as "miira maxxantumma" which means "feeling of dependency".
In item 7 "work and activities" (dalagaa fi gochoota) even though the translation is clearly forwarded, the conceptual problematics were seen and the translation was modified as "loss of interest for work and activities" and forwarded as "dalagaa fi gochootaaf fedhii dhabuu". After these modifications the study participants understood the modified items without difficulty.
Additionally, to insure content validity of the HAMD-17 this study uses content validity index(CVI), the most commonly used method to calculate content validity statistically. There are two kinds of CVI: Item level-CVI (I-CVI) and Scale-level CVI (S-CVI). The current study uses I-CVI, which computed as the number of experts giving a rating of "3(quite relevant) and 4(highly relevant)" for each item divided by the total number of experts (I-CVI=agreed items/number of experts). In rating for relevancy, a 4 point Likert scale was used (1= not relevant, 2, somewhat relevant, 3 quit relevant 4 highly relevant). Ratings of 3 and 4 were taken as content valid whereas ratings 1 and 2 were considered as invalid content.

Three experts, 1 psychiatrist and two MSc professionals in mental health, who were bilingual were involved. The Afaan Oromo version HAMD-17 was sent to experts via their E-mail address to identify measurement aim of the questionnaires, the clarity of questionnaires, the concepts that the questionnaire is intended to measure and interpretability of the items. The expert's responses were collected and the calculated I-CVI for each item showed high content validity of individual items (I-CVI = 1.00), which indicates excellent content validity (table 3). Actually values range from 0 to 1, where I-CVI < 0.70, the item is eliminated, between 0.70 and 0.79, the item needs revisions, and > 0.79 the item is relevant (53).

Table 3 The relevance ratings on the Afaan Oromo version of HAMD-17 item scale by three experts

Items	Experts			Experts in agreement	I-CVI
	Expert 1	Expert 2	Expert 3		
Depressed mood	4	3	4	3	1
Feeling of guilty	4	3	4	3	1
Suicide	4	3	4	3	1
Insomnia initial	3	4	4	3	1
Insomnia middle	4	4	4	3	1
Insomnia late	4	4	4	3	1
Work and activities	4	3	4	3	1
Psychomotor retardation	3	4	4	3	1
Agitation	3	4	4	3	1
Anxiety psychological	3	4	4	3	1
Somatic anxiety	3	4	3	3	1
Somatic symptoms gastrointestinal	4	4	4	3	1
Somatic symptoms general	4	4	4	3	1
Genital symptoms	4	4	4	3	1
Hypochondriasis	4	3	4	3	1
Weight loss	4	4	3	3	1
Insight	4	4	3	3	1

5.5 Face validity of HAMD-17

The Afaan Oromo version of HAMD-17 demonstrated good face validity when the experts asked for the tool on whether the items were unclear, conceptually indicate different meaning or do not capture what is meant to be measured. Moreover, throughout the study no non-responded participant that high item-completion rate revealed strong face validity.

5.6 Reliability of HAMD-17

The internal consistency reliability for HAMD-17 was Cronbach 's α= 0.747, which increased to 0.748 when the 14th (genital symptoms) item was removed. The inter-item correlation matrix results revealed that inter-item correlations ranged from a low score of -0.076 between Item 3(suicidality) and Item 14(genital symptoms) to a high score of 0.563 between Item 1(depressed mood) and item 2 (Feelings of guilty). From the analysis item 1 achieved highest correlation (0.507) with the scale. Corrected items-total correlation score ranged from 0.122(item 14 genital symptoms) to 0.507(item 1 depressed mood) table 4.

The inter-rater reliability of HAMD-17 showed excellent measure of agreement between two data collectors with kappa coefficient =0.88

Table 4:Scale Mean if Item Deleted, Scale Variance if Item Deleted, Corrected Item-Total Correlation, Squared Multiple Correlation, and Cronbach's Alpha if Item Deleted for HAMD-17 among epileptic patients (N= 133), JUMC ,2020

