WOLKITE UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES

DEPARTMENT OF NURSING

Prevalence and associated factors of depression and anxiety among people living with HIV on follow up at Wolkite University specialized teaching Hospital and Worabe comprehensive Specialized Hospital, Southern Ethiopia, 2023: Cross-sectional Study

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A RESEARCH PAPER TO BE SUBMITTED TO WOLKITE UNIVERSITY, COLLEGE OF MEDICINE AND HEALTH SCIENCES, DEPARTMENT OF NURSING FOR THE PARTIAL FULFILMENT OF A BACHELOR OF SCIENCE IN NURSING

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APPROVAL SHEET

Prevalence and associated factors of depression and anxiety among people living with HIV on follow up at WKUSTH and WCSH, Southern Ethiopia, 2023: A Multi-center Cross-sectional Study

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ACRONYMS AND ABBREVIATIONS

AA	Addis Ababa
AIDS	Acquired Immune Deficiency Syndrome
AOR	Adjusted Odds Ratio
ART	Anti-Retro Viral Therapy
ASSIST	Alcohol, Smoking, and Substance Involvement Screening Test
BSC	Bachelor of Science
CD4	Cluster of Differentiation
CI	Confidence Interval
EDHS	Ethiopia Demographic Health Survey
ETB	Ethiopian Birr
FMOH	Federal Ministry of Health
GAD-7	General Anxiety Disorder-7
HAART	Highly Active Antiretroviral Therapy
HIV	Human Immunodeficiency Virus
MSC	Master of Science
PHQ-9	Patient Health Questionnaire-9
PLWHA	People Living With HIV/AIDS
SPSS	Statistical Package for Social Sciences
TB	Tuberculosis
UNAIDS	United Nations Programme on Human Immune Deficiency Virus
WCSH	Worabe Comprehensive Specialized Hospital
WHO	World Health Organization
WKUSTH	Wolkite University Specialized Teaching Hospital

ABSTRACT

Background: Globally, HIV/AIDS is a significant burden and public health issue, and two-thirds of people living with HIV/AIDS (PLWHA) reside in Sub-Saharan Africa. Ethiopia also has a high HIV/AIDS prevalence rate. Compared to those without HIV/AIDS, people living with HIV/ AIDS have a higher prevalence of mental problems, especially depression and anxiety. Even if HIV/AIDS care is now updated with time, the diagnosis and treatment of depression and anxiety among PLWHA are not taken into consideration.

Objective: The main aim of this study was to assess the prevalence and associated factors of depression and anxiety among PLWHA attending ART clinics at WKUSTH and WCSH, Southern Ethiopia, 2023.

Methods: A multi-center institutional-based cross-sectional study was conducted with a total of 190 PLWHA attending ART clinics at WKUSTH and WCSH from May 17 - June 18, 2023. Data was entered into Epi Data Manager Version 4.2 and analyzed by Statistical Package for Social Sciences (SPSS) Version 26. Binary logistic regression was used to check for the significant association between an outcome variable and an explanatory variable, association by chi-square, whereas significance specifically by regression. Multiple logistic regression model was used and variables with a P-value of <0.05 were considered statistically significant variables.

Result: A total of 177 participants were included in the study with a 93% response rate. The prevalence of depression and anxiety among PLWHA attending ART clinics at WKUSTH and WCSH were 53(29.9 %) and 49(27.67%) respectively. This study confirmed that sex, [AOR= 0.153;95% CI (0.035-0.657)], social support, [AOR=8.775; 95% CI (1.035-74.381)], internalized stigma [AOR=8.047; 95% CI (2.576-25.136)], ART regimen, [AOR=0.144; 95% CI (0.027-0.777)], were associated only with depression, and monthly income [AOR=6.995; 95% CI(1.056-46.351)], and opportunistic infection, [AOR=0.351; 95% CI (0.133-0.925)] were associated only with anxiety.

Conclusion and recommendation: More than one-fourth of the study participants were found to have depression. Age, occupation, and marital status were significantly associated with depression. There were also significant associations between age, occupation, marital status with anxiety. Timely recognition and treatment of depression and anxiety better for reducing depression and anxiety in

PLWHA at ART clinic and mental healthcare and screening for depression and anxiety better included.

Keywords: Depression, Anxiety, HIV/AIDS, Prevalence, Factors, Ethiopia.

1. INTRODUCTION

1.1 Background

Depression is a widespread mental condition that manifests as a depressed mood, lack of interest in or pleasure from previously enjoyed activities, decreased energy, feelings of guilt or low self-worth, interrupted sleep or eating, and difficulty concentrating. It affects over 280 million people worldwide (1). In Ethiopia, the prevalence of depression was reported to be 9% and is the 7th leading cause of disease burden in 2021 (2).Anxiety is a vague, subjective, non-specific emotion that includes feelings of unease, apprehension, tension (excessive nervousness), fear, and a sense of impending doom, and it can also manifest as an anxiety attack (3). The World Health Organization estimates that 264 million people, or 3.6% of the global population, suffer from an anxiety illness (4).

A major concern for many years has been the development of the HIV/AIDS epidemic; it is a major issue, particularly in sub-Saharan African countries. One of the sub-Saharan countries impacted by the issue is Ethiopia (5). According to estimates from around the world, there were an estimated 38.4 million individuals living with HIV/AIDS in 2021, and more than 40 million people died as a result of AIDS-related illnesses (6). In the world, 28.7 million people were receiving HIV therapy (7). With an estimated average of 3.9% of the population living an HIV-positive life.

Africa has the highest HIV prevalence of any continent (8). In Ethiopia, around 613,000 people are living with HIV. The different prevalence rates are significant when looking at the total number of PLWHA per region as population size varies from one region to another. A study found higher HIV prevalence in the Gambela region, Center-North, and some parts of Eastern Ethiopia (9). There were a total of 48,341 people living with HIV in SNNPR in 2021 (10).

Depression and anxiety disorders are more common in HIV-infected individuals than in the general population (11). There is a significant psychological impact imposed on HIV/AIDS patients. Depression and Anxiety disorders increase stigmatization, decrease

quality of life, increase mortality, reduce adherence, and impair immune function(12).

1.2 Statement of the problem

Even though there is an improved and more advanced HIV/AIDS treatment available and the life expectancy of PLWHA has increased, there are still several problems now affecting them along with much comorbidity. Treatment resistance, the return of opportunistic infections, increased demand for medical resources, increased morbidity and mortality, and lastly, poor health outcomes of HIV-positive patients were mostly caused by the comorbidity of depression on HIV/AIDS (13). Anxiety/depression and HIV/AIDS share a connection. Mental health issues are present in more than half of all HIV-positive persons (14).

Compared to the general population, HIV-positive patients have anxiety and depression recurrence rates that are two to four times higher. These two common mental disorders, which are a long-standing challenge in the public health sector, are usually unnoticed and remain a potentially risky condition that can affect not only the social aspect of their quality of life, social interactions, and treatment adherence but also their life expectancy (15).

Depression and anxiety among PLWHA were still not given the proper attention as essential HIV treatment services, despite Ethiopia's Federal Ministry of Health (FMOH) promising to address their demand for effective, affordable, equitable, and sustainable mental health treatments (16), depression is the most common mental disease, recent studies from high-income nations, including the United States, suggest that a large national sample of HIV-positive men and women have a significant prevalence of depression and anxiety disorders. (17).

Patients with HIV/AIDS who have recently been diagnosed begin to wonder and worry about a variety of issues that alter their lives, which causes them to feel hopeless. HIV patients who take medication, have low income, are widowed, are women, are unemployed, abuse drugs or alcohol, do not take their medications as prescribed, have little or no education, and are in stages III or IV of the HIV infection are all at risk for developing depression and anxiety. Depression entails a significant weight of sickness

and is linked to detrimental effects on health, such as a lack of commitment to ART rendering it ineffective and reducing lifespan and quality of life for PLWHA. (18).

People affected by HIV/AIDS are more prone to develop mental disorders such as anxiety, they might have anxiety as part of normal life experience when encountering stressful, novel, or potentially dangerous situations, but it could assume the dimension of an independent medical disorder (14). They also suffer from anxiety as they adjust to the impact of the diagnosis of being infected and face the difficulties of living with a chronic life-threatening illness, for instance, shortened life expectancy, complicated therapeutic regimens, different forms of stigma, and loss of family or friends' support (19). Which in turn, impair their immune function, reduce their quality of life and adherence to treatment, and contribute significantly to their premature deaths (3, 20).

Due to a lack of training for healthcare professionals, a lack of awareness among HIV patients, and a lack of guidelines to manage psychiatric disorders in HIV clinics, the impact of mental health issues on HIV patients is frequently underestimated and is more critical in resource-constrained settings. Anxiety and depression affect the stigma attached to the condition, lower personal satisfaction, raise mortality, reduce medication adherence, and a person's ability to fight off disease (14). These demonstrate that anxiety and depression significantly affect the treatment outcomes for these patient populations, which is why early detection and effective treatment of anxiety and depression are essential to improve health outcomes and the standard of care.

Although co-morbid depression and anxiety in HIV/AIDS patients are a significant source of morbidity and mortality in impoverished nations like Ethiopia, their identification receives little attention. Therefore, by determining the prevalence and associated causes of depression and anxiety among HIV patients in the study region, the results of this study will assist in closing the gap in developing the necessary remedies.

1.3 Significance of the Study

This study aims to assess the prevalence and associated factors of depression and anxiety among PLWHA. It helps to improve health outcomes for HIV patients by identifying the associated factors that contribute to the high prevalence of depression and anxiety. This finding helps to come up with possible solutions to improve the mental health status of HIV patients. The result of the study also will be used as information for the healthcare provider to prepare a program that allows HIV patients to get comprehensive clinical care that takes the mental state into consideration and healthcare institution service improvement, this finding also give relevant information about depression and anxiety for those studied hospitals and Hospital administrator. The findings of this study will also serve as a reference for other researchers who want to conduct further investigation.

