

Prevalence and Socio-demographic Determinants of Depression among Patients Attending HIV/AIDS Clinic in a Teaching Hospital in Imo State, Nigeria

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Abstract Background: Depression is one of the most common psychiatric complications associated with HIV disease. In Nigeria depression has been found to be five times more common among People Living with HIV AIDS (PLWHA) than in apparently healthy populations. **Aim:** To assess the prevalence, socio-demographic determinants and phenomenology of depressive disorder among HIV patients attending HIV clinic in Imo State University Teaching Hospital Orlu, Imo State, Nigeria. **Methodology:** This we did through a cross-sectional descriptive survey, carried out on 271 patients aged 18years and above receiving Highly Active Antiretroviral Treatment (HAART). We used Patient Health Questionnaire 9 to assess depressive disorder. The associations between depressive disorder and socio-demographic profiles among the genders were explored. **Results:** About 39.1% of the participants were found to be depressed, out of which 24.5% were mildly depressed, 50% moderately depressed and 24.5% severely depressed. More female participants, (28.0%) were found to be depressed than their male counterparts, (11.1%) although this difference was not statistically significant, ($\chi^2=0.21$, $p=0.65$). The rate ($\chi^2=4.14$, $p=0.04$) and severity ($\chi^2=8.64$, $p=0.04$) of concentration impairment was significantly higher in females compared to males. **Conclusion:** We concluded that the relatively high prevalence of depressive disorder among attendees at the HIV/AIDS clinic underscores the need for routine depression screening in these patients.

Keywords: prevalence, socio-demographic, determinants, depressive disorder, HIV/AIDS clinic, Nigeria

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1. Introduction

Worldwide, Nigeria has one of the highest numbers of new HIV infections reported each year, with an estimated 3.7 percent of the population living with HIV [1]. Globally, more than 350 million people of all ages suffer from depression [2]. As part of the World Mental Health Survey initiative, a clustered multi-stage sampling of households in 21 of Nigeria's 36 states (representing 57% of the national population) showed lifetime and 12-month estimates of depression to be 3.1% and 1.1% respectively [3].

Depression is one of the most common psychiatric complications associated with HIV disease [4]. In Nigeria depression has been found to be five times more common among People Living with HIV AIDS (PLWHA) than in apparently healthy populations [5,6]. PLWHA have also been found to have greater depression symptom severity

compared to non-infected populations [5]. A systematic review of 27 articles published between 1994 and 2008, of mental health problems among PLWHA, depression was reported as the commonest individual problem with a prevalence rate ranging from 20% to 35% [7].

In Nigeria, studies carried out in different regions of the country also reported varying prevalence rates for depression in PLWHA. One study in three hospitals in Enugu, South East Nigeria reported that 33.3% of the participants had depressive disorder [8]. In North Central Nigeria prevalence rates as high as 56.7% has been reported⁹ while in Benin, South-South, Nigeria 29.3% was reported with 14.7% of the cases having mild depression, 12% and 1.3% having moderate and severely depression respectively [5]. In rural South Africa, the estimated prevalence of depression was 14.8% in the older population [10] while in Tyberberg Hospital in Cape Town, 38.1% of the female HIV positive outpatients were depressed [11].

Some studies had reported higher prevalence rates of depression in women living with HIV compared to men. A 15 country study (CRANium study) carried out in Western Europe and Canada on 2863 participants on antiretroviral treatment showed that a significantly higher proportion of the females met criteria for depression [10,12]. The same finding was reported in a Kenyan study carried out among 347 PLWHA using PHQ 9, in a randomized controlled trial of 152 heterosexual couples conducted in Thailand and a cross sectional study on 300 PLWHA in North Central Nigeria [9,13,14]. This has been attributed to greater burden on the women who in spite of their illness struggle with their role in the family as primary caregivers [14].

Females have been found to have greater severity of depression compared to males. A Canadian study of 1069 men and 267 women living with HIV in Ontario which used the 20-item Center for Epidemiologic Studies Depression Scale (CES-D) reported significantly greater severity of depression in the female participants [15]. Another study of 306 Brazilian patients with HIV AIDS who had just initiated antiretroviral treatment showed that moderate to severe depression was commoner in females [16]. Some other studies posit that the severity of depression is similar in both genders. A study that assessed the severity of depressive symptoms among 51 newly diagnosed HIV patients with HIV showed no significant difference in the severity of depression in both genders [17].