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Depressed mood	5.12	17.425	.507	.459	.716
Feeling of guilty	5.15	17.432	.506	.441	.716
Suicide	5.53	19.191	.365	.371	.733
Insomnia initial	5.44	19.854	.330	.305	.736
Insomnia middle	5.57	19.868	.347	.438	.734
Insomnia terminal	5.68	20.857	.236	.241	.743
work and activities	5.55	19.310	.439	.339	.726
psychomotor retardation	5.65	20.154	.334	.308	.736
Agitation	5.77	21.286	.220	.305	.744
Anxiety psychological	5.21	19.470	.306	.220	.739
Somatic anxiety	5.47	19.902	.258	.229	.744
Somatic symptoms(gastrointestinal)	5.60	20.287	.350	.333	.735
Somatic symptoms general	5.79	21.455	.207	. 206	.745
Genital symptoms	5.80	21.663	.122	.173	.748
Hypochondriasis	5.59	19.411	.346	.327	.734
Loss of weight	5.53	19.826	.367	.355	.733
Insight	5.77	20.907	.369	.340	.737

6: Discussion

This study determined the criterion validity of the HAMD-17 with DSM-V for depressive disorder in people with epilepsy. Our results show that at low cut-off scores 9 and above the HAMD-17 can be used as a screening instrument for depression in people with epilepsy.

The study showed psychometric properties for Afaan Oromo version of HAMD-17 in epileptic patients with a good and acceptable internal consistency of Cronbach's alpha 0.747 similar to previously reported study in Bulgaria ($\alpha = 0.740$). This finding was consistent with systematic review of HAMD-17 that conducted by Bagby et al in 2004 and estimated range of Cronbach's alpha from 0.46 to 0.970. However, the current finding was inconsistent with other studies of Brazilian study ($\alpha = 0.830$) (42), and in London (0.824) . The difference may be related to cultural or population difference and sampling effects.

From the finding HAMD-17 Afaan Oromo version had good psychometric properties with estimated AUROC of 0.966, which indicates the diagnostic accuracy of the instrument. The estimated AUROC is comparable with findings from other studies which was 0.983 (45)**.**

However, the finding of this study is higher than a result from Bulgaria and Lebanon studies, which AUROC of 0.746 and 0.837 were estimated respectively (44,47). The discrepancy might responsible for gold standard tools which were used and sample size variation.

Although the results implied that the optimal cut-off score of the HAMD-17 for people with epilepsy was found to be 9 and above. At this cut-off score the HAMD-17 demonstrates the balanced, a sensitivity of 92%, and specificity of 91%, showing high screening performance of the tool. The finding was in line with study from Chinese version of HAMD-17 for depression in adults with epilepsy (45).

This cut-off score is higher than a finding from Taiwan study (cut-off point - 7) (46), Lebanon study (cut-0ff point - 7.5) (47) and Study conducted by Mula et al (cut-off point - 6) (23). The possible reason for variation might be cultural context.

However, this result showed lower cut-off point than study conducted in Poland among 96 people with epilepsy by using Structured Clinical Interview (SCID-I) as a gold standard, found that the HAMD-17 polish version was valid with cut-off score of 11 points (28). This variation could be responsible for population culture and gold standard instrument which was (SCID-1 VS MINI).

This study found that HAMD-17 to be psychometrically valid and reliable for Afaan Oromo speaker epileptic patients. The tool can be used by general health professionals, which help in expanding of screening service given for people with epilepsy for early detection of depression. As a result, early detection and treatment of depression for people with epilepsy will improve treatment out come and overall quality of life.

In our study of participants 37(27.8%) of them were diagnosed as having depression by using Mini International Neuropsychiatric Interview (MINI). Using current cut-off point the prevalence was escalated to 31.6%. The reported prevalence of depression in our study was within the range reported by other researchers (31,33,35,54).

6.1 Strength and Limitation of the Study

One of the strength of our study was the first of its kind in Ethiopia to assess the psychometric properties of the HAMD-17 as per knowledge of the researchers and determining inter-rater reliability among the two data collectors were also some of the strength of this study.
However, the study was not out of limitation. Since the study was cross-sectional, it does not allow to do some validity and reliability test like predictive validity, test retest reliability and factors that affect the score. This study was conducted only among people with epilepsy, hence applying to other chronic medical patients may need additional consideration.

7. Conclusions and Recommendations

7.1 Conclusions

The psychometric properties of the Afaan Oromo version of HAMD-17 was considered to be a valid and reliable depression assessment tool, with a cutoff score of 9 and above for people with epilepsy. The diagnostic performance against gold standard MINI was showed good discriminatory capacity of the tool.

7.2 Recommendations

The following recommendations are forward to the concerned body basis on the study finding.