2. LITERATURE REVIEW

2.1 Prevalence of depression among people living with HIV/AIDS

Regarding the prevalence of depression among PLWHA there have been different studies across the globe with different results. A study conducted in India revealed that the prevalence of depression was 18.8% (21). According to an institutional-based cross-sectional study done in Pakistan, The prevalence of depression was 89.9% (22). Other studies done recently reported a prevalence of 59% in Brazil (23), 22% in Europe (24), and 28.5% in Cameron (25). A hospital-based analytical cross-sectional study conducted at the Cape Coast Teaching Hospital in Ghana showed the prevalence of depression was 8.6% (17). A systematic review and meta-analysis conducted on PLWHA in East Africa have demonstrated that the prevalence of depression among PLWHA was 38%(26). and studies conducted in different parts of the country showed that the prevalence of depression among HIV/AIDS Patients Attending ART Clinic was 41.7 % at Gimbi General Hospital, Oromia region, west Ethiopia (27),), 45.8% at Harar Town, Eastern Ethiopia (28), 20% at Dessie Referral Hospital, South Wollo, Amhara Region, Ethiopia (29), and 32.7% at Hawassa University compressive Specialized Hospital, Hawassa, southern Ethiopia(30). A study conducted at Bale Zone three hospitals, namely Goba Referral Hospital and two general hospitals (Dellomena and Robe General Hospital), revealed that The prevalence of depression among the study participants was found to be 44.9% (31). The Study conducted at Adama Hospital Medical College in Adama town revealed that 52.4% of HIV-positive patients taking ART had depression (32). The prevalence of depression among PLWHA attending ART clinics at Gurage Zone selected Government Hospitals, Southwest, SNNPR, Ethiopia, 2018 was 37.5% (33).

2.2 Prevalence of Anxiety among people living with HIV/AIDS

In the US, PLWHA was predicted to have a 19% anxiety prevalence, which is greater than

the US general population (34). Anxiety was shown to be 15.6% prevalent in a cross-sectional study done at Beijing Ditan Hospital in China (35). 80.3% was the prevalence, according to a study done in Pakistan (22). There are 59.6% and 12.7% prevalence respectively, according to studies done in Germany and India(36, 37). The prevalence of anxiety was reported to be 40.8% (38). In a different study carried out at the Cape Coast Teaching Hospital in Ghana. Anxiety was present in 39.6% of people, according to a Nigerian study (39). The prevalence of anxiety was 32.4%, according to a study at Alert Hospital Addis Ababa Hospital(3). The Prevalence of anxiety among clients Silte zone, and Gurage zone was found to be 25.6%(9), and another study conducted in Hawassa reported a prevalence of anxiety was 34.4% (30).

2.3 Factors Associated with Depression and Anxiety among People Living with HIV/AIDS

2.3.1 Socio-demographic factors

A study done in West Africa showed that in a large sample of PLWHA **aged** 50 years and above, depression was observed in almost 18% of the patients(40). Severe depression was present in 28.2% of PLWHA in the United States between the ages of 56 and 65 (41). In contrast, a study at Conakry University Hospital in 2018 found that patients under 40 had 2.81 times the likelihood of experiencing anxiety than patients over (42).

According to research, depression and **gender** are closely related, with women being more prone to the condition. In societies where men predominate, women suffer the greatest burden of all problems, including homelessness, violence, discrimination, and single parenting, and the exposure to traumatic life situations is increased for women (43). Another study conducted in China showed that the prevalence of depression of MLWHA (Men Living With HIV AIDS) was high in Heilongjiang: more than 40% of respondents had depression and the rate was far higher than the general population in China (44).

According to a study, anxiety levels are significantly influenced by the HIV-infected person's **marital status**. When compared to individuals who had a stable marital life, becoming a widow increased a person's risk of anxiety by over 4 times. The results are

consistent with research done in Harar and Hawassa. Anxiety is exacerbated by unstable marriages and partner loss (43)

Compared to women with academic backgrounds, women without formal **education** showed a higher prevalence of anxiety and depression (15). Patients with less education and patients with lower levels of attendance at school had higher rates of depression detected (18)

In a 2018 study in southwest Nigeria, patients who were **unemployed** or retired had the greatest rates of anxiety. Other studies that found that unemployment was a risk factor for anxiety contributed to this (39). According to a study conducted in Southwest Nigeria, the mental strain brought on by having **low income** may be the cause of the reported anxiousness. The majority of respondents made less than $2 a day on average, and they might have trouble paying their bills (45).

2.3.2 Psychosocial factors

According to the study conducted in Alert Hospital Addis Ababa Ethiopia, those with **internalized stigma** had 4 times more risk of developing anxiety as compared to those who were non-stigmatized (3). According to the study conducted in Gimbi Hospital South West Ethiopia, it showed that participants who have HIV-related stigma had more depression than those who didn't.

Study participants who have poor **social support** had more depression than those with strong social support. This might be because poor social support may lead to social isolation, which can be responsible for depression (27).

An institutional-based cross-sectional study which was conducted at Debremarkos Town Northwest shows that those **living alone** were 2.5 times more likely to be depressed than those living with family, and it also shows those **losing a job** due to HIV had 2.7 times more likely to be depressed than not losing a job (46).

2.3.3 HIV-related factors

Studies at Southwest Regional Hospitals of Cameroon show that the prevalence of depression in PLWHA with a **CD4 count** <200 cells/μl was higher than in PLWHA with a

CD4 count >200 cells/μl (52.2% vs. 24.9%) (47). Another study at Metu Karli Hospital, South West Ethiopia shows that people having a CD4 count <250 cells/μl were 2 times more likely to be depressed than those with a CD4 count >250 cells/μl (48).

According to a study done in Alert Hospital, AA, Ethiopia, people with **HIV stage** III were 2.8 times more likely to have depression than those with HIV stage one(3).Another study conducted at Debrebirhan Referral Hospital in North Showa found that those without HIV stage I was 2.3 times more likely to experience depression (45).

Opportunistic infections in HIV/AIDS patients expose them to frequent hospitalization, which has an impact on the patient's financial situation and emotional well-being. Additionally, the development of HIV/AIDS into an advanced stage was accelerated by opportunistic infection. Patients with HIV/AIDS experience depression as the disease advances because they are terrified of dying. This conclusion is consistent with research done in East Africa (26). When compared to people who did not have a comorbid illness, having TB/HIV co-infection increased one's risk of anxiety by 2.7 times (3).

A Study at Guru Teg Bahadur Hospital in Delhi, India (2014) indicates that the prevalence of depression decreases with the **duration of treatment with HAART** (21). The study at Southwest Regional Hospitals of Cameroon shows that there was no association between the duration of treatment with HAART and depression (47). A study conducted in public hospitals of kembata tembaro zone, south Ethiopia shows that 89.4% of the participants were in the first line of the drug and they were more likely to be depressed (49)

2.3.4 Behavioral-related factors

A study done in northwest Ethiopia in 2021 found that higher-risk **cigarette smokers** were 4.8 times more likely to experience anxiety than lower-risk smokers (50). The drinking habits of the subjects are often ignored in research that evaluates anxiety and depression in HIV patients. Contrary to other research, which revealed that **alcohol consumption** is not linked to depression and anxiety(51), Contrary to other research, which revealed that alcohol consumption is not linked to depression and anxiety (52,

53). Also, a study conducted in Pakistan showed a significantly lower risk of depression among **physically active** HIV patients (51).

2.4 Conceptual framework

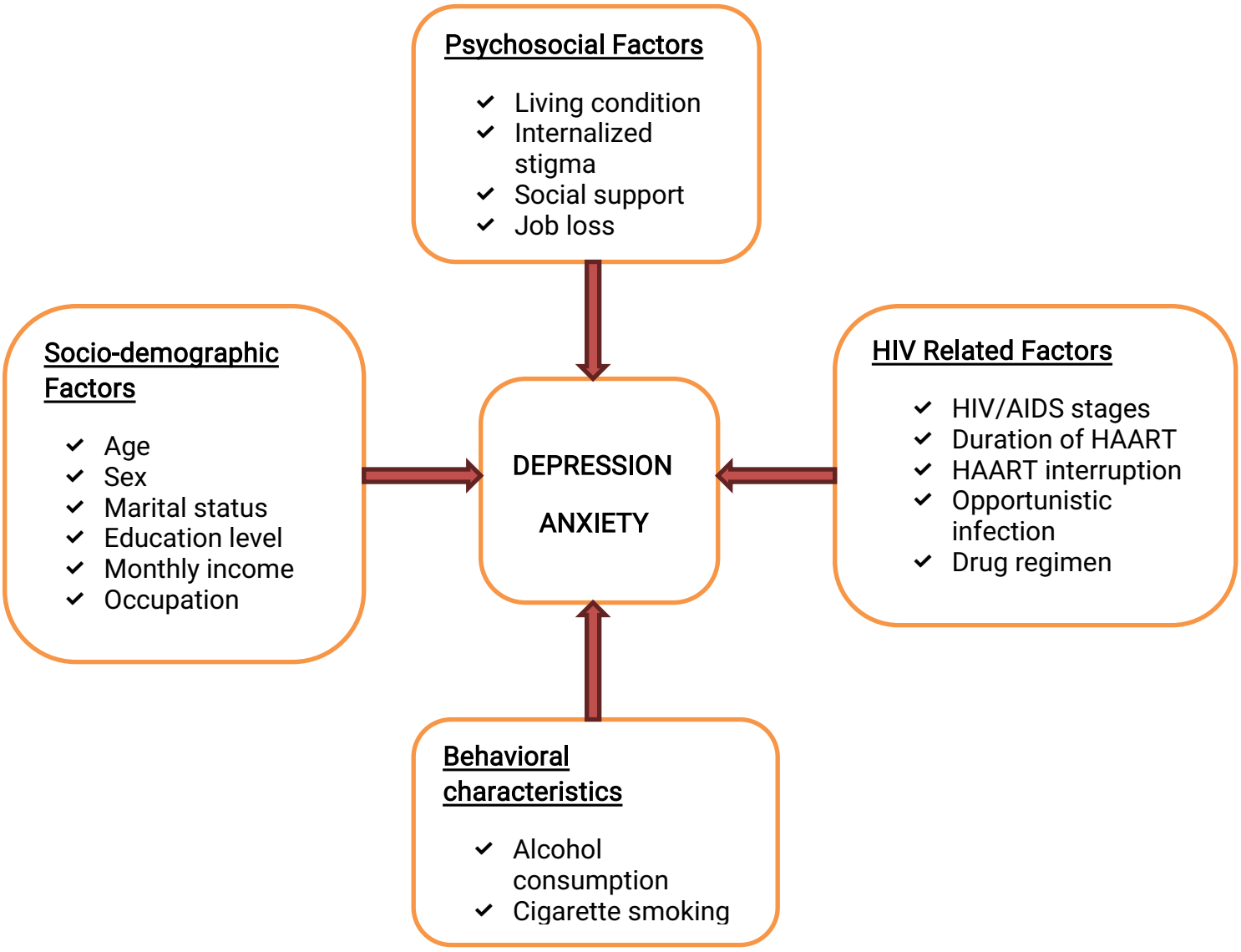

Figure 1: Conceptual framework for factors associated with depression and anxiety among HIV/ AIDS patients attending ART clinic at WKUSTH and WCSH, SNNPR, Ethiopia, 2023

3. OBJECTIVES

3.1 General objective

- ✔ To assess prevalence and factors associated with depression and anxiety among PLWHA attending ART clinic at WKUSTH and WCSH, SNNPR, Ethiopia, 2023.

