IBOM MEDICAL JOURNAL
Vol.18 No.2 | April - June, 2025 | Pages 286 - 293
www.ibommedicaljournal.org

Psychosocial Correlates of Antiretroviral medication adherence among people living with HIV/AIDS in a tertiary hospital in Kano, Northwest Nigeria

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Abstract

Background: About 39.9 million of the world's population are infected with Human immunodeficiency virus/ Acquired immunodeficiency syndrome (HIV/AIDS). Treatment of infected people has been found to reduce the risk of onward transmission to others however, only about 54% have access to antiretroviral drugs in Nigeria. Despite the recommendation that 95% adherence to ARV is necessary for adequate viral suppression to be achieved, studies have shown that antiretroviral medication adherence ranges between 50%-88% globally. Psychosocial problems have been associated with non-adherence to antiretroviral medications leading to treatment failure and development of resistant strains.
Objectives: This study sought to determine the psychosocial correlates of Antiretroviral (ARV) medication adherence among people living with HIV/AIDS (PLWHA) in a tertiary hospital in Kano.
Materials and methods: A descriptive cross-sectional study design was utilized among adult patients with HIV/AIDS attending SS Wali Virology Centre of Aminu Kano Teaching Hospital (AKTH). Age, gender, marital, educational and occupational status were gathered using the socio-demographic characteristics questionnaire. Oslo 3-item Social Support Scale was used to assess social support. Morisky Medication Adherence Scale was used to assess adherence to ARV medications.
Results: 420 participants were recruited into the study with mean age of 40.4±10.0 years. About 73.6%, 16.0%, 10.1% had strong, moderate and poor social support respectively
Seventy-five percent had good ARV drug adherence. 62.4% of participants with psychiatric diagnosis had poor medication adherence while 72.7% of those with poor social support had poor adherence.
Conclusion: About three-quarters of respondents had relatively good ARV drug adherence. Having a psychiatric disorder and poor social support were the independent predictors of poor ARV medication adherence.

Keywords: Psychosocial, correlates, Antiretroviral, adherence, HIV/AIDS

Introduction

Human immunodeficiency virus/ Acquired immunodeficiency syndrome (HIV/AIDS) is a disease of public health concern as about 39.9 million people worldwide are infected with the virus, out of which only 77% are receiving antiretroviral drugs by the end of 2023.[1]

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DOI: 10.61386/imj.v18i2.667

Two-thirds of the cases of HIV/AIDS are found in Sub-Saharan Africa, with Nigeria being the fourth most affected country in the region, accounting for 9.6% of cases, out of whom only 54% currently have access to antiretroviral (ARV) drugs.[1,2]
The relatively improved access to antiretroviral drugs has led to reduced rate of new infections, as

treatment of infected people reduces the risk of onward transmission to others.[3] It has also led to increased life expectancy, thereby shifting emphasis from mortality associated with the disease to attempts to improve the quality of life of People Living With HIV/AIDS (PLWHA).[3]

Adherence to Antiretroviral therapy (ART) is of critical importance in the management of PLWHA, because suboptimal medication adherence can result in inadequate viral suppression, emergence of resistant virus strains, treatment failure and transmission of resistant virus strains into the community.[4] It is recommended that at least 95% adherence to ART is necessary for adequate viral suppression to be achieved.[5] Despite this recommendation, studies have shown that antiretroviral medication adherence ranges between 50%-88% globally.[5-10]

A bidirectional relationship occurs between mental/substance use disorders and HIV/AIDS, as the former could predispose to contracting the virus because of poor judgement related to sexual choices, practices and sharing of needles.[3] Whereas, emotional disorders could develop as an aftermath of HIV diagnosis because of the ostracization associated with it.[11]

Psychiatric disorders further complicate HIV disease progression through multiple mechanisms, perhaps most importantly is the interplay between psychiatric symptoms, substance abuse and medication adherence. [12]