To neurological clinic health professionals: from finding the Comorbidity of depression among people with epilepsy was high. So, it has to be taken into consideration and screening of depression with HAMD-17 is recommended to all people with epilepsy.

To Jimma University Medical Centre: Training on HAMD-17 screening tool for health professionals those who are working at neurological clinic is recommended to more familiarize the staffs with the validated tool. To increase the quality of service and to improve quality of life for people with epilepsy working on integration of inter departments (psychiatry and neurological) is recommended.

To Jimma University Psychiatry Department: providing training for non- mental health professionals regarding HAMD-17 screening instrument and working collaboratively with neurologic clinic is recommended.

For Researchers: for researchers who are interested to do research on depression among people with epilepsy, using the HAMD-17 as a validated tool is recommended.

Annexes

Annex-I Reference

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Annex-II Information Sheet and Consent Form

Dear Sir/madam;

How do you do, my name is _____. I am working as research assistant with Mr. Muhammednur Yusuf from Jimma University. He is doing a research on the validation of HAMD-17 among people with epilepsy in Jimma University Medical Centre 2020, as partial fulfillment for Degree of Masters Science in integrated clinical and community mental health. I am going to give you information and invite you to be part of this research. If you agree to participate, you will be required to have face to face interview, which will take about 20 minutes of your time.

The information that we will obtain using this interview will be used only for research purpose and also, I need to assure you that confidentiality is our main quality.

Therefore; I politely request your cooperation to participate in this interview. You do have the right not to respond at all or to withdraw in the meantime, but your input has great value for the success of our objective.

Did you agree _____yes/no.

Thank you for your cooperation!!

Name of data collector _____Signature_____ date _____

Name of supervisor_____ Signature_____ date_____

Annex-III English Version Questionnaires

Section I. Socio demographic characteristics

No	Question	Response	Code
101	Age	----------	
102	Sex	1.Male 2. Female	
103	Marital status	1. Not married 2. Married 3. Divorced 4. Widowed	
104	Ethnicity	1.Oromo 2. Amhara 3. Kefa 4. Gurage 5. Dawero 6. Other (Specify)_____	
105	Religion	1.Muslim 2.orthodox 3. protestant 4. Other (Specify)_____	
106	Residency	1 urban 2 rural	
107	Educational status	1.Illiterate 4. primary (1-8) 5.secondary (9-12) 6.college and above	
108	Occupation	1. government worker 2.farmer 3.merchant 4. house wife 5. daily laborer 6. student 7. others	

Section II: Hamilton Depression Rating Scale (HAMD-17)

Instructions: For each item, circle the number next to the correct item (only one response per item).
201. Depressed Mood (sadness, hopeless, helpless, worthless) 0 - Absent 1 - These feeling states indicated only on questioning 2 - These feeling states spontaneously reported verbally 3 - Communicates feeling states non-verbally – i.e., through facial expression, posture, voice, and tendency to weep 4 - Patient reports virtually only these feeling states in his spontaneous verbal and non-verbal communication
202. Feelings of Guilt 0 - Absent. 1 – Self-reproach, feels he has let people down 2 - Ideas of guilt or rumination over past errors or sinful deeds 3 - Present illness is a punishment. Delusions of guilt 4 - Hears accusatory or denunciatory voices and/or experiences threatening visual hallucinations
203. Suicide 0 - Absent 1 - Feels life is not worth living 2 - Wishes he were dead or any thoughts of possible death to self 3 - Suicidal ideas or gesture 4 - Attempts at suicide (any serious attempt rates 4)

204. Insomnia Early

0 - No difficulty falling asleep

1 - Complains of occasional difficulty falling asleep – i.e., more than 1/2 hour

2 - Complains of nightly difficulty falling asleep

205. Insomnia Middle

0 - No difficulty

1 - Patient complains of being restless and disturbed during the night

2 - Waking during the night – any getting out of bed rates 2 (except for purposes of voiding)

206. Insomnia Late

0 - No difficulty

1 - Waking in early hours of the morning but goes back to sleep

2 - Unable to fall asleep again if he gets out of bed

207. Work and Activities

0 - No difficulty

1 - Thoughts and feelings of incapacity, fatigue or weakness related to activities, work or hobbies

2 - Loss of interest in activity, hobbies or work – either directly reported by patient, or indirect in listlessness, indecision and vacillation (feels he has to push self to work or activities

3 - Decrease in actual time spent in activities or decrease in productivity

4 - Stopped working because of present illness

208. Retardation: Psychomotor (slowness of thought and speech; impaired ability to concentrate; decreased motor activity)

0 - Normal speech and thought

1 - Slight retardation at interview

2 - Obvious retardation at interview

3 - Interview difficult

4 - Complete stupor

209. Agitation

0 - None

1 - Fidgetiness

2 - Playing with hands, hair, etc.