3.2 Specific Objectives

- ✔ To determine the prevalence of depression among PLWHA attending ART clinic at WKUSTH and WCSH, SNNPR, Ethiopia, 2023.
- ✔ To determine the prevalence of anxiety among PLWHA attending ART clinic at WKUSTH and WCSH, SNNPR, Ethiopia, 2023.
- ✔ To identify factors associated with depression among PLWHA attending ART clinic at WKUSTH and WCSH, SNNPR, Ethiopia, 2023.
- ✔ To identify factors associated with anxiety among PLWHA attending ART clinic at WKUSTH and WCSH, SNNPR, Ethiopia, 2023.

4. METHODS AND MATERIALS

4.1 Study area and period

The study was conducted at two public hospitals, namely Wolkite University Specialized Teaching Hospital (WKUSTH) and Worabe Comprehensive Specialized Hospital (WCSH), SNNPR from May 17 – June 18, 2023. WKUSTH is located in Southern Region, South West Ethiopia. The Hospital is found around 167Km far from Addis Ababa (the Capital city of Ethiopia). This Hospital gives service to the community as well as the university to give education to students of the College of Medicine and Health Sciences. At this hospital, the ART service is provided by one general practitioner and one nurse; it started giving ART service in 2013 EC. In this hospital, the number of HIV patients who follow ART is 52, from this 26 are female and 26 are male. Worabe Comprehensive Specialized Hospital (WCSH) is found in worabe town, in the capital city of Silte zonal administration, and is located 172km from Addis Ababa. The Hospital started giving ART service on 2008 EC. WCSH provides services such as surgery, gynecology and obstetrics, medicine, pediatrics, outpatient departments, diagnostic facilities, psychiatry, and intensive care. It also provides services for clients at the ART clinic. The number of patients who follow ART is 200, from this 113 are female and 87 are male. In this hospital ART service is provided by two nurses.

4.2 Study design

An institutional-based cross-sectional study was used to assess the prevalence and associated factors of depression and anxiety among HIV patients who follow ART at WKUSTH and WCSH.

4.3 Populations

4.3.1Source population

All people living with HIV/AIDS who are attending ART clinics at WKUSTH and WCSH during the study period.

4.3.2 Study population

All randomly selected people living with HIV/AIDS who are attending ART clinic at WKUSTH and WCSH, Southern Ethiopia during the study period.

4.4 Eligibility criteria

4.4.1Inclusion criteria

The study includes all people living with HIV/ADS who are attending ART clinics at WKUSTH and WCSH, SNNPR, Ethiopia, 2023 during the study period, whose ages are ≥ 18, who had at least one previous visit at ART clinics in WKUSTH or WCSH, who are receiving highly active antiretroviral therapy, and who will come during the study period.

4.4.2 Exclusion criteria

Patients who fulfill inclusion criteria but are unable to communicate, postpartum depression, and have serious general medical conditions were excluded.

4.5 Sample size determination

The sample size required for this study was determined by using a single population proportion formula considering the following assumptions: standard normal distribution with a confidence interval (CI) of 95% (Zα/2=1.96), absolute precision or tolerable margin of error (d=0.04), and the prevalence of depression among PLWHA attending ART clinics at Gurage Zone selected Government Hospitals, Southwest, SNNPR, Ethiopia, 2018 was 37.5%(33)

$$n = \frac{(Z\alpha/2)^2 P (1-P)}{d^2}$$

$$n = \frac{(1.96)^2(0.375)(1-0.375)}{(0.04)^2} = 563$$

Since the number of the source population (N) is <10,000, so using the correction formula

$$n = no/1 + (no/N)$$

$$n = 563/1 + (563/252)$$

$$n = 173$$

By considering 10% for non-responses rate (173*0.1) =17

Therefore, our sample size will include n= (173+17) = 190

4.6 Sampling technique and procedure

A Simple random sampling method was used to select clients on follow up at the ART clinic in WKUSTH and WCSH. They were selected from the list of people attending ART clinics at the two hospitals by using the lottery method and the number of participants was determined by using a proportionate method as shown in the figure below.

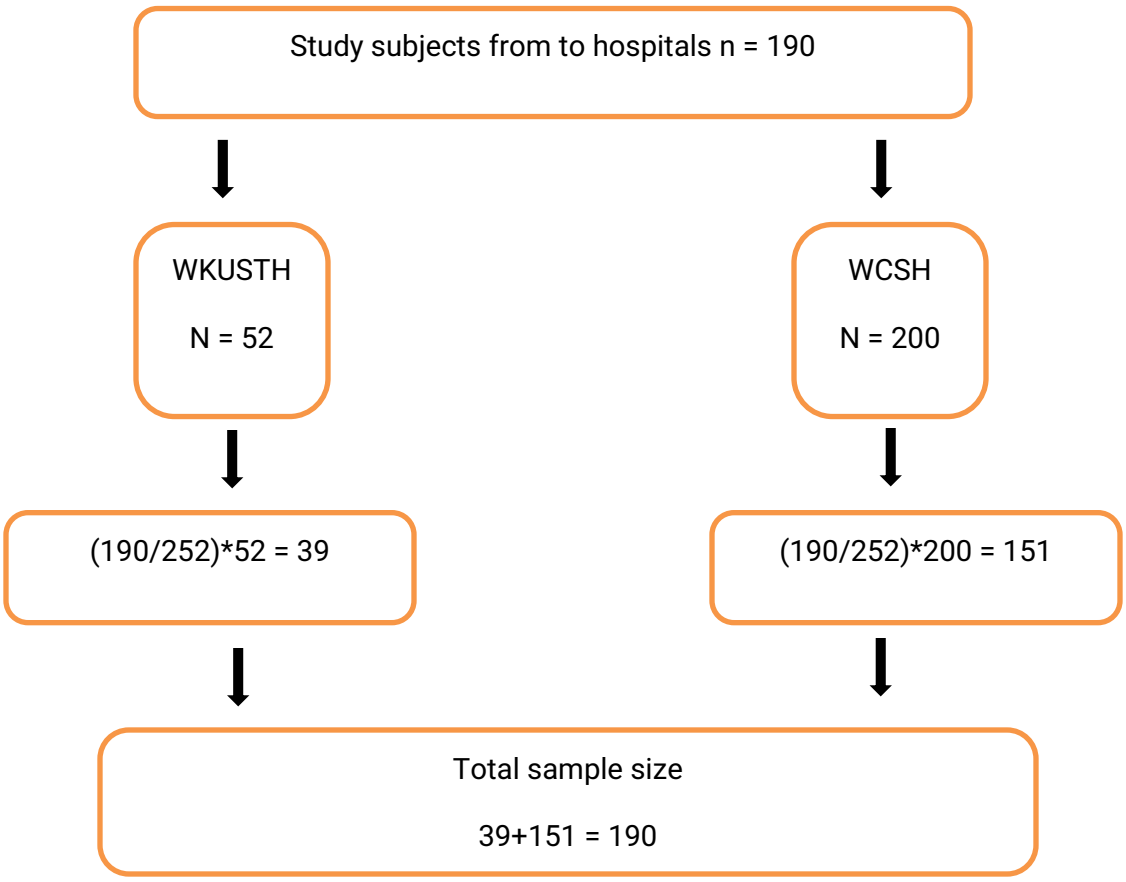

Figure 2: Schematic presentation of the sampling procedure for assessing the prevalence of depression and anxiety and associated factors among clients on ART in WKUSTH and WCSH, SNNPR, Ethiopia, 2023

4.7Study variable

4.7.1 Dependent variable

- ✔ Depression
- ✔ Anxiety

4.7.2 Independent variable

Socio-demographic factors:

- ✔ Age
- ✔ Sex
- ✔ Marital status
- ✔ Educational level
- ✔ Monthly income
- ✔ Occupation

Psychosocial factors:

- ✔ Living conditions
- ✔ Internalized stigma
- ✔ Social support
- ✔ Job loss

HIV-related factors:

- ✔ HIV/AIDS stage
- ✔ Duration of HAART
- ✔ HAART interruption
- ✔ Opportunistic infection
- ✔ Drug regimen

Behavioral characteristics

- ✔ Alcohol consumption
- ✔ Cigarette smoking
- ✔ Khat chewing
- ✔ Physical activity

4.8 Data collection instrument

A structured Patients Health Questionnaires- 9 and General Anxiety Disorder -7 scale were used to measure the depression and anxiety status among HIV/AIDS patients respectively and these tools were adapted from different studies (54). This interviewer-administered questionnaire was formatted with socio-demographic and economic characteristics (age, sex, marital status, educational level, monthly income, and occupation), psychosocial factors (HIV-related stigma, social support, living condition, and lost jobs), and HIV/AIDS-related factors (WHO HIV/AIDS stages, ART regimen, duration on ART, HAART interruption and opportunistic infection), behavioral characteristics (alcohol consumption, cigarette smoking, khat chewing, and physical activity). Basic clinical information such as the current CD4 counts, the WHO clinical staging of HIV/AIDS, and the duration of ART were obtained from the respondent's medical records.

The internalized stigma scale and social support questionnaire were adapted from a previous study (55). The internalized stigma scale consisted of 10 items rated on a 5-point response format ranging from “strongly disagree” (1) to “strongly agree” (5) based on the extent to which a respondent felt about him/herself since being diagnosed with HIV (55). Social support was assessed by Oslo 3 items social support scale (OSS-3). Poor social support is a score of “3-8” on (OSS-3). Moderate social support is a score of “9-11” (OSS-3). Strong social support is a score of “12-14” on (OSS-3) (56).

4.9 Data collection technique

The data was collected by using interviewer administered questionnaires. Two 4th year BSc nursing students as data collectors and one 4th year BSc nursing student as supervisor were recruited. They were oriented on how to fill out the questionnaire, about ethical principles, confidentiality, and data management before their involvement in data collection. Structured questionnaire was developed first in English. Then it was translated to an Amharic version, to ensure understandability and message consistency and was pre-tested on ten HIV patients who were not included in the study.

