

Original Article

Psychosocial Factors Predicting Severity of Depression Among Treatment-Seeking HIV/AIDS Patients: A Multi-Site Nigerian Study

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ABSTRACT

Background and Objectives: Depression as major psychological sequelae of the HIV/AIDS infection has continued to attract investigation. With few studies in Nigeria, it is unclear whether levels of perceived stigma, sexual risk behaviors, and anticipated discrimination are differentially associated with severity of depression. **Materials and Methods:** The present study using a multivariate design investigated the role of stigma, anticipated discrimination, self-esteem, HIV-related factors (e.g., drug use combination, knowledge of duration of HIV diagnosis) and socio demographic factors (e.g., multiple spouse, age, gender, and ethnicity) in depression among people living with HIV/AIDS (PLWHA) on follow-up management in three tertiary hospitals in Nigeria. Five hundred and two (187 [37.3%] males and 315 [62.7%] females) HIV/AIDS patients participated in the study. **Results:** Mean age and mean time in months since diagnosis were 36.73 ± 9.38 and 19.42 ± 23.12 , respectively. Three variables: Ethnicity, anticipated discrimination, and HIV-related stigma were related to severity of depression at ($P < 0.05$). Multinomial logistic regression analyses showed that being from Yoruba (odds ratio [OR] = 0.25; 95% confidence interval [CI] = 0.145-0.441), or Igbo extraction (OR = 0.43; 95% CI = 0.214-0.873) reduces the risk of reporting severity of depression by 25% and 43%, respectively. Moreover, low perceived HIV-related stigma (OR = 0.59; 95% CI = 0.355-0.966) and low anticipated discrimination (OR = 0.54; 95% CI = 0.319-0.914) reduced the risk of reporting symptoms of severe depression by 59% and 54%, respectively. **Conclusion:** Intervention to reduce the severity of depression should consider cultural specificity in its design and also evolve educational programs that incorporate discrimination and stigma in managing depression among PLWHAs.

KEYWORDS: Anticipated discrimination, HIV/AIDS patients, severity of depression, stigma

Acceptance Date: 14-06-2016

INTRODUCTION

The burden of HIV/AIDS continues to increase in Nigeria with 3.4 million persons living with the virus as at 2014.^[1] This represents 4.1% national prevalence rate, the second largest in the world, with 58% been women and 124,000 children infected through mother-to-child transmission.^[1]

Depression remains major psychological sequelae in HIV/AIDS infection^[2-5] and may persist when intervention is not commenced.^[6] For example, in a study among newly diagnosed HIV patients on follow-up in Cape Town, South Africa, 34.9% prevalence of major depression was found with 26% prevalence recorded at 6 months follow-up.^[6] Adewuya *et al.*, 2008^[4] found 28.7%

DSM-IV diagnosis of depressive disorder among HIV patients in Oshogbo, Nigeria. In Abuja, Nigeria, Farley *et al.* 2010^[5] found that 13% and 6% reported a Center for Epidemiologic Studies Depression Scale (CES-D) ≥ 16 and a CES-D ≥ 21 depression rate, respectively. The variation in prevalence across studies may be due to methodological differences including sample selection and treatment-related factors.

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How to cite this article: Olley BO, Adebayo KO, Ogunde MJ, Ishola A, Ogar AP. Psychosocial factors predicting severity of depression among treatment-seeking HIV/AIDS patients: A multi-site Nigerian study. Niger J Clin Pract 2017;20:296-302.

Access this article online	
Quick Response Code: 	Website: www.njcponline.com
	DOI:10.4103/1119-3077.201432

While, it is now generally agreed that depression is heightened in HIV/AIDS infection, relative to the general population,^[7] the psychosocial determinants of this remains to be clarified. In studies outside Nigeria, a number of psychosocial factors such as self-esteem, social support, stigma, and discrimination have been consistently associated with depression.^[8-10] For example, Breet *et al.* in 2014^[8] found that HIV-related stigma predicted depression among 210 HIV-positive in three peri-urban communities in the Western Cape, South Africa. Earlier, Simbayi *et al.* in 2007^[11] had reported that feelings of being dirty, shame, and guilt related to HIV-status were related to symptoms of depression among HIV-positive women in South Africa.