3 - Moving about, can't sit still.

210. Anxiety (psychological)

0 - No difficulty

1 - Subjective tension and irritability

2 - Worrying about minor matters

3 - Apprehensive attitude apparent in face or speech

4 - Fears expressed without questioning

211. Anxiety Somatic: Physiological concomitants of anxiety (i.e. effects of autonomic over activity, "butterflies," indigestion, stomach cramps, belching, diarrhea, palpitations, hyperventilation, paresthesia, sweating, flushing, tremor, headache, urinary frequency). Avoid asking about possible medication side effects (i.e., dry mouth, constipation)

0 - Absent

1 - Mild

2 – Moderate 3 – Severe ,4 – Incapacitating

212. Somatic Symptoms (gastrointestinal)

0 - None.

1 - Loss of appetite but eating without encouragement from others. Food intake about normal

2 - Difficulty eating without urging from others. Marked reduction of appetite and food intake.

213. Somatic Symptoms General

0 - None

1 - Heaviness in limbs, back or head. Backaches, headache or muscle aches. Loss of energy and fatigability.

2 - Any clear-cut symptom rates "2"

214. Genital Symptoms (symptoms such as loss of libido; impaired sexual performance; menstrual disturbances)

0 - Absent

1 - Mild

2 - Severe

215. Hypochondriasis

0 - Not present

1 - Self-absorption (bodily)

2 - Preoccupation with health

3 - Frequent complaints, requests for help, etc.

4 - Hypochondriacal delusions

216. Loss of Weight 0 - No weight loss 1 - Probable weight loss associated with present illness 2 - Definite (according to patient) weight loss 3 - Not assessed
217. Insight 0 - Acknowledges being depressed and ill 1 - Acknowledges illness but attributes cause to bad food, climate, overwork, virus, need for rest, etc. 2 - Denies being ill at all
Total Score ----------

Section III: Questioners for Assessment of Depression by MINI

Ser.no	Questions	Yes	No
301	Have you been consistently feel sad or depressed? Did you feel this way most of the time, for at least 2 weeks?		
302	For the past 2 weeks were you bored a lot or much less interested in things (like playing your favorite Games)? Have you felt that you couldn't enjoy things?		
303	Was your appetite increased or decreased most of days? Did you lose or gain weight without trying? (i.e.by ±5% of body weight in the past month)		
304	Did you have trouble sleeping almost every night ("trouble sleeping" means trouble falling asleep, waking up in the middle of the night, waking up too early or sleeping too much)?		
305	Did you talk or move slower than usual? Were you restless or couldn't sit still almost every day?		
306	Did you feel tired most of the time?		
307	Did you feel guilty or worthless most of the time?		
308	Did you have trouble concentrating or did you have trouble making decision?		
309	Did you repeatedly consider hurting yourself, feel suicidal and feel that you wished that you were dead?		
310	Are 5 or more answers yes from question number 301-309?		
311	Specify the episode is current or past. A. current B. past		

Annex-IV Afaan Oromo Version HAMD-17 and other questionnaires

Kutaa I; Uunka Odeffannoo fi Waliigaltee

Obboo/Addee;Akkam jirtu Ani maqaan koo_____jedhama.

Ani hojjataa Giddugala waldhaansa Fayyaa Yuunivarsiitii Jimmaa yommuun ta'u qorannoo kana irratti akka gargaaratti, Obboo Muhammednur yusuf wajjiin hojjataa jira.Inni barataa digirii lamaffaa yoo ta'u, ulaagaa eebbifamuuf barbaachisu guutuuf qorannoo matadureen "validation of HAMD-17 among people with epilepsy in Jimma University Medical Centre 2020".jedhu irratti dhukkubsattoota dhibee gaggabdoo qaban irratti kan hojjachaa jirudha. Akka hirmaataa qorannichaa taataniif ibsaa fi ragaa gahaa ta'e isin biraan gahuun barbaada. Eeyyamamaa yoo taatan gaaffii afaanii armaan gaditti dhiyaataniif yeroo turtii daqiiqaa digdama hin caalleef akka nuuf hirmaattan isin gaafanna. Ragaan isin nuuf laattan barbaachisummaa qorannichaaf yoo ta'u, qaama qorannicha gaggeessu irraa kan hafe qaama biraatti kan hin dabarsine ta'uun keenya gaarummaa keenya ibsa. Kanaafuu qorannoo kana irratti akka nuuf hirmaattaniif kabajaa fi ulfinaan isin gaafanna. Yeroo barbaaddanitti diduus ta'ee addan kutuuf mirga guutuu qabdu. Haata'u malee hirmaannan keessan kaayyoo qorannichaa galmaan gahuuf gahee guddaa qaba.

