



Original Article

Depression and suicidal ideation among HIV seropositive patients attending the special treatment clinic of the University of Calabar Teaching Hospital, Calabar, Nigeria

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ABSTRACT

Objectives: The introduction of highly active antiretroviral therapy and innovations in healthcare has contributed in improving the lives of persons living with human immunodeficiency virus (HIV)/AID. Patients infected with HIV are more susceptible to develop psychiatric illnesses. Depression is common among patients suffering from chronic illness such as HIV/AIDS and can exacerbate these illnesses. Depression has been observed to be twice as common in HIV seropositive individuals than in the general population. Undiagnosed and untreated depression in patients suffering from HIV/AIDS could lead to poor adherence to medications and lower quality of life. Depression is associated with rapid HIV disease progression. The diagnosis of HIV infection may be associated with feelings of anger, denial, sadness, guilt feelings, loss of self-esteem among others. These negative feelings could lead to suicidal ideation and attempted suicide or suicide. We sought to determine the prevalence rates, sociodemographics and predictors, of depression and suicidal ideation among study participants.

Material and methods: Two hundred and two adult participants who met the inclusion criteria were recruited into the study. Mini International Neuropsychiatric Interview English version 6.0.0 was employed to diagnose depression and suicidal ideation. Data were analyzed using Statistical Package for the Social Sciences version 20.0. Significant levels were set at $P < 0.05$.

Results: This study revealed prevalence rates of 11.4% for depression and 7.9% for suicidal ideation among study participants. Majority of the participants were females in the young age group category of 30–40 years (45%) with mostly secondary education (47.8%), most had a higher CD4 count greater than 200 cells/ μ L (82.6%) and were mainly on zidovudine/lamivudine/nevirapine combination therapy (56.5%). Mean age, CD4 count, and viral load levels were lower in HIV patients with depression but were not statistically significant ($P > 0.05$). CD4 count and viral load were not significantly associated with suicidal ideation. Lower age (30–40 years) was significantly associated with suicidal ideation ($P < 0.05$). Suicidal ideation is a predictor of depression in the same way depression is a predictor of suicidal ideation ($P < 0.05$).

Conclusion: Routine screening for depression and suicidal ideation especially among younger HIV/AIDS patients is recommended in the clinic setting.

Keywords: Depression, Suicidal Ideation, HIV, Special clinic, Calabar

INTRODUCTION

Human immunodeficiency virus (HIV) and depression are among the public health issues projected to be the leading causes of disability in the world by 2030.^[1] According to the 2014 global HIV statistics, about 36.9 million persons are living with HIV and out of this global

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total, 25.8 million live in sub-Saharan Africa.^[2] Nigeria is the most populous nation in Africa with a population of about 178.5 million people as of July 1, 2014, accounting for over 16% of the entire African population.^[3] It is reported that of the total global population living with HIV, 3.4 million people (accounting for 9.2% of global total), live in Nigeria.^[4] Innovations in healthcare (with the introduction of highly active anti-retroviral therapy) are currently contributing to prolonging the lives of HIV seropositive individuals.

Patients infected with HIV are more susceptible to develop psychiatric illnesses and depression has been observed to be twice as common in HIV seropositive individuals compared to the general population.^[5] A complex relationship has been observed between HIV and depression with the later being associated with rapid HIV disease progression either directly or indirectly.^[6-8] In sub-Saharan Africa, various rates of depression have been reported among HIV positive individuals.^[9-12] An undiagnosed or untreated depression in HIV positive persons lead to poor quality of life and poor adherence to medications.^[5,13]

Apart from depression, diagnosis of HIV infection may be associated with feelings of anger, guilt, and loss of self-esteem. These negative feelings could lead to suicidality in the affected persons. It has been reported that suicidality in HIV positive patients is a predictive indicator of future attempted suicide and completed suicide and it is associated with reduced quality of life and poor adherence to antiretroviral therapy.^[14,15] Prevalence rates ranging from 13 to 17.1% have been reported for suicidality in HIV patients by few African studies.^[16-18] Like depression, suicidality in HIV positive patients is associated with poor quality of life, lack of social connectedness, and poor adherence to medications.^[19,20]

The combined effects of depression and suicidality on HIV seropositive individuals might be fatal as it could facilitate completed suicide (owing to poor quality of life and poor positive psychology) or encourage rapid development of viral resistance to medications due to poor drug adherence.^[14,15] At present, efforts are geared toward prolonging the lives of individuals living with HIV but depression and suicidality (if not recognized and treated) can mitigate these efforts.