Psychosocial problems have been associated with non-adherence to antiretroviral medications with attendant shortened survival rate for the individual and dire consequences for the society as well.[13,14]

Presence of anxiety, depression, loss of a parent or spouse and avoidance by friends/ colleagues are some factors associated with medication adherence.[15]

Among PLWHA, use of illicit drug has been associated with decreased access to treatment, poor medication adherence and increased mortality.[16]

Social support is believed to affect adherence behaviors through various mechanisms. PLWHA who have greater levels of social support have showed significantly improved medication adherence.[4] Women Living with HIV often express the desire for support in communicating with their husbands' family.[17] This suggest that family and friends play an important role in supporting people on antiretroviral therapy and significantly improves medication adherence.

Globally, stigma and discrimination are major obstacles leading to reduced treatment seeking behavior and effective HIV prevention and care, especially in Sub Saharan Africa.[18] Fear of being identified as HIV positive and being on antiretroviral medication often make people to miss their medication.[18]

Considering the extreme importance of medication adherence in PLWHA, this study aims to determine the psychosocial correlates of Antiretroviral (ARV) medication adherence among people living with HIV in a tertiary hospital in Kano.

Determining the psychosocial factors associated with ARV medication adherence will help HIV program managers in planning intervention programs on ARV medication adherence.

Specific objectives for this study are;

1. To determine the prevalence of psychiatric disorders and level of social support among PLWHA attending Aminu Kano Teaching Hospital, Kano.
2. To describe the pattern of medication adherence among the participants
3. To determine the relationship between psychiatric disorders and ARV medication adherence
4. To determine the relationship between social support and ARV medication adherence

Materials and Methods

A descriptive cross-sectional study design was utilized in this study. The study population were adult patients with HIV/AIDS attending SS Wali Virology Centre of Aminu Kano Teaching Hospital (AKTH), who gave consent. Sample size was four hundred and twenty (420). Systematic random sampling technique was used to recruit respondents. Inclusion criteria were usage of antiretroviral (ARV) medication for a minimum of one year and age 18 years and above. Participants who declined consent or had a medical emergency were excluded.

Socio-demographic characteristics of respondents were obtained using a pretested questionnaire.

Five modules of the MINI International Neuropsychiatry Interview (version 6) were used to diagnose psychiatric disorders, which include depression, post-traumatic stress disorder,

generalized anxiety disorder, alcohol and substance abuse/dependence.

The Oslo 3-item Social Support Scale was used to assess social support. It provides a brief measure of social functioning and covers different areas of social support by measuring the number of people the individual feels close to, the ease of obtaining practical help from others, the interest and concern shown by others.[19] The scores range from 3-14, with a score of 3-8 indicating poor social support, 9-11 moderate social support, and 12-14 for strong social support.[20]

Morisky Medication Adherence Scale, an 8- item medication adherence scale was used to assess adherence to ARV medications. Generally, scores <6 shows low adherence, 6-7 is moderate adherence, while 8 is high adherence. However, for the purpose of this study, any score less than 8 was taken as poor medication adherence, while a score of 8 was considered as good adherence.[21,22]

Statistical analysis was done using Statistical Package for Social Sciences (SPSS 20). Dependent/ outcome variable was medication adherence while the independent variables include psychiatric disorders and social support.

Chi square test was used to determine the association between medication adherence, psychiatric disorders and social support. The independent predictors of ARV medication adherence among the participants was determined by subjecting the significant psychosocial correlates into logistic regression. P value of <0.05 was set to be statistically significant.

Ethical clearance was obtained from the ethical board of AKTH and each participant signed an informed consent form.

Result

A total of 420 participants were recruited into the study. The mean age was 40.4±10.0 years.

There were more females (59.8%) among the participants than males (40.2%).

Socio-demographic characteristics of participants is shown in table 1 below.