Self-esteem is an important component of psychological well-being including depression.^[12] Its association to symptoms of depression has well been established in patients with chronic disease including HIV.^[13,14] For example, Onyebuchi-Iwudibia and Brown^[14] found among 105 HIV-diagnosed patients attending a clinic in Eastern Nigeria that negative self-image significantly predicts depression.

In Nigeria, factors associated with depression among HIV/AIDS include stigmatization, nonbelonging to support group,^[15] being female^[16,17] and having suicidal attempt,^[17] being employed,^[16] longer duration of illness,^[16] lack of social support,^[18] lower education and poor antiretroviral (ARV) adherence,^[5] negative self-image Onyebuchi-Iwudibia and Brown,^[14] and poor quality of life.^[4]

While some of these aforementioned studies were able to identify some variables, which are of social and sero importance, there is little knowledge regarding the role played by self-esteem, HIV-related stigma, and anticipated discrimination in clinical depression among Nigerian HIV/AIDS patients. The research question therefore: Are HIV-related stigma, self-esteem, and anticipated discrimination predispose HIV/AIDS in Nigeria to depression?

METHODS

Study setting

The Infectious Disease Hospital (IDH), Calabar; the State Specialist Hospitals Akure (SSHA) and the Ladoko Akintola University of Technology, Teaching Hospital Oshogbo [LAUTECHA]) constituted the settings for the study. This study received ethical approval from the Social Sciences University of Ibadan Ethics Board.

Design

The multivariate logistic regression research design, which enables the examination of the role and relative

role of certain independent variables on the variance of a dependent measure, was employed in this study. The independent variables in this study include the sociodemographic (e.g., age, gender, marital status, ethnic grouping, religion, and years of education,). Clinical information included years of knowledge of HIV, HIV staging, and current treatment with ARV. Psychosocial factors include, for example, HIV-related stigma, anticipated discrimination, and self-esteem. The dependent measure was depression.

Sampling method

The consecutively sampling method was used to recruit clinically diagnosed HIV patients on routine ARV drug follow-up treatments at the study settings.

Instruments

Demographic and health characteristics

The sociodemographic information such as age, gender, marital status, ethnic grouping, duration of knowledge of HIV infection, years of education, religion, and employment status was obtained from the patients. Other clinical information that was obtained includes history of admission due to HIV-related conditions and whether the HIV patients were currently taking any ARV medications or a combination of ARV drugs.

HIV-related stigma

HIV-related stigma was assessed using a 16-item personalized stigma subscale.^[19] Participants indicated the degree to which the attribute of being HIV positive is perceived negatively by various individuals in their social network and settings. Statements were responded to four-point Likert format from agree or disagree. Items include: "I have lost friends by telling them I have HIV" "Some people avoid touching me once they know I have HIV." Personalized stigma scores are calculated by summing the scores for the items. In its original form, internal consistency was established (range from 0.90 to 0.93) with a sample of Americans living with HIV.^[19] The test-retest reliability ranged from 0.89 to 0.92 with 2–3 weeks between tests.^[19] For the purpose of this study, reliability showed a good internal consistency of items Cronbach's alpha ($\alpha = 0.83$). Its negative relationship to self-esteem ($r = -0.37, P < 0.01$) and positively related to depression ($r = 0.27; P < 0.01$) establishes its construct validity.