Although Africa is the continent worst affected by HIV infections, data on depression and suicidality in HIV positive persons in Africa are still scanty.^[21] This study will examine the sociodemographics and determine the clinical correlates of depression and suicidality in HIV infected subjects attending the special treatment clinic (STC) in the University of Calabar Teaching Hospital (UCTH). It is our believe that data from this study will assist to fashion out appropriate interventions for depression and suicidality among HIV-infected individuals in our environment.

MATERIAL AND METHODS

The study site was at the STC of the UCTH, an outpatient facility. Adults (18 years and above) HIV seropositive patients confirmed at the STC of the UCTH who gave an informed consent were not ill enough for admission and had no previous history of mental illness (from our hospital records and by asking directly) were recruited as study participants. The participants were conveniently recruited in a consecutive manner (as patients come into the clinic) and 202 persons met the inclusion criteria. All the eligible participants who accepted to be part of the study signed an informed consent and was interviewed using the instruments in a separate consulting room provided for the study. A structured researcher administered questionnaire to evaluate participants' demographics, duration of HIV diagnosis, being on ART, type of ART, CD4 count, and viral load as recorded in patients' case notes was employed for this study. Mini International Neuropsychiatric Interview (MINI) is a short structured diagnostic interview developed for psychiatric diagnoses.^[22] This instrument was administered by trained clinicians. It has been validated and used in research studies in Nigeria.^[23] The present study utilized the MINI English Version 6.0.0. The entire MINI interview consists of sixteen modules (A to P) corresponding with categories of neuropsychiatric diagnoses. Only modules A (Major Depressive Episode) and B (Suicidality) were used to interview respondents in this study. Participants were recruited over a period of 7 months from November 2016 to May 2017. Ethical approval for this study was obtained from the Health Research Ethical Committee (HREC) of the UCTH with assigned protocol number UCTH/HREC/33/407.

Data analysis

The data variables obtained were analyzed using Statistical Package for the Social Sciences (SPSS) software (version 20.0. SPSS, Inc., Chicago, IL, USA). Quantitative data are presented as mean \pm SD and categorical variables as percentages. Statistical comparisons were done using independent sample *t*-test, Pearson's Chi-square test, or Fisher's exact test as appropriate. Logistic regression analyses were used to determine the predictors of suicidal ideation and depression. Significant levels were set at $P < 0.05$.

RESULTS

Table 1 shows the characteristics of the participants in the study. Majority of the participants were females in the young age group category of 30–40 years. Furthermore, most of the participants had CD4 count levels above 200, longer duration on ART and were mainly on AZT/3TC/NVP combination

Table 1: Demographic and clinical characteristics of participants.

| Variables | Frequency | Percentage (%) |
|-------------------------------------|-----------|----------------|
| Gender | | |
| Female | 146 | 72.3 |
| Male | 56 | 27.7 |
| Age category (years) | | |
| 18–29 | 19 | 9.4 |
| 30–40 | 91 | 45.0 |
| 41–50 | 58 | 28.7 |
| 51–60 | 31 | 15.4 |
| >60 | 3 | 1.5 |
| CD4 count category (cells/ μ L) | | |
| 1–200 | 29 | 14.4 |
| >200 | 173 | 85.6 |
| Duration on ART (months) | | |
| 1–6 | 9 | 4.5 |
| >6 | 193 | 95.5 |
| Type of ART | | |
| AZT/3TC/NVP | 101 | 50.0 |
| TDF/3TC/EFV | 45 | 22.2 |
| ABC/3TC/EFV | 22 | 10.9 |
| TDF/3TC/ATZ/lpvr | 17 | 8.4 |
| ABC/3TC/ATZ/lpvr | 7 | 3.5 |
| AZT/3TC/ATZ/lpvr | 10 | 5.0 |
| Depression | | |
| Present | 23 | 11.4 |
| Absent | 179 | 88.6 |
| Suicidal ideation | | |
| Present | 16 | 7.9 |
| Absent | 186 | 92.1 |

ABC: Abacavir, ART: Anti-retroviral therapy, ATZ: Atazanavir, AZT: Zidovudine, EFV: Efavirenz, lpvr: Lopinavir, NVP: Nevirapine, 3TC: Lamivudine

therapy. There are few patients with episodes of depression (11.4%) and suicidal ideation (7.9%).