The total number of participants who met the criteria for a psychiatric diagnosis was 22.1%. The most prevalent psychiatric diagnosis was depression 11.0%, followed by generalized anxiety disorder 7.6%, Substance abuse 5.5%, Posttraumatic Stress disorder 2.4% and alcohol abuse 1.7%

Majority of participants had strong (73.6%) social support, 16.0% had moderate social support and 10.1% had poor social support.

Seventy five percent (75%) of participants had good adherence, while twenty five percent (25%) had poor adherence over the last one month as shown in table 2 below.

There was a statistically significant relationship between having a psychiatric disorder ($\chi 2$ =88.946, P

TABLE 1: Socio-demographic characteristics of participants (n=420)

Variables	Frequency (%)
Age(mean±sd) 40.4±10.0	
Age group (in years)	
18-29	55(13.1)
30-39	145(34.5)
40-49	125(29.8)
50-59	84(20.0)
≥60	11(2.6)
Gender	
Female	251(59.8)
Male	169(40.2)
Religion	
Christianity	69(16.4)
Islam	351(83.6)
Ethnicity	
Hausa/Fulani	319(76.0)
Igbo	19(4.5)
Yoruba	13(3.1)
Others	69(16.4)
Marital Status	
Married	249(59.3)
Single	41(9.8)
Divorced	45(10.7)
Widowed	83(19.8)
Separated	2(0.5)
Level of education	
No formal	120(28.6)
Primary	62(14.8)
Secondary	140(33.3)
Tertiary	98(23.3)
Employment status	
Employed	315(75.0)
Unemployed	105(25.0)

TABLE 2: Psychosocial variables of participants

Variables	Frequency (%)
Psychiatric diagnosis	
Yes	93(22.1)
No	327(77.9)
Psychiatric diagnosis category*	
Depression	46(11.0)
PTSD	10(2.4)
Alcohol dependence/abuse	7(1.7)
Generalized Anxiety Disorder	32(7.6)
Substance dependence/abuse	23(5.5)
Social support	
Poor support	44(10.5)
Moderate support	67(16.0)
Strong support	309(73.6)
Medication adherence	
Poor adherence	105(25.0)
Good adherence	315(75.0)

***=some participants had co-morbid psychiatric diagnosis such as co-morbid anxiety and depression etc.**

TABLE 3: Association between Social Support, Psychiatric Diagnosis and Medication Adherence

Variable	Medication adherence Poor (%)	Good (%)	χ^2	P
Social support				
Poor support (n=44)	32(72.7)	12(27.3)	135.606	**<0.001***
Moderate support (n=67)	41(61.2)	26(38.8)		
Strong support (n=309)	32(10.4)	277(89.6)		
Psychiatric disorder				
Yes (n=93)	58(62.4)	35(37.6)	88.946	**<0.001***
No (n=327)	47(14.4)	280(85.6)		

TABLE 4: Association between individual Psychiatric diagnosis and Medication Adherence

Variables	Medication adherence Poor (%)	Good (%)	Total n(%)	$\chi2$	P
Depression					
Depressed	29(63.0)	17(37.0)	46 (100)	40.000	**<0 .001***
Not depressed	76(20.3)	298(79.7)	374(100)		
PTSD					
Yes	4(40.0)	6(60.0)	10 (100)	1.229	0.268
No	101(24.6)	309(75.4)	410(100)		
Generalized Anxiety Disorder					
Yes	20(62.5)	12(37.5)	32 (100)	25.979	**<0.001***
No	85(21.9)	303(78.1)	388(100)		
Alcohol abuse/dependence					
Yes	6(85.7)	1(14.3)	7 (100)	13.995	**<0.001***
No	99(24.0)	314(76.0)	413(100)		
Substance abuse/dependence					
Yes	18(78.3)	5(21.7)	23 (100)	36.813	**<0.001***
No	87(21.9)	310(78.1)	397(100)		