Anticipated discrimination

A four-item anticipated discrimination was developed and administered in this study. First, focus group discussion with 12 volunteered people living with HIV/AIDS (PLWHA) was conducted for the purpose of identifying and relating what they perceived as discrimination from the cultural point of view. Discussions generated themes

around friendship, likeness, isolation, and distance. Ten items which include: “Do you think people who know about your HIV/AIDS want to be friends with you?” “Do you think having HIV/AIDS affects whether or not you are asked to go out on dates or come to a party?” were generated from the themes into a scale and administered to another set of PLWHA in another town. For each item, subjects are asked to respond on a four-point Likert scale: Often, sometimes, rarely, and never. We conducted an exploratory common factor analysis on the ten items. A principal components factor analysis with varimax rotation yielded 1 factor (anticipated discrimination). The goodness-of-fit statistic was 51.19 ($P = 0.003$), suggesting that this one-factor model provided an adequate fit. All loadings were above the acceptable Eigenvalue of 0.430 and accounted for 59% of the total variance. Reliability showed a good internal consistency of items Cronbach’s alpha ($\alpha = 0.54$).

The Rosenberg self-esteem

The Rosenberg self-esteem (RSE) scale 18 was used to assess the freshmen’s attitude toward their self-worth. The RSE scale is a 10-item measure of global self-regard and includes items such as “On the whole, I am satisfied with myself.” Respondents express their degree of agreement on a 4-point Likert-type scale of strongly agree = 3, agree = 2, disagree = 1, and strongly disagree = 0. The scale generally has high reliability: Test–retest correlations are typically in the range of 0.77–0.88.^[20] Preliminary cross-validation of the scale among secondary school pupils in Nigeria, using a principal factor analysis with varimax rotation yielded two factors: Self-confidence and self-depreciation. The extracted factors are in the line with that reported by Rosenberg.^[20] All items had a factor loading of 0.4 Eigenvalue. Coefficient alpha was 0.94. A test–retest reliability of $r = 0.74$, among job seekers in Ibadan, has also been reported by Olley (2008).^[21] In the present sample, coefficient alpha was $\alpha = 0.87$.

Depressive symptom

Clinical symptoms of depression were assessed by using the CES-D.^[22] This twenty items screening instrument for the frequency of depressive symptoms has each of its item rated 0 (rarely or none of the time) to 3 (most or all of the time) for the frequency of occurrence in the past 7 days. Scores can range from 0 to 60 with a possible three levels classification of normal a score between 0 and 15 (indicating that an individual is experiencing high levels of depressive symptoms at this time), mild/moderate (a score of 15–21 is experiencing some mild to moderate symptoms of depression), and severe (a score over 21 is experiencing a high level of depressive symptoms associated with major depression). Items include “I was bothered by things that usually don’t bother me” “I did

not feel like eating; my appetite was poor.” I felt I was just as good as other people.” Among the participants for this study, total CES-D mean scores ranged from 10 to 32. For the purpose of this study, Cronbach’s alpha was taken as $\alpha = 0.79$. Item-total correlation coefficient was high for all the items with ranges between 0.65 and 0.87.

Procedure

At the ART clinic, medical records of the participants were reviewed to identify potential participants that meet the inclusion and exclusion criteria, thereafter interviewed by (KOA, MJO, and PAO) after discussion of the purpose of the study to the selected participants, including a detailed informed consent document. Patients were included if they have been diagnosis with HIV and are 18 years of age and older. Patients were excluded if they were too sick to participate in the study and were their first appointment at the clinic. Only willing and consenting PLWHA in consecutive attendance at the clinic were recruited as research participants. They were allowed to read the questionnaire and respond accordingly. This took an average of 30–45 min and about 5 weeks to gather the needed data for this research work. A total of 550 fulfilled the inclusion criteria and included as participants. Of these, 502 questionnaires: 154 from (IDH), Calabar; 139 from SSHA Akure, and 199 LAUTECHA Oshogbo), respectively, were correctly and completely filled. Completed questionnaires were sorted, coded, and entered into the Statistical Package for Social Sciences (SPSS version 17.0, Chicago, IL 60606-6412) for data analysis.

Data analysis

First, *t*-tests for continuous variables and Chi-square tests for categorical variables were conducted in order to examine the strength of association between demographic variables, HIV-related stigma, anticipated discrimination, self-esteem, and depressive symptoms. Hierarchical regression was conducted to test the mediation effect of discrimination on the association between HIV-related stigma on depression symptoms. In these analyses, a mediation model is significant if the 95% bias-corrected and accelerated confidence intervals (95% confidence interval [CI]) of the indirect effects do not contain zero.