Table 2 shows lower mean age, CD4 count, and higher viral load levels in HIV-patients with depression but these were not statistically significant ($P > 0.05$). Furthermore, the duration of HIV infection and that of the ART are shorter in patients with depression but not statistically significant ($P > 0.05$).

On the other hand, lower age is significantly associated with suicidal ideation among HIV patients ($P < 0.05$). However, shorter duration of HIV infection and period on ART is seen in patients with suicidal ideation but not statistically significant ($P > 0.05$). More so, CD4 count and viral load levels are not significantly associated with suicidal ideation.

In Table 3, there are no significant risk factors for depression but most of the patients were young females with mostly secondary education (47.8%). Majority of the participants have a CD4 count greater than 200 (82.6%) and mainly on AZT/3TC/NVP combination therapy (56.5%).

On the other hand, majority of the participants with suicidal ideation are the young category of 30–40 years which is statistically significant ($P < 0.05$).

In the logistic regression models in Table 4, suicidal ideation is a predictor of depression in the same way depression is a predictor of suicidal ideation ($P < 0.05$).

DISCUSSION

In this study, approximately one-tenth of the participants had depression while a little below one-tenth had suicidal ideation. Furthermore, lower age of participants was associated with suicidal ideation while depression and suicidal ideation were predictors of each other.

The study participants were mostly females in the young age group. This finding is in agreement with a UNAIDS report of 2019 and also in conformity with other studies showing convincing evidence identifying women's vulnerability to HIV infection in Sub-Saharan Africa.^[24-26]

Women in the younger age group are more sexually active than the elderly and more likely to indulge in high risk sexual behavior such as having unprotected sexual intercourse which may increase their chances of contracting sexually transmitted diseases including HIV. Majority had a higher CD4 count level. This may be explainable to the fact that most participants have been on antiretroviral therapy for a long duration.

The combination of zidovudine, lamivudine, and nevirapine was the ART mostly administered to HIV/AIDS patients as a first line medication as at the time of this study. However, the combination of tenofovir, lamivudine, and dolutegravir is currently the preferred first line therapy in the STC of UCTH. A study in Africa revealed a pooled prevalence estimate of depression of between 9% and 32% in people living with HIV.^[27] The 11.4% prevalence rate obtained in this study falls within the above range. In contrast, higher prevalence rates ranging from 14.6% to 41.7% were obtained in several studies.^[28-34] The higher prevalence rates in these studies may be multifactorial which may include the tool used for assessment of depression, being on highly active antiretroviral therapy, type of ARV, medication adherence, and CD4 count levels which was lower than 200 in some of the studies and higher than 200 in others. However, in our study, all the participants were on ARV's with majority having higher CD4 count levels above 200 which may explain the low prevalence rate obtained in earlier mentioned studies. A prevalence rate of 7.9% obtained for suicidal ideation was almost in tandem with the value obtained in a Nigerian study (7.8%),^[35] higher than that in another study (2.9%),^[28] and lower than rates of 13.2%, 13.6%, 15.1%, and 31.6% recorded, respectively.^[20,36-38] Several reasons may explain

Table 2: Relationship between variables with depression and suicidal ideation.

