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*Original Research Article*

# PREVALENCE AND FACTORS ASSOCIATED WITH DEPRESSION AMONG HIV/AIDS CLIENTS IN A SECONDARY HEALTH FACILITY IN NIGERIA

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## ABSTRACT

About 13% of all diseases worldwide are mental health disorders. A mental health condition known as depression is characterized by a low mood, diminished interest in or enjoyment from activities, low energy, feelings of guilt or low self-worth, trouble sleeping or eating, and difficulty concentrating. The objectives of this study were to determine the prevalence level of depression and the factors associated with depressive symptoms among the studied participants. It was a cross-sectional descriptive evaluation, carried out between October and December 2022, at Bishop Shanahan Hospital Nsukka, a renowned secondary health facility located at Nsukka Local Government in Enugu State. Data were collected using the Nine Symptom Checklist questionnaire for the assessment of depression. The cut-off points for mild, moderate, moderately severe, and severe depression were indicated by total scores of 5, 10, 15 and 20 respectively. A section of the questionnaire was designed to collect the participants' socio-demographics and their clinical characteristics. Ethical clearance was obtained from the hospital. Statistical Package for Social Sciences (SPSS) version 23.0 was used for both descriptive and inferential statistics during the data analysis process. A significance threshold of $p<0.05$ was applied. The response rate was 99.6%. More males responded (50.4%). Most (64.7%) of the participants were minimally-mildly depressed. However, 0.4% were severely depressed. Marital status (P=0.02) and time on ART (P=0.016) were found to be closely associated with the level of depression. This study showed that most participants had no depressive symptoms. The respondents who were single and had been on ART medications for more than one year were more depressed than others. Though few participants were severely depressed, there's a strong need to enforce the psychotherapy aspects of HIV management.

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## INTRODUCTION

The most common mental illness among HIV/AIDS patients is depression [1,2]. According to projections, depression and other mental health issues will account for the majority of deaths and illnesses worldwide by 2030 [3].

Depression symptoms include a sad mood, lack of interest or pleasure, low energy, feelings of guilt or low self-worth, trouble sleeping or eating, and difficulty focusing [4,5]. The World Health Organization (WHO) estimates that 450 million people worldwide have a mental problem, and 25% of the population will experience mental disease at some point in their lives [6,7]. Yet, depression treatment and assistance

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services are usually absent or insufficient in nations with low or middle incomes.

For instance, between 76 and 85% of those in these nations who suffer from mental illnesses do not have access to the necessary therapy [3]. According to the 2005 World Mental Health Survey, only around 17% of Nigerians with a 12-month history of diagnosable depression received treatment [8].

HIV/AIDS and depression are both common subjects of discussion in public health with HIV/AIDS being a great predisposing condition to depression. Due to the stigmatizing nature of the disease and other factors associated with the disease and its management, depressive disorder was three times higher among HIV-positive individuals than in healthy individuals without the disease. It is reported that as many as one in three persons with HIV may suffer from depression [9]. Unfavorable outcomes include increased hazardous behavior, treatment noncompliance, a higher chance of co-morbid diseases, and a shorter survival time have all been linked to depression [10].

Failure to diagnose and treat depression endangers not only the patient but the community as well. When a patient engages in fulfilling activities, whether they be social, professional, or otherwise, and when his family accepts and acknowledges his disease, depressive tendencies are reduced.

Conversely, the occurrence of recent affective losses (such as rejection or death), an acceleration of opportunistic infections, a rise in the number of hospitalizations, the length of the illness, and physical decline all raise the likelihood of depression in HIV/AIDS patients. Additionally, the intensity of depression in HIV patients is correlated with the rate at which the CD4 count declines, indicating that delaying treatment of depression may accelerate the course of the disease and reduce survival [11].

In this study, we determined the level and factors associated with depression among HIV-positive patients in a secondary health facility in Enugu State.

## MATERIALS AND METHODS

### Study Design

This study was a cross-sectional evaluation carried out between October and December 2022.