4.10 Data Quality Assurance

Two data collectors and one supervisor who can speak both Amharic and Guragegna and Amharic and Siltegna languages were recruited. The supervisor checked for the completeness, accuracy, and consistency of the collected data during the whole period of data collection. One day of training was given for data collectors regarding how to ask and fill in questions, and how to approach the respondents. On each data collection days, the collected data was reviewed by supervisors and principal researchers. Attention was given to checking all questionnaires for completeness and accuracy. The pretest of the questionnaire was carried out among HIV patients who are on ART follow up at Agena Health Center which is found 27Km from WKUSTH and during the pretest; the questions which are not clear for the client were documented for further consideration. Both the interviewers and researchers assessed for clarity, understandability, and completeness of questions. After the result of the pretest, some corrections and changes were made as necessary.

4.11 Data Processing and Analysis

The data was entered into Epi Data version 4.2 and exported to Statistical Package for Social Science (SPSS) version 26 for cleaning, coding, and analysis. Descriptive statistics like, frequency, percentages, mean, and standard deviation were computed and presented by using text and tables. Bivariate regression was undertaken to see the association between dependent and independent variables. Variables having a p-value of < 0.25 in bivariate analysis were included in the multi-variable logistic regression model. The Hosmer-Leme-show test was used to determine the final model's goodness of fit and the variance inflation factor (VIF) was used to check for multi-collinearity among selected independent variables. In the multivariable logistic regression model, variables having a P-value of < 0.05 were considered statistically significant.

4.12 Ethical Consideration

Ethical clearance was obtained from Wolkite University, College of Medicine and Health Sciences committee. All information collected during the research is kept strictly

confidential. No information on the names and addresses of participants was collected. The data collected for this study is stored securely and only the researchers conducting this study have access to the data. Participants were informed that their participation in the study is completely voluntary and they could withdraw from the study anytime they wanted, and also the study had no physical risk to them. Those who decided to take part were asked to sign a written consent form. For those patients having depression and anxiety, we contacted them with a psychiatrist or psychologist.

4.13 Operational definition

- **Depression**: It was assessed by using Patient Health Questionnaire-9 (PHQ-9) which has a total sum score of 27 from 9 items; those respondents who score 10 and above in total sum are considered depressed while respondents who score below 10 are considered as non-depressed (54).

- **Anxiety disorder**: It was assessed by using GAD-7 and has a total sum score of 21 from 7 items. Those respondents who score 8 and above are considered to have anxiety (54).

- **Social support:** Was measured using the Oslo 3 items Social Support Scale (OSS-3). Poor social support – is a score of "3-8" on (OSS-3). Moderate social support – is a score of "9-11" (OSS-3). Strong social support –is a score of "12-14" on (OSS-3) (56).

- **Internally stigmatized**: Based on 10 items internalized stigma scale scored higher than the mean(55)

- **Current Substance use**: Using at least one of a specific substance (Alcohol, Khat, Cigarette, and Others) for nonmedical purposes within the last 3 months according to Alcohol, Smoking, and Substance Involvement Screening Tool (ASSIST) (57).

- **Ever Substance use:** using at least one of any specific substance (Alcohol, Khat, Cigarette, and Others) for non-medical purposes at least once in a lifetime according to ASSIST (57).

4.14 Dissemination

The final report of the study will be presented and submitted to Wolkite University, College of Medicine and Health Sciences, Department of Nursing and to WKUSTH and WCSH administrators. It will also be disseminated to the respective health institutions and sectors, like psychiatrists and psychologists as well as other non-governmental organizations working on the mental health of HIV patients. Also, we would like to publish in reputable journals.

5. RESULT

5.1 Socio-demographic characteristics of the study participants

A total of 177 participants were enrolled in the study resulting in an overall response rate of 93%. One hundred twelve (63.3%) were females. 80(45.2%) were in the age group of 30-39 and the mean age of the respondents was 35.03(SD=8.523) years with a range from 18 to 70. The majority 65(36.7%) were married. Regarding employment status, 44 (24.9%) were housewives. The monthly income of respondents involved in the study was less than 2500 birr for 114(64.4%).

Table 1: Socio-demographic characteristics of study participants at WKUSTH and WCSH, Southern Ethiopia, 2023 (n=177).

Variables	Category	Frequency	Percent (%)
Age	18-29	37	20.9
	30-39	80	45.2
	40-49	32	18.1
	50-59	19	10.7
	≥60	9	5.2
Sex	Male	65	36.7
	Female	112	63.3

Educational status	Unable to read and write	38	21.5
	Can read and write	34	19.2
	Grade 1-8	44	24.9
	Grade 9-12	40	22.6
	College and above	21	11.9
Employment status	Housewife	44	24.9
	Farmer	20	11.3
	Non-government employee	32	18.1
	Government employee	28	15.8
	Merchant	23	13.0
	Labor worker	20	11.3
	Student	10	5.6
Income	<2500 ETB	114	64.4
	2500-5000 ETB	34	19.2
	>5000 ETB	29	16.4
Marital status	Married	65	36.7
	Single	52	29.4
	Widowed	28	15.8
	Divorced	24	13.6
	Separated	8	4.5

5.2 Psychosocial and behavioral characteristics of the study participants

Among the study participants, 109(61.6%) were living with their family, 91(51.4%) were internally stigmatized, 95(53.7%) had poor social support from their families and the majority 166(93.8%) did not lose their jobs due to HIV/AIDS-related illness (Table 2).

Table 2: Psychosocial factors of study participants at WKUSTH and WCSH, Southern Ethiopia, 2023 (n=177).

Variables	Category	Frequency	Percent (%)
Living condition	Alone	67	37.9
	With my family	109	61.6
	Others (specify)	1	0.6
Internalized stigma	not internally stigmatized	86	48.6
	internally stigmatized	91	51.4
Social support	poor social support	95	53.7
	moderate social support	66	37.3
	strong social support	16	9.0
Lost jobs due to illness	No	166	93.8
	Yes	11	6.2

5.3 HIV/AIDS-related factors of depression and anxiety

Among the study participants, 133(75.1%) of the respondents were WHO HIV/AIDS clinical stage I, about 83(46.9%) patients had been on ART for less than a year, 136(76.8%) of the participants had not missed their medications in the past 30 days,102(57.6%) had no current opportunistic infections, and most of the respondents 142(80.2%) of the respondents were on first-line ART regimen (Table 3).

Table 3: HIV/AIDS-related factors of study participants at WKUSTH and WCSH, Southern Ethiopia, 2023 (n=177).

Variables	Category	Frequency	Percent (%)
HIV Stage	stage 1	133	75.1
	stage 2	42	23.7

	stage 3	2	1.1
Duration of HAART	<1 years	83	46.9
	1-5 years	43	24.3
	5-10 years	28	15.8
	>10 years	23	13.0
HAART interruption	No	136	76.8
	Yes	41	23.2
Opportunistic infection	No	102	57.6
	Yes	75	42.4
Drug Regimen	First line regimen	142	80.2
	Second line regimen	35	19.8

5.4 Behavioral characteristics of the study participants

Among the respondents 34(19.2%) have used a substance (alcohol, khat, Tobacco) in the past 3 months of which 18(10.2%) have used khat and 71(40.2%) had used other substances throughout their lives, around 137(77.4%) don't do regular exercise. (Table 4)

Table 4: Behavioral characteristics of study participants at WKUSTH and WCSH, Southern Ethiopia, 2023 (n=177).

Variables	Category	Frequency	Percent (%)
Current use of substance	No	143	80.8
	Alcohol	14	7.9
	Khat	18	10.2
	Tobacco	2	1.1
Ever use of a substance	No	106	59.9
	Alcohol	25	14.1
	Khat	43	24.3
	Tobacco	3	1.7

Physical activity	No	137	77.4
	Yes	40	22.6

5.5 The Prevalence of Depression and Anxiety among PLWHA

The prevalence of depression and anxiety among PLWHA attending ART clinics at WKUSTH and WCSH, Southern Ethiopia, 2023 was **29.9%,** 95% CI (23.3% - 37.3%) and **27.7%,** 95% CI (21.2% - 34.9%) respectively.

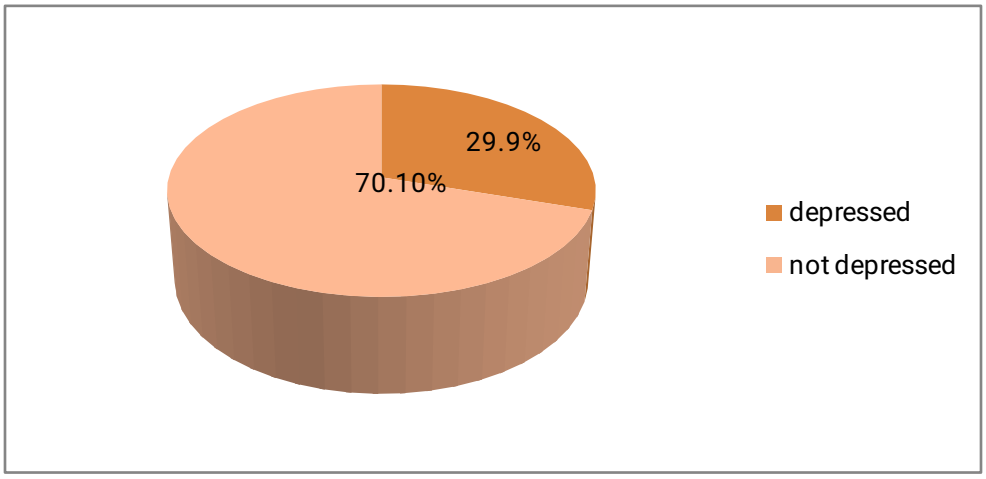

Figure 3: Prevalence of depression among PLWHA attending ART clinic at WKUSTH and WCSH, Southern Ethiopia, 2023 (n=177).