| Variables | Depression | | P-value | Suicidal ideation | | P-value |
|-----------------------|---------------------------|---------------------------|---------|---------------------------|---------------------------|---------|
| | Present (n=23) Mean±SD | Absent (n=179) Mean±SD | | Present (n=16) Mean±SD | Absent (n=186) Mean±SD | |
| Age (years) | 39.96±9.92 | 40.85±9.07 | 0.685 | 35.13±8.11 | 41.23±9.09 | 0.01* |
| HIV duration (months) | 68.26±42.46 | 78.39±45.78 | 0.593 | 61.50±47.04 | 73.78±45.56 | 0.329 |
| ART duration (months) | 59.43±37.28 | 69.65±44.30 | 0.238 | 50.63±40.97 | 70.02±44.56 | 0.088 |
| CD4 count (cells/μL) | 469.87±273.95 | 486.18±288.80 | 0.791 | 472.25±197.03 | 485.37±293.83 | 0.810 |
| Viral load | 127.91±165.05 | 100.61±168.56 | 0.462 | 126.31±184.39 | 101.77±166.90 | 0.613 |

*Significant P-value. ART: Anti-retroviral therapy, HIV: Human immunodeficiency virus

Table 3: Factors associated with depression and suicidal ideation.

| Variables | Depression | | | Suicidal ideation | | |
|-------------------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------|
| | Present (n=23), % | Absent (n=179), % | P-value | Present (n=16), % | Absent (n=186), % | P-value |
| Gender | | | | | | |
| Female | 19 (82.6) | 127 (70.9) | 0.325 (χ^2) | 2 (12.5) | 54 (29.0) | 0.244 (LR) |
| Male | 4 (17.4) | 52 (29.1) | | 14 (87.5) | 132 (71.0) | |
| Age category (years) | | | | | | |
| 18–29 | 3 (13.1) | 16 (8.9) | 0.550 (LR) | 4 (25.0) | 15 (8.1) | 0.035* (LR) |
| 30–40 | 11 (47.8) | 80 (44.7) | | 10 (62.5) | 81 (43.5) | |
| 41–50 | 4 (17.4) | 54 (30.2) | | 1 (6.3) | 57 (30.7) | |
| 51–60 | 5 (21.7) | 26 (14.5) | | 1 (6.3) | 30 (16.1) | |
| >60 | 0 (0.0) | 3 (1.7) | | 0 (0.0) | 3 (1.6) | |
| Educational status | | | | | | |
| No formal education | 1 (4.4) | 1 (0.6) | 0.579 (LR) | 0 (0.0) | 2 (1.1) | 0.598 (LR) |
| Primary | 3 (13.0) | 26 (14.5) | | 1 (6.3) | 28 (15.1) | |
| Secondary | 11 (47.8) | 82 (45.8) | | 7 (43.7) | 86 (46.2) | |
| Tertiary | 8 (34.8) | 70 (39.1) | | 8 (50.0) | 70 (37.6) | |
| HIV duration (months) | | | | | | |
| 1–6 | 1 (4.3) | 7 (3.9) | 1.000 (LR) | 1 (6.3) | 7 (3.8) | 0.490 (LR) |
| >6 | 22 (95.7) | 172 (96.1) | | 15 (93.8) | 17 (93.8) | |
| CD4 count category (cells/μL) | | | | | | |
| 1–200 | 4 (17.4) | 25 (14.0) | 0.751 (FE) | 1 (6.3) | 28 (15.1) | 0.477 s(LR) |
| >200 | 19 (82.6) | 154 (86.0) | | 15 (93.7) | 158 (84.9) | |
| Duration on ART (months) | | | | | | |
| 1–6 | 1 (4.3) | 8 (4.5) | 1.000 (FE) | 1 (6.3) | 8 (4.3) | 0.532 (FE) |
| >6 | 23 (95.7) | 171 (95.5) | | 15 (93.7) | 178 (95.7) | |
| Type of ART | | | | | | |
| AZT/3TC/NVP | 13 (56.5) | 88 (49.1) | 0.781 (LR) | 6 (37.5) | 95 (51.0) | 0.326 (LR) |
| TDF/3TC/EFV | 4 (17.4) | 41 (22.9) | | 3 (18.7) | 42 (22.6) | |
| ABC/3TC/EFV | 1 (4.3) | 21 (11.7) | | 4 (25.0) | 18 (9.7) | |
| TDF/3TC/ATZ/lpvr | 2 (8.7) | 15 (8.4) | | 1 (8.3) | 16 (8.6) | |
| ABC/3TC/ATZ/lpvr | 1 (4.4) | 6 (3.4) | | 0 (0.0) | 7 (3.8) | |
| AZT/3TC/ATZ/lpvr | 2 (8.7) | 8 (4.5) | | 2 (12.5) | 8 (4.3) | |