The varying prevalence of depression among HIV infected persons has been attributed HIV and depression presenting with similar somatic symptoms like fatigue and poor appetite leading to difficulties in diagnosis, coupled with varying demographic and methodological factors [18].

Among PLWHAs, depression is significantly more likely among females, those unemployed, and those with HIV illness duration greater than 3 years [5]. Scanty number of studies has been done on gender differences in depression among PLWHA in our environment.

Therefore the aim of this study was to assess the differences in the prevalence, socio-demographic associations and phenomenology of depression among the HIV infected adult patients attending HIV clinic in a Teaching Hospital in Imo State, Nigeria.

2. Methodology

Study Area/Study Population/Study Design: The Teaching Hospital is located in South East Nigeria. The population is mainly Igbos with trading and farming being their major occupation. The hospital is an Antiretroviral Treatment (ART) designated center activated in 2008. The project is run in collaboration with the Imo State Government and Center for Clinical Care and Research, Nigeria (CCCRN). The HIV clinic has a total enrollment of 4769 patients out of whom 3565 are on ART. A total of 3330 of those on ART are aged above 18years. ART drugs and investigations in the center are free of charge. This study was a hospital based cross sectional descriptive study carried out on two hundred and seventy one patients aged eighteen years and above receiving HAART between January and March 2015.

Sampling Technique: On each clinic day, patients were recruited by the study staff during the process of getting their vital signs measured. The sample frame consisted of patients with HIV/AIDS aged eighteen years and above receiving ART who attended clinic on a particular day. Using systematic random sampling method, we recruited an average of five participants every day.

Selection Criteria: We included patients who had received ART at the HIV clinic for at least 6 months, were at least 18 years old and who had consented to be part of the study. We excluded those who were too physically ill to participate, those whose medical records indicated they had severe mental disorder and those not receiving ART.

Study instrument and Process: For patients who understood English, the instruments were self administered. For those who could not read, the questionnaires were administered by two trained research assistants who are staff of the HIV Clinic and their responses scored as appropriate. Appointments were scheduled with the selected patients and the instruments were administered at their convenient time. The Patient Health Questionnaire 9 (PHQ-9) specifically addresses depression in primary care settings. Major depression was diagnosed if the participant had five or more of the nine depressive symptom criteria for at least "more than half the days" in the past 2 weeks, and one of the symptoms was depressed mood or anhedonia [19]. It was used to make diagnosis and also rate the severity of depression. The participants' severity of depression was classified according to their PHQ score as mild (5-9), moderate (10-14) and severe (15-27). Those with scores ranging between 0-4 were regarded as not depressed. Among those suffering HIV, the PHQ-9 has a sensitivity of 78.7% and specificity of 83.4% [20]. The use of PHQ 9 has been tested and validated in Nigeria [20].

Statistical Analysis: Data was analyzed using SPSS version 15. Chi-square, ANOVA and t-test were used to test association between variables. P-value of less than 0.05 was considered statistically significant.

Ethical approval: This was obtained from Imo State University Teaching Hospital Ethics Committee (IMSUTHEC) before commencement of the study. Verbal informed consent was obtained from each of the participants before proceeding with the interview.

3. Results

A total of 271 respondents were studied and most of the participants, 190 (70.1%) were females. The mean age of all the participants was 37.4 ±9.8years. The mean age was significantly higher among the male participants, 41.7 ±11.6years when compared to their female counterparts, 35.5 ±8.3 years, ($t=4.97$, $p=0.001$). One way ANOVA looking at the age of onset versus total PHQ 9 scores did not yield significant group differences ($F=1.29$, $p=0.28$). A higher proportion of the participants, 134(49.4%) were married, and a one-way ANOVA looking at marital status versus PHQ 9 sum score yielded significant between group difference, ($F=3.09$, $p=0.016$).

More males, 62 (76.5%) were married compared to 72 (37.9%) females ($\chi^2=34.32$, $p=0.0001$) while more females, 75 (39.5%) were widowed compared to the males 1(1.2%) ($\chi^2=33.94$, $p=0.0001$). Females, 51 (26.8%) were diagnosed of HIV at a younger age (≤ 29 years) compared to males,

10 (12.3%) of the same age. Mean age at diagnosis was higher in men, 38.7±11.2years, when compared to their females counterparts, 32.7±7.9years, (t=9.9, p=0.002).

Most (91.9%) of the participants were employed. A one-way ANOVA looking at employment status versus PHQ 9 sum score did not yield significant between group differences (F=93.46, p=0.18). Students had higher mean PHQ 9 mean scores (15.50±2.12) compared to retirees (9.5±3.53), unemployed (8.67±4.91) and the employed (8.68±4.32).