### Study Area

The study was conducted at Bishop Shanahan Hospital, Nsukka, a renowned secondary health facility in Enugu state in the Nsukka local government area. Bishop Shanahan Hospital is a missionary facility owned by the Catholic Diocese of Nsukka. It was established in 1932 by Bishop Charles Henry. Bishop Shanahan Hospital has around 250 beds and offers a variety of services. It is regarded as the primary healthcare facility for the residents of Nsukka and surrounding areas. It is one of the approved centres for HIV/AIDS testing and treatment in Nigeria. HIV services are offered from Mondays to Thursdays.

### Study Population and Sample Collection

The study population was HIV/AIDS-positive clients attending and receiving treatment at an HIV/AIDS clinic in the secondary health facility. A recommended sample size of 500 participants, using a Raosoft sample size calculator with a 99% confidence interval and about 2000 population size, 5% margin of error, and 50% response distribution was used. This number was conveniently sampled.

### Instrument for Data Collection

The data were collected using th**e** Nine Symptom Checklist questionnaire for the assessment of depression. The Nine Symptom Checklist also known as Patient Health Questionaire-9 (PHQ-9) is a multipurpose instrument for screening, diagnosing, monitoring, and measuring the severity of depression. PHQ-9 was developed and validated by Dr. Robert L Spitzer, Kurt Kroenke, Janet BW Williams, and other colleagues [12]. The instrument is made up of 9 different questions about the patient's day-to-day mental activities commonly asked or used to diagnose patients of depression or mental health status. Its severity was evaluated using the numbers 0 to 3 which indicated the frequency of their engagement in the activities that were stated clearly in the questionnaire. 0 indicated 'not at all', 1 indicated 'several days', 2 indicated 'more than half a day' and 3 indicated 'nearly every day'. The questionnaire has been used in the HIV population in Nigeria [13].

The PHQ-9 scores were obtained by adding a score for each question. Total scores of 0,1,5,10,15,20 indicated cut-off points for no, minimal, mild, moderate, moderately severe, and severe depression, respectively. The questionnaire was self-administered and divided into two sections. Section one was used to collect demographic information such as gender, age, education, and marital status, as well as some clinical characteristics of the respondent. The second section contained the PHQ-9 questions, focused on assessing the mental health status of the patient within the last two weeks.

### Operational Definition

**Depressive Symptoms**: Participants who scored 5 or greater on the PHQ-9 questionnaire were said to have depressive symptoms. Hence, participants who were minimally depressed were taken to exhibit no depressive symptoms.

### Ethical Consideration

Ethical clearance was acquired from the research protocol and ethical committee of Bishop Shanahan Hospital in Nsukka, Enugu State. Participants provided written informed consent, and their confidentiality was preserved throughout the study.

**Data Analysis**

The acquired data was checked for completeness, coded, and analyzed with descriptive and inferential statistics in SPSS version 23. Categorical data/variables were summarized using frequencies and percentages, and the relationship between variables was tested using the Chi-square test. A P-value of <0.05 was judged statistically significant.

## RESULTS

**Socio-demographic and some Clinical Characteristics of the Respondents (n=498)**

A total of 500 HIV-infected persons were approached to fill the questionnaires but only 498 participated giving a response rate of 99.6%. More males (50.4%) responded. The greater percentage (28.9%) of the study participants were between 35 and 44 years. Almost half (49.8%) were married and about two-thirds, (63.2%) attended secondary or higher education. More than half, (54.7%) of the respondents had an average monthly income of 11,000-50,000 naira. Most of the participants were either in stage I, 48.3%, or stage II, 44.1% of HIV, and the majority, 39.6% had been on antiretroviral therapy for between 1 and 4 years (Table 1).

**The Severity of Depressive Symptoms among the Study Participants (n = 498)**

The majority of the respondents, (≥70%) were not engaged in the activities that denote depression. Most of them answered "Not at all" to the nine questionnaire items on depression. However, 1.2% of the participants had wished to be dead or had tried to harm themselves nearly every day (Table 2).