Eeyyamamoo dha_____

Eeyyamamoo miti _____

Eeyyamamoo ta'uu keessaniif galatooma!

Maqaa ogeessa ragaa funaanuu ---------- mallattoo---------- guyyaa----------

Maqaa too'ataa----------mallattoo----------guyyaa----------

Table 1: Odeeffannoo walii gala

Lakk.	Gaafilee	Deebii
101	Umrii	----------
102	Saala	1.Dhiira 2.Dhalaa
103	Haala fuudha fi heerumaa	1.kan hinfuune/hin heerumne 2.kan fuudhe/heerumte 3.kan hiike/hiikte 4.kan jalaa du'e/duute
104	Saba	1.Oromoo 2. Amaaraa 3.Kafaa 4. Gurage 5.daawuro 6.Kan biraa (haa ibsamuu)------
105	Amantaa	1.Musliima 2.Ortodoksii 3. Protestaantii 4.Kan biraa(haa ibsamuu)------
106	Iddoo jireenyaa	1. Magaalaa 2. Baadiyyaa
107	Sadarkaa barnootaa	1. Kan b/idilee hinbaranne 2.sadarkaa 1^{ffaa}(1-8) 3. Sadarkaa 2$^{ffaa(9-12)}$ 4.koolejjii fi isaa ol
108	Hojii	1.Hojjataa mootummaa 2.Qoteebulaa 3.Daldalaa 4. Haadha manaa 5. Hojjataa humnaa/hojii guyyaa 6. barataa/ttuu 7.Kanbiraa(haa ibsamuu)------

Table: 2 MINI-5 Afaan Oromoo Version

Lak.	Gaaffile	Eyyee	Miti
201	Walatti fufiinsaan miirri gaddaa gadi fagoon sitti dhagahamaa? Miirri kun haala Kanaan yeroo hedduuf sitti dhagahama? yoo xiqqaate torbaan lamaaf tureera?		
202	Torbaan lamaan darbaniif baayyee si nuffisiisa ykn fedhiin wantoota akka tapha jaalatamaa keetiif qabdu hir'atera? Miirri gammachu argachuu hin danda'u jedhu sitti dhagahamera?		
203	Fedhiin nyaataa keessan guyyoota hedduuf dabale /hir'ateeraa?hirisuf/dabaluuf yaaluun alatti jijjiramni ulfatina keessan irratti mullateeraa?(kg ± 5 ulfaatina qaamaa)		
204	Rakkoo hirribaa guyyuu ni qabduu? (rakkoo hirribaa jechuun rafiitiin/hirribni isin fudhachuu dhabuu, halkan walakkaa hirribarraa ka'uu, barii dursanii hirribarraa ka'uu fi hirriba akka malee daneesssu/baayyisuu)		
205	Dubbiin ykn sochiin keessan waan durii irraa hir'ateeraa?guyyaa hunda boqannaa keessoo dhabuu ykn iddoo tokko taa'uu dadhabuun jiraa?		
206	Yeroo baay'ee giidoo dhabuun/dhadabbiin ni jiraa?		
207	Miirri gaabbii/gatii dhabdummaa yeroo baay'ee isinitti ni dhagahamaa?		
208	Rakkoon xiyyeeffannoo dhabuu ykn waa murtessuu dadhabuu jiraa?		
209	Irra deddeebiidhaan of miidhuuf, lubbu keessan baasuuf ykn yaada du'uu qabaachuun jiraa?		
210	Deebiin eeyyee jedhu 5 fi oli		
211	Dhukkubni kun kan ammaa ykn kan durii ta'u adda baasi	A.kan ammaa B.kan durii	