*= significant P value at < 0.05 df= 1

TABLE 5: Logistic regression of participants

Variables	B	S.E.	Wald	P value	Adjusted Odd Ratio(AOR) 95% C.I.
Depression	-0.176	0.592	0.088	0.767	0.839(0.263-2.679)
Alcohol abuse	-1.942	1.269	2.341	0.126	0.143(0.012-1.726)
Substance abuse	-20.880	23201.785	0.000	0.999	0.000
GAD	-0.732	0.572	1.635	0.201	0.481(0.157-1.477)
Any psychiatric disorder	-1.249	0.607	4.239	**0.039***	0.287(0.087-0.942)
Social support	2.029	0.398	25.985	**<0.001***	7.610(3.487-16.607)
Constant	-0.013	0.381	0.001	0.974	0.987

* =significant p value at <0.05 df=1

<0.001) and medication adherence. 62.4% of participants with psychiatric diagnosis had poor medication adherence, whereas only 14.4% of participants without psychiatric diagnosis had poor adherence. Medication adherence was found to be statistically significant with the following;

Depression ($\chi2$=40, p=<0.001). 79.7% of participants without depression had good medication adherence, whereas only 37% of those with depression had good adherence.

Generalized Anxiety Disorder (GAD) ($\chi2$ =25.979, p=<0.001). 78.1% of participants without GAD had good adherence, compared to 37.5% of participants with GAD.

Alcohol abuse/dependence ($\chi2$=13.995, p=<0.001). 76% of participants with no alcohol dependence/ abuse had good adherence, compared to 14.3% of participants with alcohol dependence/ abuse.

Substance abuse/dependence ($\chi2$=36.813, p=<0.001). 78.1% of participants without substance abuse/dependence had good adherence, compared to 21.7% of participants with substance dependence/abuse.

On the other hand, there was no statistically significant association between medication adherence and Post-Traumatic stress disorder ($\chi2$=1.229, p=0.268)

There was statistically significant association between social support ($\chi2$ 135.606 p <0.001) and medication adherence, as shown in the table 3. Participants with strong social support had good medication adherence (89.6%), whereas for participants with poor and moderate social support, 27.3% and 38.8% had good adherence respectively.

On the other hand only 10.4% of those with strong social support had poor adherence, 61.2% of those with moderate social support had poor adherence and 72.7% of those with poor social support had poor adherence as shown in table 3.

Logistic regression analysis was performed for all the variables that were statistically significant in univariate analysis and medication adherence.

Participants with a psychiatric disorder and strong/moderate social support were found to be statistically significant with medication adherence.

Participants with strong or moderate social support were 7.6 times more likely to have good medication adherence compared with participants with poor social support (A.O.R. 7.610, 95% CI 3.487- 16.607, P<0.01). Also having any psychiatric disorder showed a statistically significant association with medication adherence. (AOR 0.287, 95% CI 0.087-

0.942, P=0.039)

Discussion

The 22.1% prevalence of psychiatric disorder found in this study is similar to what was obtained in a Zambian study using the same diagnostic instrument MINI.[23]

However, other studies found higher prevalence rates.[24-25] These studies did not utilize structured diagnostic instruments, thereby having the tendency to over -estimate symptoms.

The ARV medication adherence in this study was 75% over the last one month preceding the interview. This is similar to findings of Busari et al in a local study carried out in 2013, where they found an adherence rate of 75.5%.[26] Our study further falls in tandem with the systematic review of overall African prevalence of medication adherence of 77%.[27]

While some studies found higher prevalence (88.2% in Ethiopia, 87.2% in South Africa, 92.6% Kwara state, Nigeria) of ARV medication adherence compared to our study,[8,9,28] others found lower rates (Bayelsa state 50.4%, Keffi Nasarawa state 62.5%).[5,29] The reason for this is not far-fetched as some of these studies assessed adherence over a period of 1-2 weeks, whereas it was assessed over the past one month in our study. Most studies defined good adherence as having at least 95% adherence to ART as recommended by the WHO.