RESULTS

Univariate analysis

A total of 502 patients (37.3%; males and 62.7%; females) who consented to participate in this study completed a set of questionnaire. Regarding marital status, 41 were singles, 78 were married, while 12 were either separated or divorced, and 8 widowed. Regarding highest level of education completed, 40.4% had 6 years of basic education, 21.3% had 12 years of basic education, 21.4%

were tertiary school graduates, and 16.9% had completed a postgraduate degree. Demographic data for total sample are described in Table 1.

Bivariate analysis

Bivariate Chi-square test analysis on associated variables with the levels of depression among the PLWHA was done. Ethnicity ($\chi^2 = 33.22, P < 0.001$), HIV-related stigma ($\chi^2 = 10.98, P < 0.01$), and perceived discrimination ($\chi^2 = 10.98, P < 0.01$) showed statistically significant association with depression. The result suggested that being a native of other tribes' besides the three major tribes in Nigeria was significantly associated with the likelihood of reporting mild and severe depression. Moreover, high HIV-related stigma and perceived discrimination were significantly related to depression.

Multinomial logistic regression model

Multinomial logistic regression analysis to examine predictors of reported mild and severe depression was done. Results indicated [Table 2] that being a native of other tribes than the three major ethnic groups in Nigeria increased the risk of reporting mild and severe depression. Being from Yoruba tribe reduced the risk of manifesting symptoms of mild depression by 43.1% (odds ratio [OR] = 0.43; 95% CI = 0.230–0.810), being of Igbo extraction reduces risk of exhibiting of mild depression by 11% (OR = 0.11; 95% CI = 0.025–0.501), and being a Hausa/Fulani reduces the risk of mild depression by 12% (OR = 0.12; 95% CI = 0.015–0.936). For the risk of manifesting severe depression being from Yoruba (OR = 0.25; 95% CI = 0.145–0.441), or Igbo extraction (OR = 0.43; 95% CI = 0.214–0.873) reduces the risk by 25% and 43%, respectively. The experiences

Table 1: Bivariate analysis showing factors associated with severity of depression

Variable	Category	Normal	Mild depression	Severe depression	χ^2	Significant
Gender	Male	136 (27.1)	16 (3.2)	35 (7)	0.863	NS
	Female	221 (44)	35 (7)	59 (11.8)		
Education	Primary	41 (8.2)	7 (1.4)	11 (2.2)	13.907	NS
	Secondary	137 (27.3)	21 (4.2)	41 (8.2)		
	Higher	157 (31.3)	20 (4.0)	30 (6.0)		
	Primary not completed	4 (0.8)	2 (0.4)	6 (1.2)		
	Never	18 (3.6)	1 (0.2)	6 (1.2)		
Age (years)	18-30	105 (20.9)	19 (3.8)	36 (7.2)	5.577	NS
	31-50	217 (43.2)	27 (5.4)	54 (10.8)		
	51 and above	35 (7.0)	5 (1.0)	4 (0.8)		
Ethnicity	Yoruba	190 (37.8)	25 (5.0)	28 (5.6)	33.228	0.000
	Igbo	58 (11.6)	2 (0.4)	15 (3.0)		
	Hausa	26 (5.2)	1 (0.2)	7 (1.4)		
	Others	83 (16.5)	23 (4.6)	44 (8.8)		
Sexual activity	Yes	187 (37.3)	22 (4.4)	55 (11.0)	3.156	NS
	No	170 (33.9)	29 (5.8)	39 (7.8)		
Unprotected sex	Yes	198 (39.4)	29 (5.8)	57 (11.4)	0.813	NS
	No	159 (31.7)	22 (4.4)	37 (7.4)		
Marital status	Married	218 (43.4)	25 (5.0)	52 (10.4)	3.861	NS
	Single	88 (17.5)	16 (3.2)	26 (5.2)		
	Separated/divorced	24 (4.8)	4 (0.8)	6 (1.2)		
	Widowed	27 (5.4)	6 (1.2)	10 (2.0)		
Multiple spouse	Yes	158 (31.5)	20 (4.0)	42 (8.4)	0.495	NS
	No	199 (39.6)	31 (6.2)	52 (10.4)		
Attitude toward antiretroviral	Low	204 (40.9)	23 (4.6)	50 (10.0)	2.585	NS
	High	151 (30.3)	27 (5.4)	44 (8.8)		
Self-esteem	Low	227 (45.2)	26 (5.2)	54 (10.8)	3.654	NS
	High	130 (25.9)	25 (5.0)	40 (8.0)		
HIV-related stigma	Low	212 (42.2)	24 (4.8)	39 (7.8)	10.985	0.004
	High	145 (28.9)	27 (5.4)	55 (11.0)		
Anticipated discrimination	Low	177 (35.3)	22 (4.4)	30 (6.0)	9.500	0.009
	High	180 (35.9)	29 (5.8)	64 (12.7)		