**The Level of Depression of the Respondents (n=498)**

Using the PHQ-9 depression severity assessment scale, most (64.7%) of the participants were minimally-mildly depressed while only 0.4% were severely depressed. About 28.5% had no depression at all (Figure 1).

**Prevalence of Depressive Symptoms among the Respondents**

The prevalence of depressive symptoms among the studied population was 17.3% (Figure 2).

**Factors associated with Depression among HIV-positive Patients**

The chi-square test revealed that the marital status of respondents (p=0.02) and time on ART (p=0.016) were closely associated with the level of depression (Table 3).

## DISCUSSION

This study assessed the level of depression and the associated factors among four hundred and ninety-eight persons living with HIV/AIDS. To the best of our knowledge, there's a paucity of data in Nigeria that evaluated the level of depression among people living with HIV/AIDS using the PHQ-9 questionnaire. However, the PHQ-9 questionnaire has been used in the Nigerian HIV population [13]. Using this tool, Adewunye et al estimated the rate and correlates of depression in primary care using data from the Mental Health in Primary Care (MeHPriC) project, in Lagos, Nigeria [14]. Nwajei et al screened for depression symptoms among young recent Nigerian graduates [15]. Using this method, West African nations like Cameroun—which has socioeconomic and demographic traits similar to Nigeria—have reported some conclusions about the HIV population [16, 17].

Also, the PHQ-9 questionnaires had been used with People living with HIV (PLWHIV) in other sub-Saharan African countries [18,19].

From the result of our study, a greater percentage of the respondents were not depressed (PHQ-9 <5). However, some individuals were severely depressed (PHQ-9 > 20). The prevalence of depressive illness was obtained to be 17.3%. This finding was similar to that obtained in Ethiopia [20] in which the authors reported a prevalence of 15.5%. A study carried out in South Africa reported a somewhat lower prevalence rate of 11.8% [21]. Another study done in Uganda documented a prevalence of 15. 9% among post-partum HIV-infected women [22]. Studies conducted in some African countries, however, recorded higher rates of 20% and 41.7% [17, 23]. Contrary to our study, Obadeji et al. identified a high prevalence of depression among PLWH to be 23.1% using a different screening tool [25]. A very high rate of 58.75% was reported in Delhi using the CES-D (Center for Epidemiologic Studies - Depression) scale [9]. The variations observed could be attributed to the differences in the instruments used to diagnose depression, sample sizes, and differences in the study population and location. For instance, research conducted in Lagos, Nigeria, with a small sample size (n = 87) found that approximately 29% of PLHIV had a depression diagnosis [26]. Additionally, a study employing the Hospital Anxiety and Depression Scale with 162 PLHIV aged 15 to 25 years conducted in Kano State, Nigeria, revealed a prevalence of almost 40% [27]. Using the Centre for Epidemiological Studies Depression Scale (CES-D), 310 PLHIV in Zaria, Kaduna State, were the subject of another study that revealed that 21% of PLHIV showed substantial depression symptoms [28].

For instance, research conducted in Lagos, Nigeria, with a small sample size (n = 87) found that approximately 29% of PLHIV had a depression diagnosis [26]. Additionally, a study employing the Hospital Anxiety and Depression Scale with 162 PLHIV aged 15 to 25 years conducted in Kano State, Nigeria, revealed a prevalence of almost 40% [27]. Using the Centre for Epidemiological Studies Depression Scale (CES-D), 310 PLHIV in Zaria, Kaduna State, were the subject of another study that revealed that 21% of PLHIV showed substantial depression symptoms [28].