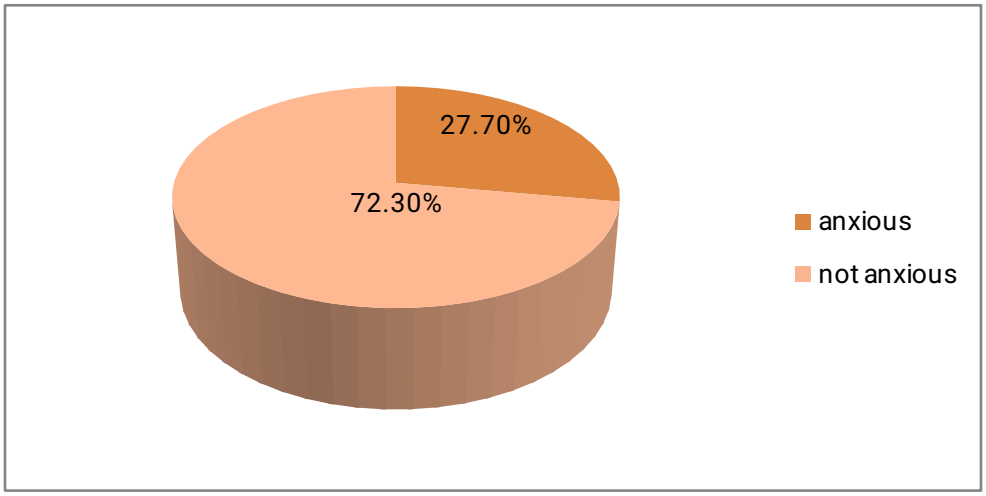

Figure 4: Prevalence of anxiety among PLWHA attending ART clinic at WKUSTH and

WCSH, Southern Ethiopia, 2023 (n=177).

5.6 Factors associated with Depression among PLWHA

In bivariable logistic regression: Age, sex, occupation, monthly income, marital status, level of social support, internalized stigma, duration of HAART, HAART interruption, and drug regimen were variables associated with depression with p value less than 0.25.

In multiple logistic regression analysis, the covariates: Age, sex, occupation, marital status, social support, internalized stigma, and drug regimen were statistically significant at a 5% level of significance and were found to be the associated factors of depression among HIV/ AIDS patients.

It was found that 85.3% of those within the age group of 30-39 were less likely to develop depression than those within the age group of 18-29, [AOR=0.147; 95% CI (0.024-0.883)]. 84.7% of females were less likely to be depressed than males, [AOR=0.153; 95% CI (0.035-0.657)]. Being a labor worker was found to be a protective factor for depression, [AOR=0.009; 95% CI (0.000-0.180)]. Those who were single were 6.7 times more likely to be depressed than those who were married, [AOR=6.651; 95% CI (1.441-30.698)].Those patients who had poor social support were more likely to develop depression than patients who had strong social support [AOR=8.775; 95%CI (1.035-74.381)]. Participants who were internally stigmatized were highly likely to be depressed than those who weren't, [AOR=8.047; 95% CI (2.576-25.136)]. 85.6% of participant who were on second line regimen were less likely to develop depression than those on the first line, [AOR=0.144; 95% CI (0.027-0.777)]. (Table 5).

Table 5: Bivariable and multivariable logistic regression analysis of factors associated with depression among PLWHA at WKUSTH and WCSH, Southern Ethiopia, 2023 (n=177).

Variables	Categories	Not Depressed	Depressed	COR (95%CI)	AOR (95%CI)
Age	18-29	25(67.6%)	12(32.4%)	1.00	1.00
	30-39	**58(72.5%)**	**22(27.5%)**	**0.481(0.156-1.478)**	**0.147(0.024-0.883)****
	40-49	26(81.3%)	6(18.8%)	2.865(0.915-8.971)*	1.333(0.156-11.407)
	50-59	8(42.1%)	11(57.9%)	0.595(0.107-3.310)	0.158(0.013-1.863)
Sex	Male	49(75.4%)	16(24.6%)	1.00	1.00
	Female	**75(67.0%)**	**37(33.0%)**	**1.511(0.759-3.007)**	**0.153(0.035-0.657)****
Employment status	Housewife	24(54.5%)	20(45.5%)	0.357(0.082-1.564)*	0.535(0.054-5.336)
	Farmer	**18(90.0%)**	**2(10.0%)**	**0.048(0.007-0.349)**	**0.019(0.001-0.363)****
	Non-government employee	**24(75.0%)**	**8(25.0%)**	**0.143(0.030-0.688)**	**0.048(0.004-0.554)****
	Government employee	23(82.1%)	5(17.9%)	0.093(0.018-0.491)*	**0.027(0.002-0.390)****
	Merchant	15(65.2%)	8(34.8%)	0.229(0.046-1.134)*	0.200(0.016-2.550)
	Labor worker	**17(85.0%)**	**3(15.0%)**	**0.076(0.012-0.470)**	**0.009(0.000-0.180)***

	Student	3(30.0%)	7(70.0%)	1.00	1.00
Income	<2500 ETB	72(63.2%)	42(36.8%)	2.800(0.994-7.890)*	2.114(0.424-10.547)
	2500-5000ETB	28(82.4%)	6(17.6%)	1.029(0.279-3.797)	0.273(0.041-1.818)
	>5000 ETB	24(82.8%)	5(17.2%)	1.00	1.00
Marital status	Married	51(78.5%)	14(21.5%)	1.00	1.00
	Single	**31(59.6%)**	**21(40.4%)**	**3.157(1.222-8.158)**	**6.651(1.441-30.698)****
	Widowed	15(53.6%)	13(46.4%)	0.959(0.304-3.025)	0.693(0.117-4.121)
Social support	**Poor social support**	**59(62.1%)**	**36(37.9%)**	**2.644(0.705-9.918)**	**8.775(1.035-74.381)****
	Moderate social support	52(78.8%)	14(21.2%)	1.167(0.291-4.671)	2.991(0.398-22.465)
	Strong social support	13(81.3%)	3(18.8%)	1.00	1.00
Internal stigma	Not internally stigmatized	77(89.5%)	9(10.5%)	1.00	1.00
	Internally stigmatized	**47(51.6%)**	**44(48.4%)**	**8.009(3.586-17.889)**	**8.047(2.576-25.136)*****
Duration of HAART	<1 years	49(59.0%)	34(41.0%)	1.966(0.703-5.498)*	1.809(0.370-8.840)
	1-5 years	36(83.7%)	7(16.3%)	0.551(0.160-1.892)	0.942(0.143-6.211)
	5-10 years	22(78.6%)	6(21.4%)	0.773(0.211-2.826)	1.123(0.145-8.704)

	>10 years	17(73.9%)	6(26.1%)	1.00	1.00
HAART interruption	No	100(73.5%)	36(26.5%)	1.00	1.00
	Yes	24(58.5%)	17(41.5%)	1.968(0.949-4.078)*	0.420(0.128-1.379)
ART regimen	1st line	95(66.9%)	47(33.1%)	1.00	1.00
	2nd line	**29(82.9%)**	**6(17.1%)**	**0.418(0.162-1.077)**	**0.144(0.027-0.777)***

* Significant at p value ≤ 0.25 * * Statistically significant at p value < 0.05

** Highly statistically significant at p-value<0.001

5.7 Factors associated with Anxiety among PLWHA

In bivariate logistic regression: Age, occupation, monthly income, marital status, level of social support, internalized stigma, duration of HAART, and opportunistic infection were variables associated with anxiety.

In multiple logistic regression analysis, the covariates: Age, occupation, monthly income, marital status, and presence of opportunistic infection were statistically significant at a 5% level of significance and were found to be the associated factors of anxiety among HIV/ AIDS patients.

It was found that anxiety was less likely to occur among 87.8% of participants in the age category of 40-49 than those aged >60,[AOR=0.122; 95% CI (0.016-0.957)]. 76.2% of farmers were less likely to be anxious than housewives, [AOR=0.238; 95% CI (0.061-0.938)]. Those participants who had income less than 2500 ETB were 6 times more likely to develop anxiety than those with income greater than 5000 ETB,[AOR=6.995; 95%CI (1.056-46.351)]. 88.9% of participants who were married were less likely to be anxious than those who were separated, [AOR=0.121; 95%CI (0.015-0.956)]. 64.9% of participants who had opportunistic infection were less likely to develop anxiety than patients who didn't, [AOR=0.351; 95%CI (0.133 -0.925)]. (Table 6).

Table 6: Bivariable and multivariable Logistic regression analysis of factors associated with anxiety among PLWHA at WKUSTH and WCSH, Southern Ethiopia, 2023 (n=177).

Variables	Categories	Not Anxious	Anxious	COR (95%CI)	AOR (95%CI)
Age	18-29	30(81.1%)	7(18.9%)	0.187(0.040-0.880)*	0.211(0.030-1.505)
	30-39	59(73.8%)	21(26.3%)	0.285(0.070-1.162)*	0.384(0.067-2.192)
	40-49	**26(81.3%)**	**6(18.8%)**	**0.185(0.038-0.902)**	**0.122(0.016-0.957)***
	50-59	9(47.4%)	10(52.6%)	0.889(0.181-4.375)	0.803(0.113-5.718)
	≥60	4(44.4%)	5(55.6%)	1.00	1.00
Employment status	Housewife	26(59.1%)	18(40.9%)	1.00	1.00
	Farmer	**18(90.0%)**	**2(10.0%)**	**0.267(0.087-0.826)**	**0.238(0.061-0.938)****
	Non-government employee	27(84.4%)	5(15.6%)	0.394(0.133-1.165)*	1.180(0.248-5.624)
	Government employee	22(78.6%)	6(21.4%)	0.510(0.168-1.544)*	1.600(0.359-7.117)
	Merchant	17(73.9%)	6(26.1%)	0.619(0.200-1.915)	0.433(0.087-2.162)
	Labor worker	14(70.0%)	6(30.0%)	2.167(0.534-8.792)	0.901(0.137-5.925)
Income	**<2500**	**73(64.0%)**	**41(36.0%)**	**7.582(1.715-33.521)**	**6.995(1.056-46.351)****
	2500-5000	28(82.4%)	6(17.6%)	2.893(0.536-15.605)*	1.777(0.245-12.867)
	>5000	27(93.1%)	2(6.9%)	1.00	1.00