Table 3; - Hamilton Depression Rating Scale (HAMD-17)-Afaan Oromo Version

Lak	***Qajeelfama***: Tokko tokkoon gaaffileetiif lakkoofsa filannoo isa sirrii gaaffichatti aanee jiru irratti marsaa (gaaffii tokkoof deebii tokko qofa)
301	**Miira gaddaa yookiin gammachuu dhabuu (gaddiinsa, abdii kutannaa, miira maxxantummaa, faayidaa ykn gatii dhabdummaa)** 0. Hinjiru 1. Miirri kun kan muldhatu/itti dhagahamu yeroo gaafataman qofa 2. Miirri kun akka jiru kaka'umsa ofiitin jechaan ibsu. 3. Dubbiin ykn haasawuun alatti miira kana ibsachuu (taatee fuula irratti muldhatuun, sagaleen, dhaabbii qaamaanii fi booyicha baay'isuu)) 4. Dhukkubsataan haasawa sagalee fi sagaleen alaa keessatti miirri kun akka jiru kaka,umsa mataa ofiitin ni calaqqisiisu.
302	**Miira gaabbii** 0. Hinjiru/hin muldhatu 1. Of komachuu/ ofitti gaabbuu, akka waan namoota biroo miidheetti /mufachiisetti yaaduu 2. Dogongoroota/badii darbaniif yaadota gaabbii qabaachuu 3. Dhukkuba kana akka adabbiitti fudhachuu ykn akka waan sababaa badii darbeetti of amansiisuu 4. Bakka namni hin jirretti sagalee yakkuu ykn qeeqaa dhagahuu ykn wanta sodaachisaa nama birootti hin muldhanne arguu
303	**Lubbuu ofii baasuu/ of ajjeesuu** 0. Hinjiru 1. Jireenyi akka waan gatii hin qabneetti itti dhagahamuu/ yaaduu 2. Du'uuf hawwuu ykn karaalee du'aaf nama saaxilan yaaduu 3. Lubbuu of baasuuf yaaduu ykn gochoota sasalphoo sana akeekan raawwachuu 4. Yaalii lubbuu of baasuu ykn of ajjeesuu gochuu (yoo yaalii cimaa ta'e qabxii 4 kenniif)

304	**Hanqinna hirriba galgalaa (seensa irratti)** 0. Rakkoon hirribaan qabamuu dhabuu hin jiru 1. Darbee darbee rakkoo hirribaan qabamuu dhabuu dubbatu/ himatu fkn walakkaa sa'aatii oliif 2. Halkan hunda rakkoo hirribaan qabamuu dhabuu himatu/ dubbatu
305	**Hanqinna hirribaa halkan walakkeessa /waarii** 0. Rakkoon hinjiru 1. Dhukkubsataan yeroo halkanii boqonnaa dhabuu fi jeeqamuu dubbatu 2. Halkan /waarii hirriba irraa ka'uu/ dammaquu – sababa booliidhaan alatti sireerraa ka'uun yoo jiraate qabxii lama (2) kennama
306	**Hanqinna hirribaa gara barii/obboroo** 0. Rakkoon hin jiru 1. Ganama sa'aatii muraasaaf dursanii dammaquu, garuu deebi'anii rafuu danda'uu 2. Erga sireerraa ka'anii booda deebi'anii rafuu dadhabuu
307	**Hojii/dalagaa fi gochootaaf fedhii dhabuu** 0. Rakkoon hin jiru 1. Akka waan dandeettii hin qabneetti yaaduu fi itti dhagahamuu, dadhabbii ykn giido dhabuu dalagaan, gochootaan ykn hawwiin wal qabatee 2. Hojiidhaaf, gochoota garaagaraa ykn hawwii garaagaraaf fedhii dhabuu(kallattiidhaan dhukkubsataan dubbachuu ykn alkallattiidhaan kan muldhatu kan akka murteessuu dadhabuu,raata'uu, waliin dhahuu ykn hojii hojjachuuf akka of kakaasuu qabu fa'aa itti dhagahamu 3. Bu'a qabeessummaan gad bu'uu ykn yeroon hojii irratti dabarsu gadi bu'uu 4. Sababa dhukkuba isa ammaa kanaaf hojii dhaabuu