A total of 106 (39.1%) of the participants were identified as depressed. Out of these, 26 (24.5%) were mildly depressed, 53 (50.0%) moderately depressed while 27 (25.4%) were severely depressed. Of those that were depressed, 28.3% were males while 71.7% were females. About 11.1% of the total male participants were identified as depressed compared to 28.0% of the females. ($\chi^2=0.21$, p=0.65). There was increased severity of depression among the females but this was not significant ($\chi^2=0.87$, p=0.83).

Depressive disorder was significantly associated with younger age of diagnosis ($\chi^2=15.6$, p=0.001), while gender ($\chi^2=0.21$, p=0.65), marital status ($\chi^2=0.011$, p=0.92), level of education ($\chi^2=0.63$, p=0.43) and employment status ($\chi^2=2.34$, p=0.12) were not significantly associated with depression.

Two hundred and thirty (84.9%) of all the participants reported loss of interest and pleasure. Few participants, 80 (29.9%) reported feelings of hopelessness. More women reported feeling hopeless everyday (9.5%) compared to males (4.9%). There was no significant gender difference with regards to sleeping problem (p>0.05). Only about half of the participants reported any feeling of tiredness, feeling bad and trouble concentrating. Most (80.8%) of the participants had difficulty with their appetite. Very few (8.1%) reported moving or speaking slowly while only 17.3% had suicidal ideation. There was no significant gender difference in fatigue, feeling bad about one's self, trouble concentrating, speaking or moving slowly and suicidal ideation (p>0.05). More males reported appetite changes (p>0.05).

Among those that were depressed, dysphoria, difficulty sleeping, psychomotor retardation and suicidal ideation were more frequent among the males with depression while anhedonia, poor appetite, trouble concentrating and negative self-assessment were commoner among the females. The rate of fatigue was almost the same in both genders. The rate ($\chi^2=4.14$, p=0.04) and severity ($\chi^2=8.64$, df=3, p=0.04) of depression were significantly higher in females compared to males. Feeling bad about one's self was significantly associated with severity of depressive symptoms ($\chi^2=95.45$, p=0.0001). No male reported anhedonia.

Table 1. Socio-demographic characteristics of the participants

Variables	Frequency(271)	Percentage
Gender		
Female	190	70.1
Male	81	29.9
Age (years)		
10-29	61	22.5
30-49	181	66.8
50-69	26	9.6
70-89	3	1.1
Mean ± S.D	37.4 ±9.8	
Marital status		
Married	134	49.4
Single	55	20.3
Divorced	6	2.2
Widowed	76	28.0
Educational level		
None	12	4.4
Primary	32	11.8
Secondary	183	67.5
Tertiary	44	16.2
Employment		
Employed	249	92.0
Unemployed	22	8.0
Age at diagnosis		
10-29	79	29.2
30-49	172	63.5
50-69	17	6.3
70-89	3	1.1

Table 2. Comparison of socio-demographic distribution of males and females.

	Males N (%)	Females N (%)	Test statistic	p- value
Age at diagnosis				
≤29	10 (12.3)	51 (26.8)		
30-49	54 (66.7)	127 (66.8)		
50-69	14 (17.3)	12 (6.3)		
70-89	3 (3.7)	0 (0)		
Mean (years)±	38.7±11.2	32.7±7.9	t=9.9	p= 0.002*
Marital status				
Married	62 (76.5)	72 (37.9)	$\chi^2=34.32$	p=0.0001*
Single	16 (19.8)	39 (20.5)	d.f=1	
Divorced	2 (2.4)	4 (2.1)		
Widowed	1(1.2)	75 (39.5)		
Educational level				
None	3 (3.7)	9 (4.7)	$\chi^2=6.05$	p=0.09
Primary	12 (14.8)	20 (10.5)	d.f=3	
Secondary	46 (56.8)	137 (72.1)		
Tertiary	20 (24.7)	24 (12.6)		
Employment				
Employed	71 (87.7)	180 (94.4)	$\chi^2=2.77$	p=0.09
Unemployed	10 (12.3)	10 (5.3)	d.f=1	

*=significant.

Table 3. socio-demographic determinants of the depression among participants.