Furthermore, previous studies carried out in Nigeria with the same PHQ-9 scale, in the same HIV population documented higher prevalence rates of 56.7% and 39.1% [13, 29]. Even

though previous studies reported that depression is common among people living with HIV/AIDS, the findings of this study have demonstrated that this population may have learned how to manage themselves, hence the lower prevalence rate recorded, similar to 16.3% obtained in Southwestern Nigeria [2]. Moreover, responding by a face-to-face interview may

**Table 1:** Social demographic data and clinical characteristics of the participants

| Variables | N (%) |
|---|---|
| **Age of respondents (years)** | |
| 15-24 | 61(12.2) |
| 25-34 | 108(21.7) |
| 35-44 | 144(28.9) |
| 45-54 | 100(20.1) |
| 55-64 | 58(11.6) |
| ≥ 65 | 27(5.4) |
| **Gender of respondents** | |
| Male | 251(50.4) |
| Female | 247(49.6) |
| **Marital status** | |
| single | 125(25.2) |
| Married | 247(49.8) |
| Divorced | 65(13.1) |
| Widowed | 59(11.9) |
| **Educational status** | |
| Primary school /below | 182(36.8) |
| College/higher | 312(63.2) |
| **Family type** | |
| Nuclear | 352(70.7) |
| Polygamy | 144(28.9) |
| **Monthly income (₦)** | |
| 10,000/lower | 127(25.7) |
| 11, 000 - 50, 000 | 271(54.7) |
| >50,000 | 97(19.6) |
| **HIV stages** | |
| I | 204(48.3) |
| II | 186(44.1) |
| III | 27(6.4) |
| IV | 5(1.2) |
| **Time on ART** | |
| < 1 year | 148(29.7) |
| 1 – 4 years | 197(39.6) |
| >4 years | 153(30.7) |

Table 2: Severity of depressive symptoms among the study participants

| Questionnaire items | Not at all N (%) | Several days N (%) | More than half days N (%) | Nearly every day. N (%) |
|---|---|---|---|---|
| Little interest or pleasure in doing things | 398(80.4) | 72(14.5) | 11(2.2) | 14(2.8) |
| Feeling down, depressed, or hopeless | 364(73.1) | 102(20.5) | 22(4.4) | 10(2.2) |
| Trouble falling or staying asleep or sleeping too much | 362(72.7) | 106(21.3) | 19(3.8) | 11(2.2) |
| Feeling tired or having little energy | 343(69.6) | 117(23.7) | 24(4.9) | 9(1.8) |
| Poor appetite or overeating | 387(78.0) | 87(17.9) | 18(3.6) | 2(0.4) |
| Feeling bad about yourself or that you are a failure or have let yourself or your family Down | 366(73.6) | 104(20.9) | 19(3.8) | 8(1.6) |
| Trouble concentrating on things, such as reading the newspaper or watching television | 393(78.9) | 84(16.9) | 14(2.8) | 7(1.4) |
| Moving or speaking so slowly that other people could notice. Or the opposite, being so fidgety or restless that you have been moving around a lot more than usual | 404(81.1) | 72(14.5) | 13(2.6) | 9(1.8) |
| Thoughts that you would be better off dead or of hurting yourself in some way | 388(77.9) | 88(17.6) | 16(3.2) | 6(1.2) |