308	**Turiinsa/Harkifannaa:harkifannaa sammuu fi qaamaa (harkifannaa yaadaa fi dubbii, dandeettiin xiyyeeffannoo miidhamuu, sochiin qaamaa gadi bu'uu)** 0. Dubbii fi yaada sirrii ta'e 1. Yeroo gaaffii fi deebii hamma ta'e harkifannaan ni muldhata 2. Harkifannaan ifa galaan gaaffii fi deebii irratti ni muldhata 3. Gaaffii fi deebii gochuun ulfaataadha 4. sochii tokkollee kan hin qabne
309	**Tasgabbii dhabuu(Sosochii baay'isuu)** 0. Hin jiru 1. Tasgabbii dhabuu 2. Harkaan taphachuu(sosocho'uu), rifeensa oliif gad oofuu 3. Asiif achi deemu, bakka tokko taa'u dadhabuu
310	**Dhiphina/Yaaddoo (xiin-sammuudhaan)** 0. Rakkoon hin jiru 1. Dhiphina keessoo ykn aarii 2. Dhimmoota yaraaf/gadi aanaaf yaadda'uu 3. Miirri sodaa waan gara fuulduraa fuularraa ykn dubbiirraa muldhachuu 4. Osoo hin gaafatamin sodaa ibsachuu/ himachuu
311	**Dhiphina /yaaddoo(qaamawaa)-**taatee miirawaa(qaamawaa) yaaddoo waliin dhufu (fkn;dhiibbaa gochi fedhiin alaa sochii irratti qabu, nyaatni bullaa'uu dhiisuu, garaan ciniinuu,bulgaanfachuu, garaa kaasaa,dhahannaan onnee dabaluu,ho'insa qaamaa, hadooduu, dafqisiisuu, hollachiisuu,ammaa amma finceessisuu, boowwafachuu. Dhiibbaa qorichaan wal-qabate hin dabalatu(fkn: afaan goggogsuu. gogiinsa garaa). 0. Hinjiru 1. Salphaa 2. Giddugaleessa 3. Cimaa 4. Dadhabsiisaa

312	**Mallattoolee qaamaa (Daandii sirna bullaa'insa nyaataa)** 0. Hinjiru 1.Fedhii soorataa dhabuu; garuu osoo nama biraatiin hin jajjabeeffamin nyaachuu (fudhannaan nyaataa hammaan sirrii kan ta'e) 2. Rakkoo nyaachuu/soorachuu dhabuu hamma nama biraatiin akka nyaatu kajeelamutti/ barbaadamutti (gadi bu'iinsa fedhii nyaataa fi fudhannaa soorataa ifa galaa ta'e)
313	**Mallattoolee qaamaawoo walii gala** 0. Hinjiru 1. Ulfaatina harkaa fi miilaa, dugda ykn mataa. Dhukkubbiii mataa, dugdaa fi maashaa. Humna dhabuu ykn dadhabbii 2. Mallattoo ifa galaa kamiifuu qabxii 2 kenni
314	**Mallattoolee naannoo qaama saalaa (mallattoolee akka fedhii walqunnamtii saalaa dhabuu, walqunnamtii saalaa dadhabuu, jeeqamuu marsaa laguu)** 0. Hinjiru 1. Salphaa 2. Cimaa
315	**Akka waan dhibee cimaan qabamanitti of yaaduu/sodaachuu** 0. Hinjiru 1. Rakkoo sana gara ofiitti fudhachuu/ keessa of galchuu(qaamaan) 2. Waa'ee fayyaa ofiitif dursanii yaadda'uu 3. Gargaarsa ammaa amma gaafachuu, ammaa amma dhibee himachuu 4. Akka waan dhibee qabaniitti amanuu/ of amansiisuu
316	**Hir'achuu ulfaatina qaamaa** 0. Ulfaatinni hin hir'anne 1. Dhukkuba ammaa kana wajjiin walqabatee ulfaatinni hir'achuu danda'a 2.Dhukkubsataan qabatamaan akka ulfaatinni isaanii hir'ate dubbatu

317	**waa'ee dhukkubichaa ilaalchisee beekumsaa fi hubannoo dhukkubsataa** 0. Miira gaddaa qabaachuu fi dhukkubsachuu isaanii ni beeku 1. Dhibee qabaachuu isaanii ni hubatu, garuu ka'umsa isaa gara waan biraa akka nyaata badaa, haala qilleensaa, baay'ina hojii, vaayirasii, boqonnaa dhabuu fi kkf jedhanii hubatu 2. Waliigalatti dhukkuba hin qabu jedhanii mormu.
	Ida'ama waliigalaa----------