NS=Not significant; HIV=Human immunodeficiency virus

Table 2: Multinomial logistic regression analysis showing the influence of ethnicity, human immunodeficiency virus-related stigma, and anticipated discrimination

Depression	Predictors	B	SE	Wald	df	Significant	Exp (B)	95% CI
Mild depression	Intercept	-0.870	0.304	8.199	1	0.004		
	Yoruba	-0.841	0.321	6.845	1	0.009	0.431	0.230-0.810
	Igbo	-2.185	0.762	8.216	1	0.004	0.112	0.025-0.501
	Hausa/Fulani	-2.123	1.050	4.092	1	0.043	0.120	0.015-0.936
	Others	0 ^b			0			
	Low HIV-related stigma	-0.335	0.322	1.085	1	0.297	0.715	0.380-1.344
	High HIV-related stigma	0 ^b			0			
	Low anticipated discrimination	-0.287	0.326	0.776	1	0.378	0.750	0.396-1.422
	High anticipated discrimination	0 ^b			0			
Severe depression	Intercept	-0.018	0.241	0.006	1	0.940		
	Yoruba	-1.375	0.284	23.459	1	0.000	0.253	0.145-0.441
	Igbo	-0.838	0.358	5.468	1	0.019	0.433	0.214-0.873
	Hausa/Fulani	-0.860	0.477	3.258	1	0.071	0.423	0.166-1.077
	Others	0 ^b			0			
	Low HIV-related stigma	-0.535	0.255	4.390	1	0.036	0.586	0.355-0.966
	High HIV-related stigma	0 ^b			0			
	Low anticipated discrimination	-0.616	0.268	5.269	1	0.022	0.540	0.319-0.914
	High anticipated discrimination	0 ^b			0			

Reference category is normal. SE=Standard error; CI=Confidence interval

of low HIV-related stigma (OR = 0.59; 95% CI = 0.355–0.966) and low discrimination (OR = 0.54; 95% CI = 0.319–0.914) reduced the risk of reporting symptoms of severe depression by 59% and 54%, respectively. These results demonstrated that ethnicity, HIV-related stigma, and perceived discrimination were significant predictors of severity of depression among the PLWHAs in Nigeria.

DISCUSSION

This study examined the association of certain sero- and psychosocial-related factors and reported depression among PLWHAs in three treatment seeking sites in Nigeria. The major significant findings were: (1) High (29.0%) prevalence of depression, where 10.2% and 18.8% were mildly and severely depressed, respectively, (2) being a native of other tribes than the three major ethnic groups in Nigeria increased the risk of reporting mild and severe depression, and (3) the experiences of high HIV-related stigma and high discrimination, respectively, increased the risk of reporting symptoms of severe depression.