We found that there was a significant association between the presence of a psychiatric disorder and medication adherence. The presence of a psychiatric disorder results in poor medication adherence in the participants. This finding had been replicated in several studies, and could be as a result of lack of insight and poor judgement found in people with psychiatric disorders, making the individual not to see any need for the medication ab initio[30,31] On the other hand, one study found no association between the presence of a psychiatric disorder and medication adherence.[32]

There was statistically significant association between depression and medication adherence. This has been corroborated by other studies.[15,31-34] The presence of depressive disorder correlates with poor medication adherence. This is because depression may be associated with cognitive impairment which results in poor memory in PLWHA, this in turn leads to poor medication adherence.[35] Also, poor attention and concentration are symptoms of depression resulting in forgetfulness and poor medication adherence.

Similar to our findings, symptoms of anxiety have been found to be significantly associated with poor adherence.[34,36] Poor concentration and worrying thoughts are well established symptoms of anxiety which may make an individual to forget his/her medications.

Alcohol and substance abuse/dependence was found to have association with medication adherence in this study. This is in keeping with other African and Nigerian studies in which substance abuse/dependence was found to adversely affect ARV medication adherence. In particular, alcohol was found to be an independent predictor of poor medication adherence.[13,33,37] Intoxicating effects of alcohol and other drugs of abuse may lead to poor attention, impaired judgement, poor organizational skills and impaired memory, which will lead to forgetting to take the medication at the appropriate time.[37] In addition, the use of psychoactive substances further weakens the already compromised immune system.[38]

We did not find a statistically significant association between PTSD and medication adherence.

Evidence for the relationship between PTSD and medication adherence is conflicting as some studies found no statistically significant association while others did.[34,39,40] The distressing symptoms of PTSD, especially the re-experiencing symptoms are associated with reduced quality of life and poor medication adherence. There is further weakening of the immune system, and exacerbation of the disease progression.[41]

Social support refers to spiritual and material help and support from parents, relatives, friends and communities This study showed that social support is significantly associated with medication adherence, and in fact was found to be a predictor of medication adherence. Participants with strong or moderate social support were 7.6 times more likely to adhere with their medications than those with poor social support. Similar findings have been obtained in many other studies.[4,30] The impact of social support generally in health and illness is operationalized through the two pathways of biological and behavioral mechanisms.[42] Social support modifies the pro-inflammatory biomarkers like interleukins (IL-6) and motivates towards the adoption of positive health behaviour. It has been proposed that

support gotten from relatives and friends as well as assistance provided for self-care activities facilitates medication adherence.[43] The support further aids individuals to cope and be motivated. It also encourages optimism about different aspects of self-management of chronic conditions such as HIV infection. As a result of supportive interactions that lead to better coping, and a beneficial social environment to encourage higher participation, there will be improvement in medication adherence.[44] Social support will thus affect positive health promotion and good medication adherence.

On the other hand, HIV related stigma has an adverse effect on ART adherence because it compromises adaptive, coping and social support of PLWHA.[45]

The limitations of this study include its non-generalizability, as it is hospital based. Also, self-report used to assess medication adherence among participants could be prone to recall bias.

Conclusion

This study found that the prevalence of antiretroviral medication adherence was suboptimal whereas the prevalence of psychiatric disorders was moderate. About three-quarters of the participants had strong social support. Independent predictors of medication adherence were having a psychiatric disorder (depression, generalized anxiety disorder, alcohol and substance abuse) and social support.

Recommendation

1. Routine screening for psychiatric disorders, including substance use disorders should be done in the HIV clinics.
2. HIV program managers should have special programs for PLWHA who are diagnosed with a psychiatric disorder, because both are stigmatizing conditions which will further lead to poor social support and a cycle of non-adherence to treatment and poor outcome.
3. Public enlightenment should be done to destigmatize HIV/AIDS, and to enjoin the public to offer support for PLWHA in order to boost their self- esteem and efficacy.
4. Adherence counsellors should do more in educating PLWHA on the extreme importance of adherence on clinical outcome and quality of life.

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