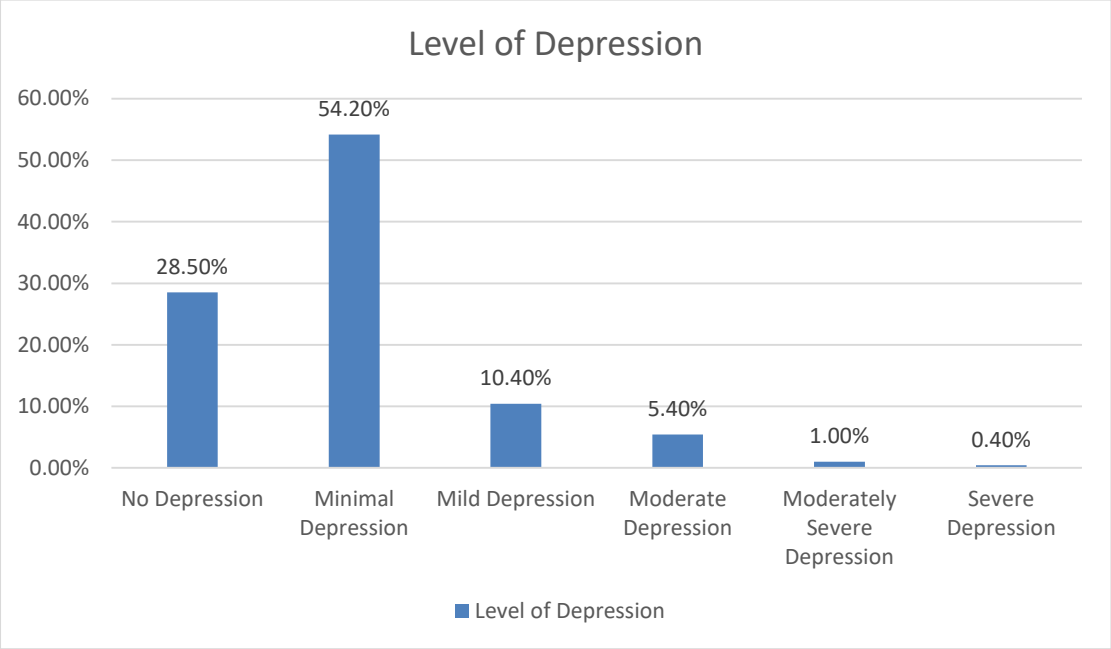


**Figure 1:** Level of depression of the respondents

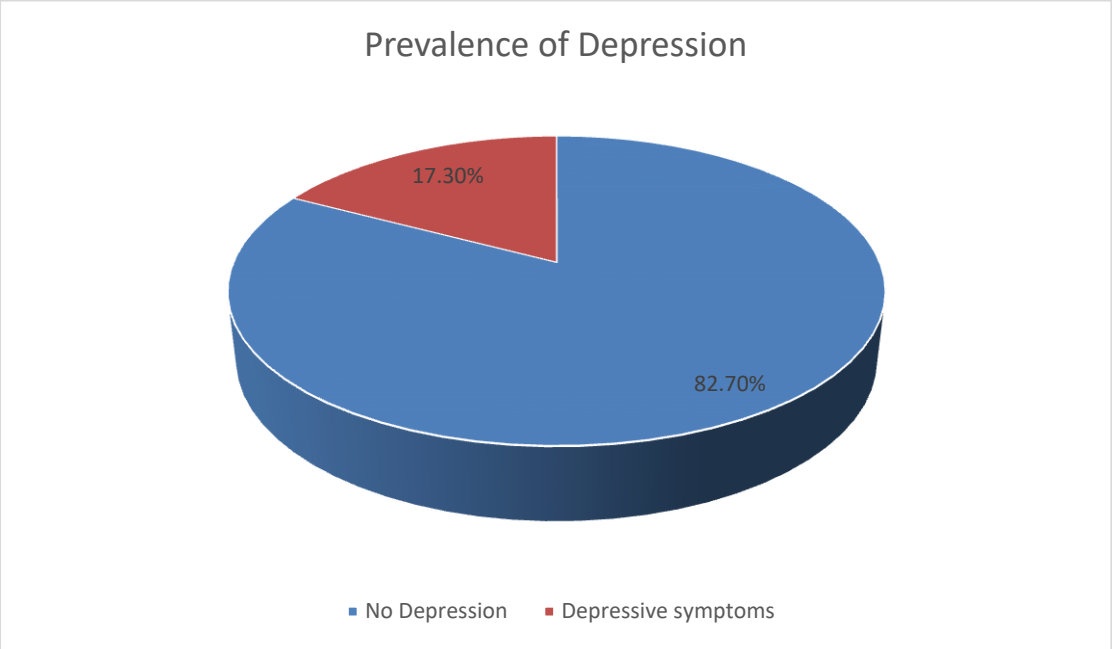


Figure 2: Prevalence of depressive symptoms among the respondents

**Table 3**: Association between the demographics and the classification of depressive disorder

| Variable | No depression N (%) | Depressive symptoms N (%) | Chi-square value | P value |
|---|---|---|---|---|
| **Age** | | | 4.51 | 0.48 |
| 15-24 | 49 (11.9) | 11(13.8) | | |
| 25-34 | 83 (20.2) | 25 (28.7) | | |
| 35-44 | 123 (29.9) | 21 (24.1) | | |
| 45-54 | 86 (20.9) | 14 (16.1) | | |
| 55-64 | 47 (11.4) | 11 (12.6) | | |
| ≥ 65 | 23 (5.6) | 4 (4.6) | | |
| **Gender** | | | 2.61 | 0.11 |
| Male | 214 (52.1) | 37 (42.5) | | |
| Female | 197 (47.9) | 50 (57.5) | | |
| **Marital status** | | | 9.88 | 0.02* |
| Single | 92 (22.5) | 33 (37.9) | | |
| Married | 213 (52.1) | 34 (39.1) | | |
| Divorced | 56 (13.7) | 9 (10.3) | | |
| Widowed | 48 (11.7) | 11 (12.6) | | |
| **Education** | | | 0.00 | 0.99 |
| Primary/below | 151 (36.8) | 31 (36.9) | | |
| Secondary/higher | 259 (63.2) | 53 (63.1) | | |
| **HIV stages** | | | 6.954 | 0.073 |
| I | 154 (45.2) | 50 (65.7) | | |
| II | 159 (47.5) | 24 (32.0) | | |
| III | 22 (6.6) | 4 (5.3) | | |
| IV | 4 (1.2) | 1 (1.3) | | |
| **Time on ART** | | | 8.328 | 0.016* |
| < 1 year | 131 (32.7) | 13 (16.5) | | |
| 1-4 years | 151 (37.7) | 38 (48.1) | | |
| > 4 years | 119 (29.7) | 28 (35.4) | | |

*Key: '*' = P < 0.05.*

likely have prompted the participants to give socially desirable answers.

Most of the respondents in this study were not depressed and the minimal - mild category was the predominant group among the depressed respondents. This finding is similar to that documented in the literature by previous studies that the mild subtype was the most common in those with depressive symptoms [30, 31,32].

Our findings also showed that a greater percentage of the participants who were single were more depressed, followed by those who were widowed or divorced. The married participants were the least depressed. This may be expected as those who were in marriage are most likely to get both emotional and psychological support from their spouses and children. Marital tragedies are the most stressful events that can lead to a sense of insecurity and hopelessness. Similar results were documented in the literature [33, 34]. However, a study reported that marital status was not statistically associated with depression among HIV-infected individuals [25].