Variables	Depressed n (%)	Non-depressed n (%)	Test statistics	p-value
Gender				
Male	30 (37.0)	51(63.0)	$\chi^2=0.21$	p=0.65
Female	76 (40.0)	114(60.0)	d.f=1	
Age at diagnosis (years)				
≤29	45(57.0)	34(43.0)	$\chi^2=15.62$	p=0.001*
30-49	53(30.8)	119(69.2)	d.f=3	
50-69	7 (41.2)	10(58.8)		
70-89	1(33.3)	2(66.7)		
Marital status				
Married	52(38.8)	82(61.2)	$\chi^2=0.011$	p=0.92
Not married	54(39.4)	83(60.6)	d.f=1	
Educational level				
Educated	100(38.6)	159(61.4)	$\chi^2=0.63$	p=0.43
Uneducated	6 (50.0)	6(50.0)	d.f=1	
Employment				
Employed	94(37.8)	155(62.2)	$\chi^2=2.34$	p=0.12
Unemployed	12(54.5)	10(45.5)	d.f=1	

*=*significant.*

Table 4. Comparison of symptoms of depression among male and female participants

Variables	Male N (%)	Female N (%)	Test statistic	p- value
Loss of interest and pleasure	70 (86.4)	160 (84.2)	$\chi^2=2.60$	p=0.40
Feeling depressed or hopeless	20 (24.6)	60 (31.6)	$\chi^2=2.049$	p=0.53
Sleep disturbance	60 (74)	137 (72.1)	$\chi^2=0.67$	p=0.88
Fatigue	41(50.7)	94 (49.5)	$\chi^2=2.46$	p=0.49
Poor appetite	70 (86.4)	149(78.4)	$\chi^2=3.13$	p=0.37
Feeling bad about yourself	22 (39.5)	58(41.1)	$\chi^2=3.89$	p=0.28
Poor Concentration	36 (44.4)	90(47.4)	$\chi^2=1.56$	p=0.67
Psychomotor change	7 (8.6)	15(8.0)	$\chi^2=0.05$	p=0.90
Suicidal ideation	14(6.3)	30 (5.8)	$\chi^2=0.47$	p=0.93

Table 5. Gender differences in frequency of depressive symptoms among the participants with depression

Variables	Male		Female		Test statistic	p- value
	Yes N (%)	No N (%)	Yes N (%)	No N (%)		
Anhedonia	-	30 (100)	2 (2.6)	74 (97.4)	$\chi^2=0.81$	p=0.37
Dysphoria	11 (36.7)	19 (63.3)	25 (32.9)	51 (67.1)	$\chi^2=0.14$	p=0.71
Sleep disturbance	5 (16.7)	25 (83.3)	7(9.2)	69 (90.8)	$\chi^2=1.19$	p=0.28
Fatigue	4 (13.3)	26 (86.7)	10 (13.2)	66 (86.8)	$\chi^2=0.00$	p=0.98
Poor appetite	2 (6.7)	98 (93.3)	10 (13.2)	66 (86.8)	$\chi^2=0.90$	p=0.34
Negative self-assessment	6 (20.0)	24 (80.0)	23 (30.3)	53 (69.7)	$\chi^2=1.14$	P=0.29
Poor Concentration	4 (13.3)	26 (86.7)	25 (32.9)	51 (67.1)	$\chi^2=4.14$	P=0.04*
Psychomotor change	6 (20.0)	24 (80.0)	12 (15.8)	64 (84.2)	$\chi^2=0.27$	p=0.60
Suicidal ideation	12 (40.0)	18 (60.0)	20 (26.3)	56 (73.7)	$\chi^2=1.91$	p=0.17

*=*significant.*

Table 6. Comparison of severity of depressive symptoms in the depressed of both genders