This is the first study to the best of our knowledge that used three sites based on the two of the three major languages or culture in Nigeria in order to have a fair representation of the country. Consistent with reported high prevalence of depression as the most frequently

reported psychiatric disorder among people infected with HIV,^[7] more than a quarter of PLWHAs in our cohort reported depression with the substantial number reporting mildly and severely depression, respectively. This rate is also similar to that obtained in other reports in Nigeria,^[4,14-17] but lower to that reported by Olley *et al.* in 2006^[6] (56%) and Sale and Gadanya, in 2008^[18] (39.9%). This may be attributed to differences in methodology associated with different instruments, different stages of HIV, and other intervention measures.

Cultural influence on PLWHAs as well as people suffering from one mental illness or the other cannot be overemphasized. In this study, ethnicity predicted the severity of depression. The result showed that been from Yoruba or Igbo cultural extraction is protective against having severe depression. Likely explanation for this may be the fact that Yoruba followed by Igbo constituted the majority in the study population. Moreover, the minority groups are not only fewer but they may also suffer from discrimination from their host community leading to further isolation and lack of social support, thereby, making them more predisposed to severe depression as is the case in this study. This nevertheless needs further empirical enquiry.

HIV-related stigma was found to have a correlation with depression on logistic regression analysis, i.e. high HIV-

related stigma was statistically significant in predicting depression compared to low level (16.4% vs. 12.6%, $\chi^2 = 10.985$, $P = 0.004$). Direct or indirect experiences of stigma are common in PLWHAs, and this may further contribute to an anticipatory sense of being stigmatized in the absence of any form of experiences (direct or indirect) suggesting stigma. In fact, stigmatized person often accepts some of the negative social judgment to discredit themselves, i.e. internalized stigma.^[11] High level of internalized stigma can lead to further deterioration in the psychological well-being of PLWHAs considering its lowering effect on self-esteem and further worsening the prevalence and severity of depression.^[19,24] Kalichman *et al.* in 2003^[24] also suggested a cascade of interaction and effects between internalized stigma, low self-esteem, depression, and the poorer outcome in people infected with HIV.

Rate and severity of depression was found to be higher in participants with low self-esteem compared to those with high self-esteem, but this is not statistically significant on regression analysis (16% vs. 13%), respectively. Self-esteem and stigma are closely related, and they are inversely related, i.e. low self-esteem correlates with the high level of stigma and vice versa.^[19] High perceived discrimination is associated with high rate of depression compared with low and this was statistically significant (18.5% vs. 10.4%). Perceived discrimination may be associated with poor social support by rejecting whatever help that is offered either by the caregivers or care providers. Adewuya *et al.*, in 2008,^[4] found a relationship with stigma and health-related quality of life.

Additional findings emerged from this study include that there are more female than male (female = 62.7%) in the study populations which is in accordance with most studies within and outside the country.^[4,5,17]

Female gender is associated with almost double the rate of depression compared to their male counterpart, a situation which is also observable in the general population. Respondents with multiple spouses and having unprotected sexual activity are likely to be more depressed, but it is not statistically significant.

The average age of the study participants was found to be 36.73 ± 9.38 , thereby further emphasizing how HIV affects the productive and sexually active age group of any nation and the debilitating effect on the individual and in essence the country at large in term of high morbidity and mortality with loss of productivity. This is in accordance with studies by Obadeji *et al.* in 2014, Farley *et al.* in 2010, and Adewuya *et al.* in 2008^[4,5,17] which equally reported most respondents have been from the younger reproductive age group.

There is no difference in the rate of depression between low and high attitude to ARV drugs. There is no doubt that the attitude to ARV is important in PLWHAs as this could serve as a measure of treatment adherence and help to prognosticate the outcome of the disease. However, it is important to note that the attitude to ARV drugs may be a result of many factors such as depression, socioeconomic status, social support, and personality trait to mention a few.

Limitations of the study include its highly selective and nonrepresentativeness of PLWHAs in Nigeria, in spite of larger sample. Caution should also be exercised in interpreting these results as they were cross-sectional and the responses of the patients were self-reported, and there were no other measures to validate them. In summary, these data underscore the need for comprehensive assessments of depression in HIV-infected patients and suggest that its early detection may be critical in minimizing morbidity and improving life quality generally among PLWHAs in Nigeria.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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