*Significant P-value. FE: Fisher's exact, LR: Likelihood ratio, χ^2 : Chi-square, ABC: Abacavir, ART: Anti-retroviral therapy, ATZ: Atazanavir, AZT: Zidovudine, EFV: Efavirenz, lpvr: Lopinavir, NVP: Nevirapine, 3TC: Lamivudine

these contrasting prevalence rates. Literature evidence suggests several factors such as marital status, medication adherence, poor quality of life, stigma, gender, and age as being associated with suicidal ideation among this study population.^[20,36-37,39,40]

Lower age and lower CD4 count levels were noted among study participants with depression in previous studies,^[29,41] and these findings were also observed in our study. However, these were not statistically significant in contrast to the other studies. Lower age was significantly associated with suicidal

Table 4: Logistic regression analysis for risk factors of depression and suicidal ideation.

| Variables | Depression | | | Suicidal Ideation | | |
|----------------------------|------------|---------------------|---------|-------------------|---------------------|---------|
| | Exp. B | 95% C.I./odds ratio | P-value | Exp. B | 95% C.I./odds ratio | P-value |
| Gender(1) | | | | | | |
| Male | 1.957 | 0.532–7.196 | 0.312 | 1.526 | 0.268–8.691 | 0.637 |
| Age (years) | 0.994 | 0.938–1.054 | 0.839 | 1.075 | 0.992–1.165 | 0.077 |
| HIV duration (months) | 0.986 | 0.959–1.012 | 0.290 | 0.975 | 0.946–1.005 | 0.096 |
| CD4 count (cells/ μ L) | 1.001 | 0.998–1.003 | 0.576 | 1.000 | 0.998–1.002 | 0.931 |
| Duration on ART (months) | 1.026 | 0.997–1.056 | 0.085 | 1.031 | 0.997–1.067 | 0.077 |
| Type of ART | | | | | | |
| ART1 (TDF/3TC/EFV) | 1.744 | 0.235–12.943 | 0.586 | 4.578 | 0.490–42.766 | 0.182 |
| ART2 (ABC/3TC/EFV) | 3.895 | 0.409–37.099 | 0.237 | 4.718 | 0.390–57.032 | 0.222 |
| ART3 (TDF/3TC/ATZ/lpvr) | 5.250 | 0.416–66.224 | 0.200 | 1.125 | 0.170–7.452 | 0.903 |
| ART4 (ABC/3TC/ATZ/lpvr) | 1.875 | 0.221–15.930 | 0.565 | 4.000 | 0.314–51.027 | 0.286 |
| ART5 (AZT/3TC/ATZ/lpvr) | 1.500 | 0.109–20.675 | 0.762 | 403686E | 0.000 | 0.999 |
| Suicidal ideation | 0.103 | 0.028–0.374 | 0.001* | | | |
| Depression | | | | 0.116 | 0.031–0.434 | 0.001* |

*Significant P-value. ABC: Abacavir, ART: Anti-retroviral therapy, ATZ: Atazanavir, AZT: Zidovudine, EFV: Efavirenz, lpvr: Lopinavir, NVP: Nevirapine, 3TC: Lamivudine

ideation, same as in previous studies.^[39,40] This finding may be attributed to stress associated with HIV infection, stigmatization, and lack of social support for the young.^[35] Suicidal ideation being a predictor of depression and vice versa has been clearly demonstrated in several studies.^[31,36,37,38] This position is in conformity with the findings of this study. A study showed that hopelessness is a primary mediator that links depression and suicidal ideation.^[42]

CONCLUSION

Prevalence rates of 11.4% for depression and 7.9% for suicidal ideation were obtained in this study. The study observed that most of the participants were females in the young age group. Most had a higher CD4 count levels and longer duration on ART. Lower age was significantly associated with suicidal ideation. Suicidal ideation is a predictor of depression in the same way depression is a predictor of suicidal ideation significantly.

Routine screening for depression and suicidal ideation especially among younger HIV/AIDS patients is recommended in the clinic setting.

Those found to have depression or suicidal ideation as well as other psychiatric illnesses should be identified and managed.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

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