	Male (n %)				Female (n %)				Test stat.	p-value
	Not at all	Several days	>half the days	Nearly everyday	Not at all	Several days	>half the days	Nearly everyday		
Anhedonia	-	4 (13.3)	16 (53.3)	10 (33.3)	2 (2.6)	14 (18.4)	30 (39.5)	30 (39.5)	$\chi^2=2.28$	p=0.5
Dysphoria	11 (36.7)	11 (36.7)	4 (13.3)	4 (13.3)	25 (32.9)	26 (36.8)	8 (10.5)	15 (19.7)	$\chi^2=0.73$	p=0.87
Sleep disturbance	5 (16.7)	12 (40.0)	4 (13.3)	9 (30.0)	7 (9.2)	24 (31.6)	20 (26.3)	25 (32.9)	$\chi^2=3.16$	p=0.37
Fatigue	4 (13.3)	11 (36.7)	9 (30.0)	6 (20.0)	10 (13.2)	33 (43.4)	22 (28.9)	11 (14.5)	$\chi^2=0.66$	p=0.88
Poor appetite	2 (6.7)	15 (50.0)	7 (23.3)	6 (20.0)	10 (13.2)	30 (39.5)	9 (11.8)	27 (35.5)	$\chi^2=4.91$	p=0.12
Negative self assessment	6 (20.0)	2 (6.7)	4 (13.3)	18 (60.0)	23 (30.3)	10 (13.2)	17 (22.4)	26 (34.2)	$\chi^2=5.96$	p=0.11
Poor Concentration	4 (13.3)	12 (40.0)	10 (33.3)	4 (13.3)	25 (32.9)	30 (39.5)	9 (11.8)	12 (15.8)	$\chi^2=8.64$	p=0.04
Psychomotor change	24 (80.0)	5 (16.7)	0(0.0)	1 (3.3)	64 (84.2)	8 (10.5)	2 (2.6)	2 (2.6)	$\chi^2=1.53$	p=0.67
Suicidal ideation	18 (60.0)	5 (16.7)	6 (20.0)	1 (3.3)	56 (73.3)	10(13.2)	7(9.2)	3 (3.9)	$\chi^2=2.83$	p=0.42

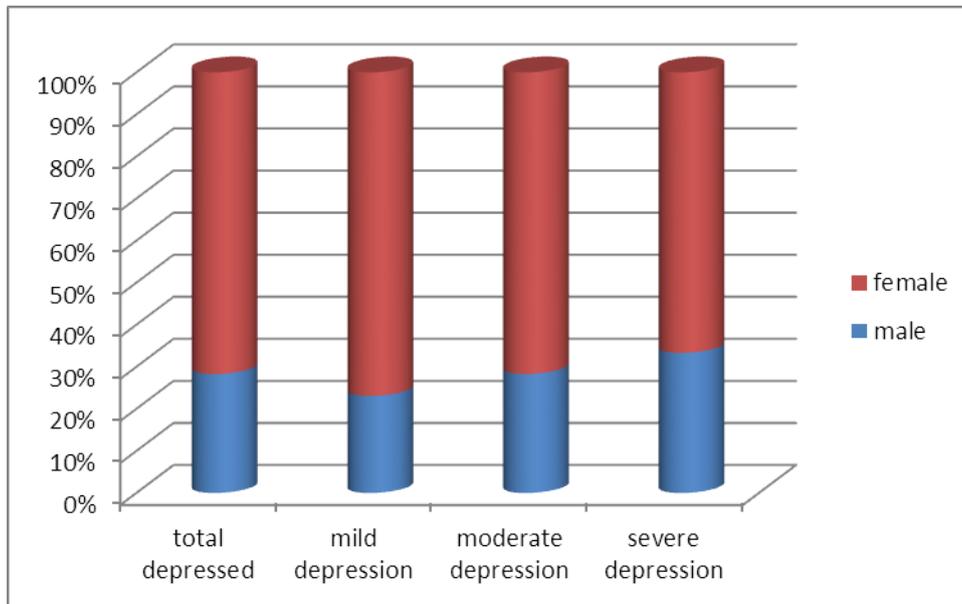


Figure 1. A comparison of severity of depression in both genders

4. Discussion

Few studies have been done on gender differences in depression among PLWHA in our environment. In this study, 39.1% of the participants met the criteria for depressive disorder. This falls within the range of what has been reported from previous studies carried out in Nigeria [5,7,9]. It is however much higher than what has been reported among the uninfected general populace in Nigeria [3]. This could probably be as a result of increased distress among PLWHA who are seeking treatment in an environment where good HIV care services are largely deficient. It was also similar to the 20% to 35% range reported in some African countries [7] and 20-40% reported in Australia [21]. It has been reported that there is a lower rate of depression in PLWHA in developed countries compared to developing countries [22]. Lower prevalence rates ranging from 8.5% to 25.6% has been reported in the United States of America [23,24,25] compared to rates that range as high as 71.9% to 79% reported in China. This may be due to greater psychosocial problems and illness burden among PLWHA in developing countries [1]. They are held culpable for their illness, leading to stigmatization, discrimination and social isolation [1]. Other psychosocial stressors (financial and social difficulties) may also have been present before they acquired the HIV infection [26]. In 2011, approximately 210,000 people died from AIDS in Nigeria [1]. This high mortality rate has led to the belief that a diagnosis of HIV is tantamount to a death sentence [1].