Marital status	**Married**	**52(80.0%)**	**13(20.0%)**	**0.150(0.032-0.710)**	**0.121(0.015-0.956)***
	Single	32(61.5%)	20(38.5%)	0.375(0.081-1.743)*	0.299 (0.037-2.411)
	Widowed	**22(73.3%)**	**8(26.7%)**	**0.164(0.030-0.889)**	**0.062(0.006-0.634)****
	Divorced	19(79.2%)	5(20.8%)	0.158(0.028-0.897)*	0.113 (0.011-1.133)
	Separated	3(37.5%)	5(62.5%)	1.00	1.00
Social support	poor social support	65(68.4%)	30(31.6%)	6.923(0.874-54.862)*	4.954(0.407-60.309)
	moderate social support	48(72.7%)	18(27.3%)	5.625(0.692-45.727)*	4.718(0.397-56.035)
	strong social support	15(93.8%)	1(6.3%)	1.00	1.00
Internalized stigma	not internally stigmatized	73(84.9%)	13(15.1%)	1.00	1.00
	internally stigmatized	55(60.4%)	36(39.6%)	3.676(1.781-7.584)*	2.585(0.973-6.870)
Duration of HAART	<1 years	54(65.1%)	29(34.9%)	1.933(0.651-5.743)*	1.290(0.301-5.536)
	1-5 years	33(76.7%)	10(23.3%)	1.091(0.323-3.686)	0.713(0.135-3.776)
	5-10 years	23(82.1%)	5(17.9%)	0.783(0.196-3.125)	0.518(0.084-3.180)
	>10 years	18(78.3%	5(21.7%)	1.00	1.00
Opportunistic	No	64(62.7%)	38(37.3%)	1.00	1.00

infection	Yes	64(85.3%)	11(14.7%)	0.289(0.136-0.616)	0.351(0.133 - 0.925)**

* Significant at p value ≤ 0.25 * * Statistically significant at p value < 0.05,

6. DISCUSSION

6.1 Prevalence of Depression

The prevalence of depression in this study was 29.9% with 95% CI (23.3% - 37.3%). This finding was in line with a study from Cameron in which the prevalence of depression among PLWHA was reported to be 28.5% (25). This prevalence was lower than the studies conducted in Pakistan, Brazil, East Africa, and Gimbi which show the prevalence of depression was 89.9%, 59%, 38%, and 41.7% respectively (22, 23, 26, 27). This result was also lower than studies done in Harar, Bale Zone, Adama, and Gurage Zone which revealed that the prevalence of depression was 45.8%, 44.9%, 52.4%, and 37.4% respectively (28, 33, 58) The variation of the prevalence might be due to study period, different sample size used and different instruments used to assess depression, also change and modification of management protocol. Currently, some great modifications and changes that have been made regarding HIV/AIDS screening, diagnosis, and management protocol. In addition to this, currently, better attention has been given to PLWHA regarding covering the range of services needed, covering the populations in need of services, and covering the costs of services and accessibility of the infrastructures which leads to the decrement of the prevalence of depression among PLWHA, but this prevalence was higher than the studies conducted in India, Europe, Ghana, and Dessie show that the prevalence of depression was 18.8%, 22%, 8.6%, and 20% respectively (17, 21, 24, 29). The variations might have occurred due to differences in sample size used, assessment tool application, and socio-economic characteristics, availability of health facilities between those countries and Ethiopia. People living in low socio-economic countries like Ethiopia could have poor health care infrastructure and a shortage of trained health staff that delivers inadequate health care services.

6.2 Factors associated with depression among HIV/AIDS Patients

In this study, age was one of the significant factors for depression; it was found that 85.3% of those within the age group of 30-39 were less likely to develop depression than those within the age group of 18-29. This finding was similar to a study conducted in Dessie (29). The study also found that 84.7% of females were less likely to be

depressed than males. This finding contradicted a study conducted in Jimma (43). The variation might be the tendency to give socially desirable responses in an interview and it may be a reason for this contradiction. Being a labor worker was found to be a protective factor for depression than other occupations. This finding is in contrast with a study done in Tigray (59) This could be due to the busy and hectic lives of labor workers which could lead them to focus on thinking about the next steps that they need to take in life to better themselves so they develop positive attitudes that tomorrow will be better and they may not tend to over think their problems even though they have them. Those who were single were 6.6 times more likely to be depressed than those who were married. This finding contrasts with a study conducted in Harar (28). The reason for the increased risk of depression among single people could be feeling alone, lack of sharing the increasing burden of living costs, and retaining negative health behaviors. Those patients who had poor social support were 8 times more likely to develop depression than patients who had strong social support. This finding was similar to studies conducted in India, Pakistan, Gimbi, Hawassa, and Gurage Zone (21, 22, 30, 33). Participants who were internally stigmatized were more likely to be depressed than those who weren't. This was similar to studies conducted in Pakistan, Dessie, Hawassa, and Gurage zone (22, 30, 33, 38). 85.6% of patients who were on second-line drug regimens were less likely to be depressed. This could be due to the hope the patients have that they will get better which may help them to develop good coping mechanisms and positive attitudes in their lives.

6.3 Prevalence of Anxiety

The prevalence of anxiety in this study was 27.7% with 95% CI (21.2% - 34.9%), which was similar to a study done in Public hospitals in the Silte zone and Gurage zone which was found to be 25.6 %(9). On the other hand, the current study's findings were lower than the studies done in Pakistan, Germany, Ghana, and Nigeria, in which the prevalence was reported to be 80.3%, 59.6%, 40.8%, 39.6%, 32.4%, and 34.4% respectively (22, 36). Additionally, our findings were higher than the studies done in the USA, Beijing, and India in which the prevalence was reported to be 19%, 15.6%, and 12.7% respectively (34, 35, 37). The above prevalence variations might be due to the difference in sample size used

and different measurement tools used to assess anxiety.

6.4 Factors associated with anxiety among HIV/AIDS Patients

Regarding associated factors in this study, people with older age, specifically 87.8% of participants within the age range of 40-49 were less likely to develop anxiety as compared to other age groups, which was supported by a previously conducted study in Conakry (42). The possible reason might be that older adults have experienced more significant life events over a longer time, allowing them to develop more effective coping mechanisms and life lessons; this increased wisdom helps older adults put their situation into a broader context and adapt to or cope better with life's challenges. Younger adults on the other hand easily feel the pressures of school and work as they have to meet social expectations. When anxiety was in relation to being a farmer, those who were farmers were less likely to have anxiety as compared to housewives. This finding contrasts with a study conducted in Nigeria (45). This could be due to the reason that housewives spend most of their time doing different house chores and feel the burden of taking care of everything in the household all by themselves to the point they don't have extra time to focus on their own well-being, people with other occupations like government and non-government workers are prone to workplace anxiety including worries about their job performance, working relationships, working excessive hours, upcoming deadlines, job security, or a toxic workplace culture; but when it comes to farmers, they don't have to deal with workplace complications and relatively deal with labor work on a day-to-day basis so they acquire the life skill to focus on work without being unnecessarily worried for different things in life. The result of the present study revealed that the prevalence of anxiety was significantly associated with monthly income which is in line with a study conducted in Nigeria (45). Those who had a monthly income <2500 ETB were 6 times more likely to have anxiety as compared to those who have monthly income of >5000 ETB. Low income or poverty has been shown to be directly related to psychological distress and mental health. The possible reason might be that low monthly income can cause multiple kinds of stress related to food and fuel poverty, debt, and restricted social opportunities affecting family relationships,

and harming physical and mental health. Those who were married were less likely to be anxious than those who were separated; the results are consistent with research done in Harar and Hawassa (28, 30). Unstable marital relationships predispose to anxiety and it can be due to lack of trust and fear of abandonment. Dissatisfaction in a relationship can act as a trigger for the development of anxiety disorders and could also be responsible for the modulation and maintenance of these disorders, being in a stable marriage puts one's mind at ease making them much less likely to develop anxiety. The result of the present study also revealed that 64.9% of those who developed opportunistic infections were less likely to develop anxiety; this finding is in contrast with a study conducted in Addis Ababa (3). The possible reason might be that most participants have lived with opportunistic infections for long periods so they have learned how to cope with it healthily. The implication of this finding indicates that people living with HIV/AIDS need strong adherence counseling, active social networks, early detection, and treatment so that they can cope better with the signs and symptoms of their illness as well as forthcoming complications.

Strengths and Limitations

Strengths;

- The findings from this study addressed the gap that the researcher intended.
- The data collection tool for this study was standardized, validated, and adopted from similar previous studies.

Limitations;

- Firstly, the cross-sectional nature of this study limited the cause and effect interpretation of the factors observed therefore, the data collected might not be as accurate there might be recall bias from participants.
- Secondly, since the study was institutionally based it might not be generalized to the total population of people living with HIV in the study area.
- Self-administered questionnaires were used to collect the data, therefore

reporting bias may exist. Additionally, some questions assessed history, which is subject to recall bias.

7. CONCLUSION AND RECOMMENDATION

7.1 Conclusion

The prevalence of depression and anxiety among PLWHA who were attending ART clinics at WKUSTH and WCSH, Southern Ethiopia, 2015 were 29.9% and 27.7% of the study participants respectively. Age, occupation, and marital status were significantly associated with both depression and anxiety. Being a farmer was found to be a protective factor for both depression and anxiety. Being female and having poor social support had a statistically significant association and having internalized stigma had a highly statistically significant association with depression only; while income and opportunistic infection were associated only with anxiety.

7.2. Recommendation

The level of depression and anxiety in this study was high. Age, occupation, and marital status were found to be significantly associated with both depression and anxiety among HIV/AIDS patients, we recommend:

For professionals running ART clinics in WKUSTH and WCSH

- Timely recognition and treatment of depression and anxiety should be critically important for reducing depression and anxiety in PLWHA at the ART clinic, and mental healthcare and screening for depression and anxiety should be included.
- Routine psychiatric education programs (counseling services) regarding warning signs of depression, anxiety, and the associated factors.

For Researchers

- Future researchers to better understand the mechanisms of associations between being single, poor social support, stigma and depression in PLWHA are necessary, and also the associations between low income and anxiety in PLWHA; as well as studies to inform the development of anxiety reduction interventions.
- Further studies that assess associated factors for depression and anxiety among PLWHA are needed to strengthen and broaden the current findings are recommended in the future.

For hospital officials: Establishment of social support systems for PLWHA is recommended.

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ANNEX

Annex I: Study information sheet and consent form English version

Introduction

Dear sir/madam, _____

we are student of Wolkite University, college of medicine and health sciences, department of nursing, we here to study about the prevalence and associated factors of depression and anxiety among PLWHA. The main Objective of this study is to assess prevalence and factors associated with depression and anxiety among PLWHA patient attending ART clinic at WKUSTH and WCSH. The study has no any physical risk to the participants. Questions related with your socio-demographic status, individual characteristics and mental health state will be asked. There is no procedure to be done and samples or measurements to be taken, Involving in the study make participants able to know whether they are suffering from these conditions and allowing them to access care earlier in the course of their illness. Personal identifiers, including name and address will not be recorded. All information which is collected about you during the course of the research will be kept strictly confidential. The data collected for this study will be stored securely and only the researchers conducting this study will have access to this data. The participation in the study is completely voluntary; it is up to you to decide whether or not to take part. If you do decide to take part you will be asked to sign a consent form. And you have the right to refuse participation, refuse any question and withdraw any time you want on the interview without giving a reason. There is nothing less in the care provided to you because you are not involved. We are expected to complete the interview within 20 minute. Would you be willing to participate?