In this study, those participants who had been on antiretroviral medications for more than one year were found to be more depressed compared to others who were not up to one year on ART medications. The possible explanation could be that those who were newly enrolled in the ART program were still having ongoing counselling and support about HIV diagnosis and treatment, which might reduce mental stress and anxiety that could lead to depressive symptoms. A similar report was documented in a study carried out in Ethiopia [35]. Our study did not find a statistically significant relationship between depression and other socio-demographic characteristics of the participants such as gender, occupation, level of education, etc.

## CONCLUSION

This study's findings showed that most participants had no depressive symptoms. The respondents who were single and had been on ART medications for more than one year were more depressed than others. Though few participants were severely depressed, there's a need to enforce strongly the psychotherapy aspects of HIV management. Efforts should be made by health agencies, non-governmental organizations targeting care for HIV/AIDS, hospitals, and health workers to ensure proper assessment of the mental health status of patients even before administering pharmacological therapy.

This study, however, lacks some details that a community-based study might have seen because it was conducted in a hospital. Because the study was cross-sectional, it was not able to determine the temporal link between depression and other causes. Furthermore, this institution did not have access to hormonal assays during the study period, including blood cortisol, testosterone, estrogen, and progesterone levels, thyroid function testing, or any other test that may be connected to depression. Both excess and insufficient of these hormones can cause mood abnormalities including depression.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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## AUTHORS' CONTRIBUTION

MOA designed the work, analyzed data, supervised the work and drafted the manuscript; GE carried out the data collection; CA proofread the manuscript and contributed immensely to the final draft of the manuscript.

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