This study showed a female preponderance in depressive disorder. This finding replicates what has been reported in the United States of America, other parts Nigeria, and Uganda where female gender conferred twofold increased odds for depressive disorder [5,25,27]. This gender difference has been attributed to increased risk of traumatic events and adverse life events in females [27]. But this finding was in contrast to that reported from a study in North Central region of Nigeria [9].

Contrary to what was expected, there was no significant association between marital status and depression. It has been posited that couple inequity in relationships which is worse in developing countries, burden of raising children and household chores make depression more common among the married females [9,28].

It was observed that a higher percentage of the males in this study were married compared to the females. This could imply a higher rate of infection among married males. Or that married males report for treatment at a greater rate than married females. It could suggest that marriage is possibly not a protective factor against contracting HIV/AIDS in males. The greater rate of extra-marital sex among males compared to females and unprotected sex may explain this [29,30]. Also, more females living with HIV/AIDS were widowed compared to the males (39.5% females compared to 1.2% males). The rate of widowhood among these females is quite high compared to 7 to 16% reported worldwide for adult women and 16 to 19% reported for Sub Saharan Africa for those aged between 45 to 59years [31]. This study reported a mean age of 33years for female participants. It is expected that widowhood should have been uncommon at this age. The rate reported in this study is a replication of what has been reported in HIV ravaged areas in Africa [31]. The high rate of widowhood among the females raises some issues like married males contracting the disease before their wives and thus dying before them, or the females being more resilient than the males. It could also mean that widowhood is a risk factor for contracting HIV among females. More studies are needed to be carried out to clarify these.

Depression in HIV/AIDS was significantly associated with younger age at diagnosis. At this age, physical factors like feeling sick from antiretroviral treatment and anxiety about people finding out their retroviral status pose a lot of challenge [32]. Guilt, worry about life style changes and the possibility of having children could also contribute to depression [33]. Majority of the participants were diagnosed with HIV between the ages of 20-39years, with males diagnosed at an older mean age. This is similar to 20-29years reported by Centre for Disease Control as

the peak age of HIV transmission in the USA [1]. Diagnosis of HIV usually occurs when patients are symptomatic as an incidental finding during treatment for other ailments or during routine testing in antenatal care [28]. This suggests that infection must have occurred some months to years earlier. In 2011, Nigeria reported a 3% prevalence rate of HIV among young women aged 15-24 years [1]. This high prevalence was attributed to lack of sexual health education and low levels of condom use [34]. Gender inequality has also been identified as a key driver of HIV among women [34]. Unfortunately as of 2009 only 23% of schools in Nigeria provided life-skills based HIV education [1].

Overall, depressed women were shown to have a greater severity of depression compared to males but generally, both genders were similar in the distribution of symptoms. The closest was in the frequency of fatigue in which the prevalence in both genders was almost identical. The only significant difference was in difficulty with concentration which was reported more often by the female participants.

This study did not demonstrate any consistent pattern of symptoms (somatic or psychological) between the genders. Rather it was mixed with males reporting more difficulty with sleep and more females reporting greater difficulty with appetite. This difference may be due to variations in study participants used, (sample or population based) and symptoms analyzed e.g. hypersomnia or insomnia instead of sleep disturbance or increased or reduced appetite instead of changes in appetite. It could also be due to differences in sampling technique used, methodologies or culture of the people studied. Also in different studies criteria used in defining depression vary. This finding in this work therefore differs from reports in some works which showed that women experience more somatic symptoms (fatigue, appetite changes, and sleep disturbance) when compared to men [35,36].

Depressed males have been shown to have greater difficulty with concentration compared to females [37]. This is opposite to what was found in this study. This may be due to methodological differences. Also the greater severity of depression among the females may contribute to increased impairment of concentration among them.

This study was a cross-sectional hospital based study, thus its findings cannot easily be generalized to the entire population. The use of patients from a HIV Clinic may have resulted in a sample in which patients that have not yet been diagnosed and those most ill are excluded. Since it is a cross sectional study, no causal links can be inferred between depression and HIV status.

In conclusion, this study has shown that there is a high rate of depression, especially among female PLWHA in South East Nigeria. It has also shown that young people, married men and widows are at the greatest risk for HIV infection. Mental health services should be an integral part of services offered by HIV clinics. Primary care providers should screen PLWHA routinely for depression.

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Conflicts of Interest

The authors hereby declare that there are no competing interests.

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