A. Agree B. Disagree

Thank you for your cooperation!!!

Annex II: Consent form

I approve my consent to take part in the study as an interview with my signature

Signature _____

Annex III: ENGLISH VERSION OF THE QUESTIONNAIRE

PART I: SOCIO-DEMOGRAPHIC DATA

Instruction: Please encircle the number that contains appropriate response for you or write the appropriate answer on the space provided

1.1	Age_____ years	Skip
1.2	Sex 1. Male 2. Female	
1.3	What is your highest educational status? 1. Unable to read and write 2. Can read and write 3. Grade 1-8 4. Grade 9-12 5. collage and above	
1.4	What is your employment status? 1. House wife 5. Merchant 2. Farmer 6.Labor worker 3. Non-government employee 7. Student 4. Government employee 8. Others (specify) _____	
1.5	What is your average monthly income?_____(Ethiopian birr ETB)	
1.6	What is your marital status? 1. Married 4. Divorced 2. Single 5. separated 3. Widowed	

PART II: PSYCHOSOCIAL RELATED QUESTIONS

2.11	With whom you live? 1. Alone. 2. With my family 3. Others (specify)	
2.12	Have you lost your job due to HIV/AIDS illness? Yes 2.No	
S. No	**Questionnaire on Social support assessment**	Alternative response
2.21	How many people are you so close to that you can count on them if you have great personal problems?	1. None 2. 1-2 3. 3-5 4. 5 and above
2.22	How much interest and concern do people show in what you do?	1. Very little 2. Little 3 Uncertain 4. Some 5.A lot
2.23	How easy is it to get practical help from neighbors if you should need it?	1. Very difficult 2. Difficult 3. Possible 4. Easy 5. Very easy

PART III: The following questions are related to Internalized Stigma

All of the following statements refer to the way you feel (not what you think others think about you) since you were diagnosed with HIV infection

s.no	How You feel about yourself:	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
2.31	You feel so ashamed about	1	2	3	4	5

	having HIV/AIDS.					
2.32	You feel marked, labeled or different.	1	2	3	4	5
2.33	HIV infection hinders your ability to interact with other people.	1	2	3	4	5
2.34	HIV infection hinders your ability to be intimate with other people.	1	2	3	4	5
2.35	You feel that you are undesirable.	1	2	3	4	5
2.36	You feel inhibited from making new friends.	1	2	3	4	5
2.37	You are deceitful when it comes to telling other people that you have HIV infection.	1	2	3	4	5
2.38	Having HIV infection is like being branded with a terrible mark of shame	1	2	3	4	5
2.39	You try to hide the fact that you have HIV infection	1	2	3	4	5
2.310	You feel that you need to hide your illness	1	2	3	4	5

PART VI: HIV RELATED FACTORS (if the patients do not know their HIV/AIDS conditions refer from card)

3.1	How long time did take your HIV/AIDS medication? _____in months/year	Skip
3.2	HIV/AIDS stage? _____	
3.3	Recent CD4 count? _____cell/µl	
3.4	Does you missed ART dose in the last 30 days? 1. Yes 2. No	

3.5	If yes for Q 3.4 how many ART dose do you missed _____	
3.6	Presence of opportunistic infection. 1. Yes 2. No	
3.6	Antiretroviral regimen 1.First line regimen 2. Second line regimen	

PART IV: BEHAVIORAL CHARACTERISTICS RELATED QUESTIONS

S. No	Questionnaires to assess substance use	Rating
4.1	In the past 3 months, have you used any of the following substances? (more than one answer is possible)	1 Alcohol 2 Khat 3 Tobacco 4 Cannabis 5 Others specify----------
4.2	Have you ever used any of the following substances? (more than one answer is possible)	1 Alcohol 2 Khat 3 Tobacco 4 Cannabis 5 Others specify----------
Questionnaire to asses physical activity		
4.3	Did you do physical activity? A. Yes B. No	

PART V: TO ASSESS DEPRESSION BY USING PHQ-9 TOOL.

(Not at all =0, several days =1, More than half the days =2, nearly every day =3)

Not at all "refers to 0–1 days in the past 2 weeks, "Several days "refers to 2–6 days,

"More than half the days "refers to 7–11 days, and nearly every day "refers to 12–14 days.

S.No	Over the last 2 weeks, how often have you been bothered by any of the following problems including today	Not at all	Several days	More than one-half the days	Nearly every day
5.1	Little interest or pleasure in doing things	0	1	2	3
5.2	Feeling down, depressed or hopeless	0	1	2	3
5.3	Trouble falling or staying asleep, or sleeping too much	0	1	2	3
5.4	Feeling tired or having little energy	0	1	2	3
5.5	Poor appetite or overeating	0	1	2	3
5.6	Feeling bad about yourself or that you are a failure or have let yourself or your family down	0	1	2	3

5.7	Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
5.8	Moving or speaking so slowly that other people could have noticed or restless that you have been moving around a lot more than usual	0	1	2	3
5.9	Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

PART VII: QUESTIONNAIRE TO ASSES ANXIETY

GENERALIZED ANXIETY DISORDER 7-ITEM (GAD-7) SCALE

S.No	Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all sure	Several days	Over half the days	Nearly every day
6.1	Feeling nervous, anxious, or on edge	0	1	2	3
6.2	Not being able to stop or control worrying	0	1	2	3
6.3	Worrying too much about different things	0	1	2	3
6.4	Trouble relaxing	0	1	2	3
6.5	Being so restless that it's hard to sit still	0	1	2	3
6.6	Becoming easily annoyed or irritable	0	1	2	3
6.7	Feeling afraid as if something awful might happen	0	1	2	3

THANK YOU

Annex IV: የአማርኛትርጓሜ

የጥናት መረጃ መሰብሰብያ ቅጽ

የጥናቱ መግቢያ

እንዴት አደሩ/ዋሉ

እኛ የወልቂጤ ዩኒቨርሲቲ የጤና ሳይንስ ኮሌጅ የነርሲንግ ትምህርት ክፍል ተመሪዎች ስንሆን የድባቴ እና የጨንቀት በሽታን በኤች አይ ቪ/ኤዲስ ታካሚዎች ላይ ያለውን ስርጭት ወይም መስፋፋት እና ተያያዥ ጉዳዮችን ለማወቅ እየሰራን እንገኛለን። የዚህ ጥናት ዋና አላማም የድባቴና የመረበሽ በሽታ በኤች አይ ቪ /ኤዲስ ታማሚዎች ላይ ያለው ስርጭትና ተያያዥ ጉዳዮችን በተመረጡ የመንግስት ሆስፒታሎች ላይ በ 2015 ዓ.ም ለማወቅ ነው።በጥናቱ ላይ ሲሳተፉ ምንም አይነት ለሰውነት (ለጤና) የሚያሰጋ ነገር አይከናወንም።የምንጠይቃቸው ጥያቄዎች ማኅበራዊ፤ የግለሰብ ባህሪያት እና የአዕምሮ ጤና ሁኔታን የሚመለከት ይሆናል። አሁን ላይ የሰውነት ልኬት ወይም ከሰውነት ላይ ናሙና አንወስድም።የግለሰቦች መግለጫ (ስምና አድራሻ) አይመዘገብም። በጥናቱ ወቅት አርስዎን በሚመለከት የሚሰበሰበው መረጃ ሁሉ ሚስጥራዊነቱ የተጠበቀ ነው ፤ የሚሰበሰበው መረጃ ደህንነቱ በተጠበቀ ሁኔታ ነው የሚቀመጠው። ጥናቱን የሚከናውነው ግለሰብ ብቻ ነው መረጃውንማግኘት የሚችለው።በጥናቱ ላይ ተሳተፎዎ ሙሉ በሙሉ በእርስዎ ፍቃደኝነት ላይ የተመሰረተ ነው። ለመሳተፍ ፈቃደኛ ከሆኑ የስምምነት መጠየቂያ ማረጋገጫ ቅጽ ላይ እንዱፈርሙ ይጠየቃሉ። ያለመሳተፍ የፈለጉትን ጥያቄ ያለመመለስና በፈለጉት ሰአት ምክንያትዎን መግለጽ ሳይጠበቅብዎት ቃለ-መጠይቁን ማቋረጥ ይችላሉ። ጥናቱ ላይ ባለመሳተፎዎ ሊደረግሎት ከሚገባው የህክምና ክትትል ምንም የሚቀንሰ ነገር አይኖርም።ጥያቄወቻችንን በ20 ደቂቃ እንጨርሳለን ብለን እናስባለን።

ከላይ በተጠቀሰው ጥናት ላይ ለመሳተፍ

1.ፈቃደኛ ነኝ 2.ፈቃደኛ አይደለሁም

ጊዜዎን ወስደው ስላዳመጡን እናመሰግናለን!!!

በጥናቱ ላይ ለመሳተፍ ፈቃዴን ከፊርማዬ ጋር እንደ ቃለ መጠይቅ አጽድቄአለሁ።

ፊርማ:_____

የጥያቄው አማርኛ ስሪት

ክፍል አንድ፡- ማህበራዊና የህዝብ አወቃቀር ባህሪያት

መመሪያ፡ እባክዎን ለእርስዎ ተገቢውን ምላሽ የያዘውን ቁጥር ያክብቡ ወይም በተዘጋጀው ቦታ ላይ ተገቢውን

መልስ ይፃፉ

1.1	ዕድሜ _____አመት	ዝለል
1.2	ፆታ 1. . ወንድ 2. ሴት	
1.3	ብሔርዎ ምንድን ነው 1. ጉራጌ 3. አማራ 2. ስልጤ 4. ኦሮሞ 5. ሌሎች (ይግለጹ) _____	
1.4	ከፍተኛ የትምህርት ደረጃዎ ምንድነው? 1. ማንበብ እና መጻፍ አለመቻል 2. ማንበብ እና መጻፍ ይችላሉ 3. ክፍል 1-8 4. 9-12 ክፍል 5. ኮሌጅ እና ከዚያ በላይ	
1.5	የስራ ሁኔታዎ ምንድን ነው? 1. የቤት እመቤት 5. ነጋዴ 2. ገበሬ 6.የቀን ሰራተኛ 3. የመንግስት ስራ ያልሆነ 7. ተማሪ 4. የመንግስት ሰራተኛ 8. ሌሎች (ይጥቀሱ) _____	
1.6	አማካይ ወርሃዊ ገቢዎ ስንት ነው? _____(የኢትዮጵያ ብር)	
1.7	የጋብቻ ሁኔታዎ ምንድን ነው? 1. ያገባ/ች 4. የተፋታ/ች 2. ነጠላ 5. ተለያይተዋል 3. የሞተባት/በት	

ክፍል II፡ ከስነ አምሮ ጋር የተያያዙ ጥያቄዎች

2.11	ከማን ጋር ትኖራለህ/ሽ? 1. ብቻየን. 2. ከቤተሰቤ ጋር 3. ሌሎች (ይግለጹ)_____	
2.12	በኤችአይቪ/ኤድስ ሕመም ምክንያት ሥራዎን አጥተዋል? 1አዎ 2. አላጣሁም	
ተ.ቁ	**የማህበራዊ ድጋፍ ግምገማ መጠይቅ ።።**	**አማራጭ መልሶች**
2.21	ትልቅ የግል ችግሮች ካጋጠሙህ/ሽ በችግሮችህ ላይ እምነት መጣል የምትችልባቸው ስንት ሰዎች ናቸው?	1. የለም 2. 1-2 3. 3-5 4. 5 እና ከዚያ በላይ
2.22	ሰዎች በምታደርገው/ጊው ነገር ምን ያህል ፍላጎት እና አሳቢነት ያሳያሉ?	1. በጣም ትንሽ 2. ትንሽ 3 እርግጠኛ ያልሆነ 4. አንዳንዶቹ 5. ብዙ

2.23	ከፈለጉት ጎረቤቶችዎ ተግባራዊ እርዳታ ማግኘት ምን ያህል ቀላል ነው?	1. በጣም አስቸጋሪ 2. አስቸጋሪ 3. ይቻላል 4. ቀላል 5.በጣም ቀላል

ክፍል III፡ የሚከተሉት ጥያቄዎች ከውስጥ ሀፍረት ጋር የተያያዙ ናቸው።
የሚከተሉት መግለጫዎች በሙሉ የኤችአይቪ በሽታ እንዳለቦት ከታወቀበት ጊዜ ጀምሮ የሚሰማዎትን ስሜት ያመለክታሉ (ሌሎች ስለእርስዎ የሚያስቡትን ሳይሆን) ።

ተ.ቁ	ስለራስህ ያለህ/ሽ ስሜት	በጣም አልስማማም	አልስማማም	ገለልተኛ	እስማማለሁ	በጣም እስማማለሁ
2.31	ኤችአይቪ/ኤድስ ስላለብዎ ሀፍረት ይሰማዎታል።	1	2	3	4	5
2.32	በግልጽ ከሌሎች ሰዎች ተለይተው የሚታወኩ ወይም የሚታዩ፣ መስሎ ይታየዎታል።	1	2	3	4	5
2.33	በኤችአይቪ በመጠቃትዎ ከሌሎች ህዝቦች ጋር የመሳተፈ ችሎታዎን አደናቅፎታል።	1	2	3	4	5
2.34	በኤችአይቪ በመጠቃትዎ ችልታዎን ከሌሎች ህዝቦች ጋር ወዳጅነት እንዳይኖረዎት አደናቅፎታል	1	2	3	4	5
2.35	ደስ የማይል አይነት ስሜት ይሰማዎታል።	1	2	3	4	5
2.36	አዳዲስ ጓደኞችን ከማፍራት እንደተከለከሉ ይሰማዎታል።	1	2	3	4	5
2.37	የኤችአይቪ ተጠቂ መሆንዎትን ለሌሎች ለመናገር በሚፈልጉበት ጊዜቅዴመ ሁኔታ ወይም የማባበያሀሳቦችን አቅርበዋል።	1	2	3	4	5
2.38	በኤችአይቪ መጠቃትዎ በጣም መጥፎ እና አስደንጋጭ የሀፍረት ምልክትነው።	1	2	3	4	5
2.39	በኤችአይቪ መያዝዎን እውነቱን ለመናገር ለመደበቅ ሞክረዋል።	1	2	3	4	5
2.310	ህመምዎን መደበቅ እንዳለቦት ይሰማዎታል።	1	2	3	4	5

ክፍል VI፡ ከኤችአይቪ ጋር የተዛመዱ ምክንያቶች (ታካሚዎቹ የኤችአይቪ/ኤድስ ሁኔታቸውን ካላወቁ ከካርድ ይመልከቱ)

3.1	የእርስዎን የኤችአይቪ/ኤድስ መድሃኒት ለምን ያህል ጊዜ ወስደዋል?	ዝለል

	_____በወራት/ዓመት	
3.2	የኤችአይቪ/ኤድስ ደረጃ? _____	
3.3	የቅርብ ጊዜ የCD4 ብዛት? _____ ሕዋስ/µl	
3.4	ባለፉት 30 ቀናት ውስጥ የ ART መድሀኒትዎን አቋርጠው ያውቃሉ? 1. አዎ 2. አላቋረጥሁም	
3.5	ለ Q 3.4 አዎ ከሆነ ምን ያህል ጊዜ _____	
3.6	ተጓዳኝ በሽታ አለብዎት 1. አዎ 2. የለብኝም	

ክፍል IV፡ የስነ ባህሪ ተዛማጅ ጥያቄዎች

ተ.ቁ	**የዕፅ አጠቃቀም መገምገሚያ መጠይቆች**	**ውጤት**
4.1	ባለፉት 3 ወራት ውስጥ ከሚከተሉት ዕፅ አንዱን ተጠቅመዋል? (ከአንድ በላይ መልስ ይቻላል)	1 አልኮል 2 ጫት 3 ትምባሆ 4 ካናቢስ 5 ሌላ/ ይገለፁ _____
4.2	ከሚከተሉት ዕፅ አንዱን ተጠቅመህ ታውቃለህ/ሽ? (ከአንድ በላይ መልስ ይቻላል)	1 አልኮል 2 ጫት 3 ትምባሆ 4 ካናቢስ 5 ሌላ/ ይገለፁ _____
የአካል ብቃት እንቅስቃሴን መገምገሚያ መጠይቅ		
4.3	አካላዊ እንቅስቃሴ አድርገሃል/ሽል 1. አዎ 2. አላደረጉሁም	

ክፍል V፡ PHQ-9 መሳሪያን በመጠቀም ድብርትን መገምገም።

(በፍፁም =0, በርካታ ቀናት =1, ከግማሽ ቀናት በላይ =2, በየቀኑ =3)

በጭራሽ "በአለፉት 2 ሳምንታት ውስጥ ከ0-1 ቀናትን ፣**"በርካታ ቀናት"** ከ2-6 ቀናት ፣**"ከግማሽ ቀናት በላይ**" ከ7 -11 ቀናትን ፣ እና **በየቀኑ** "ከ12-14 ቀናትን ያመለክታል።

ተ.ቁ	ባለፉት 2 ሳምንታት፣ ዛሬን ጨምሮ ከሚከተሉት ችግሮች ውስጥ ምን ያህል ጊዜ አስጨንቆዎታል ።	በፍ ፁም	በርካ ታ ቀናት	ከግማ ሽ ቀናት በላይ	በየ ቀኑ
5.1	ነገሮችን ሲሰሩ ፍላጎትዎ ወይም የሚያገኙት ደስታ በጣም ትንሽ (እምብዛም) ነበር?	0	1	2	3

5.2	የትካዜ፤ የበታችነት፤የጭንቀት፤የመደበር ወይም ተስፋ የመቁረጥ ስሜት ነበረብዎት?	0	1	2	3
5.3	እንቅልፍ የመተኛት፤ተኝቶ የመቆየት ችግር ወይም ከመጠን በላይ የመተኛት ችግር ነበረብዎ	0	1	2	3
5.4	ድካም የመሰማት ወይም አቅም የማነስ ሁኔታነበረብዎት?	0	1	2	3
5.5	የምግብ ፍላጎት አለመኖር ወይም በጣም ብዙ የመብላት ችግር ነበረበዎት?	0	1	2	3
5.6	ስለራስዎ መጥፎ ስሜት ተሰምቶት ወይም አልተሳካልኝም ብለው አስበው፤ ወይም ቤተሰቤን አሳፈርኩ ብለው አስበው ነበር?	0	1	2	3
5.7	ነገሮች ላይ ሀሳብዎትን መሰብሰብ ወይም ልብ የማለት ችግር ነበረብዎት፤ ለምሳሌ ጋዜጣ ሲያነቡ ወይንም ቴሊቭዥን ሲመለከቱ?	0	1	2	3
5.8	ከተለመደው ውጭ እረፍት የማጣት፤ወደያ ወደህ የማለት ወይንም በተቃራኒው ሌሎች ሰዎች ሊገነዘቡት በሚችሉት ሁኔታ ቀስ ብሎ የመናገር ወይም የመንቀሳቀስ ችግር ነበረብዎት?	0	1	2	3
5.9	ብትሞት ይሻላል ወይም በሆነ መንገድ እራስህን ብትጎዳ ይሻልሃል የሚል ሀሳብ ነበረብዎት?	0	1	2	3

ክፍል VII፡ ጭንቀትን ለመገምገም መጠይቅ

(GAD-7) ልኬት

ተ.ቁ	ባለፉት 2 ሳምንታት፣ የሚከተሉት ችግሮች ምን ያህል ጊዜ አስቸግረዎታል?	በጭራሽ እርግጠኛ አይደለሁም	በርካታ ቀናት	ከግማሽ ቀናት በላይ	በየቀኑ ማለት ይቻላል
6.1	የትካዜ፣ የመረበሽ ስሜት፣ ወይም ጥሩ ያልሆነ ስሜት መሰማት	0	1	2	3
6.2	ጭንቀትን ማቆም ወይም መቆጣጠር አለመቻል	0	1	2	3
6.3	ለተለያዩ ነገሮች ከመጠን በላይ መጨነቅ	0	1	2	3
6.4	የመዝናናት ችግር	0	1	2	3
6.5	በጣም እረፍት ከማጣት የተነሳ ዝም ብሎ መቀመጥ ይከብዶዎታል	0	1	2	3
6.6	በቀላሉ የሚናደድ ወይም የሚያናድድ መሆን	0	1	2	3
6.7	አስከፊ የሆነ ነገር ሊከሰት እንደሚችል የፍርሃት ስሜት	0	1	2	3

እናመሰግናለን!