Health Locus of Control and HIV Status Stress as Predictors of Adherence to Antiretroviral Therapy by People Living with HIV/AIDS in Ibadan

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Abstract
This study examined health locus of control and HIV status stress as predictors of Adherence to Antiretroviral Therapy by people living with HIV/AIDS in Ibadan. The study employed the descriptive survey approach. Participants were 200 adults living with HIV/AIDS randomly selected from Ibadan, Oyo State. Three reliable instruments were used to measure the psychosocial predictors of adherence to antiretroviral therapy by People Living with HIV/AIDS. Analysis of variance (ANOVA) and t-test statistical were used to analyze the data. The result showed that the linear combination effect of influence of multi-dimensional Health locus of control and HIV status stress on Adherence to Antiretroviral Therapy (ART) was significant $F(2,197) = 16.619$; $R = 0.380$, $R^2 = 0.144$ Adj. $R^2 = 0.131$. $P < 0. 05$. However, there was significant difference in the Adherences to Antiretroviral Therapy f male and female respondents' level of significance. Based on these findings, it was recommended that the healthcare professionals' workers should provide all information's to the patients in a manner that they can understand. The medical staff should give counselling services to the patients before the starting of the medication.

Keywords: Antiretroviral Therapy, Human Immunodeficiency Virus, Acquired Immunodeficiency Syndrome, Health locus of control.

Introduction

HIV/AIDS is one of the highest health problems in the world today research showed that 40 million people are living with HIV/AIDS, 95% of them are in developing country (WHO, 2014). HIV remains a public health issue that persistently drains the country economic sector having claimed more than 25 million lives over the last three decades (WHO Fact Sheet,2014). Millions of people are living with HIV globally, 9% of them live in Nigeria (UNAIDS,2014. The country already burdened by political instability and endemic political corruption as a result of almost 33 years of military rule now seems prepared to 'wipe out' the virus within a few decades (Nigeria National Agency for the Control of AIDS,2012) Although the progress in institutional reforms and political commitment to tackle the disease, more citizens were placed on life saving medication of active antiretroviral therapy to increase the survival of such HIV zero positive individuals

The mortality rate of people living with HIV/AIDS has been subsiding with the initiation of antiretroviral medication. More prevention campaigns has been planned and carried out by the government to monitor system of HIV/AIDS in Nigeria, the campaigns

requires improvement on data collection and integration for better assessment of the epidemic (Awofala & Ogundele, 2016).The Nigeria government has encouraged HIV testing among the Nigerian population to ensure everyone knows their HIV status through prevention campaign programme. People with Human Immunodeficiency Virus (HIV) positive are now advised on how to reduce the virus through antiretroviral therapy.

The introduction of antiretroviral therapy has converted the perception of HIV/AIDS from incurable disease to a manageable disease. Adherence to HIV treatment is the taking the prescribed pills at the right time, in the right doses, and in the right way (Carter,2009). Adherence can also be described as the "Achilles heel" of a successful outcome in an antiretroviral therapy (ART) program. It is a predictor of delayed progression to AIDS and death after CD4 count; it is recognized as critical health promotion behavior for PLWHA (Falope, 2010). Adherence has been shown to be a major predictor of viral suppression of HIV replication. Antiretroviral Therapy (ART) has given hopes to people living with HIV/AIDS and plays a role in improving their quality of life. Antiretroviral therapy is treatment of people infected with human immunodeficiency virus (HIV) using anti-HIV drugs. The standard treatment consists of a combination of at least three drugs called 'Highly Active Antiretroviral Therapy'(HAART). Three drugs are used in order to reduce the likelihood of the virus developing resistance. Antiretroviral therapy is a drug provided to shorten illness duration, to reduce mortality and morbidity rate, improve quality of life of people living with HIV/AIDS (PLWHA) through reduction of viral load and increasing the level of CD4 cells. Adherence to ART is the extent to which a patient's behaviour coincide with medical advice mutually negotiated better with the health professional and the patient poor adherence to ART is linked to the development of drug resistance, higher mortality rates, lower rates of increase in CD4 cell count, lower rates of undetectable viral load lower therapeutic success and increased hospital days.

International health initiatives such as the United States (US) President's Emergency Program for AIDS Relief (PEPFAR) and the Global Fund to fight AIDS, Tuberculosis and Malaria (GFTAM) have retorted to the HIV epidemic by expanding the provision of ART to the increasing number of affected patients. (UNAIDS,2008). Nigeria is one of the target countries for these international programs and is also a country with strong local political support for these initiatives. The Federal Government of Nigeria initiated the national ART programme in January 2002 as part of an expanded response to care and support for PLWHA. In Nigeria today, so many factors affect the adherence to ART among which are emotional responses to the diagnosis, drug abuse, educational level, belief system and side effects. The stigma and shame associated with HIV/AIDS foster the spread of the diseases and is a real obstacle to prevention and care of the disease.

Adherence is defined as the extent to which a person currently takes prescribed medication. Commonly used methods to measure adherence includes patient self-report, pill counts, pharmacy refill records, drug level monitoring, electronic drug monitoring, and physician assessment, each of which has advantages and disadvantages. Adherence can be measured in difference ways such as drug-blood level, pill counting, care giver' reports and self-report by patients. There are a lot of factors influence adherence to antiretroviral therapy among people living with HIV/AIDS, these includes: cost to the patient for medication, adverse side effects, non-availability of drugs, and social stigma were the major reasons reported for patient non adherence and were common to all studies reviewed. Forgetfulness on the part of the patient and in the case of children (mothers or caregivers) was a recurring reason for noncompliance, emotional responses, level of education and decision making active mental

illness, traditional cultural beliefs, self-effects and social supports. Other factors include unfamiliarity with the implications of having a chronic, potentially deadly disease, the complex impact of ART on interpersonal relationships, depression and hopelessness, lack of accurate information, and issues related to local cultural frameworks (Murray et al,2009). Depression and presence of opportunistic infection are adversely linked to adherence status of patients (Muktar and Adamu,2017) Poor adherence is linked to the development of drug resistance, higher mortality rates, and lower rates of increase in CD4 cell count (Falope, 2010)

Some of the psychosocial factors influences adherence to antiretroviral therapy (ART) by people living with HIV/AIDS in this study is health locus of control and HIV status stress. Health locus of control is the degree to which individuals believe that their health is controlled by internal or external factors. Internal locus of control is the belief that an outcome is directly the results of one's behaviour while external locus of control is the belief that an outcome is under the control of powerful others or is determined by fate, luck or chance.HIV status stress is the stress associated with acts of prejudice and discrimination that gives AIDS activists and human rights activities cause for concern. HIV means Human Immune Deficiency Virus. It is the causative against of AIDS and has the ability to destroy the body's immune system, which normally fights diseases. There are three main ways through which HIV can be transmitted; it can be through sexual transmission, blood transfusion and mother-to-child transmission. The virus can be transmitted from an infected person to his or her sex partner through unprotected sexual intercourse. Transmission of HIV infection from a woman to her infant may occur before during and after birth. It can occur during child birth and breast feeding. AIDS is a medical diagnosis for the group of rare illnesses that come after HIV has made a person's immune system too weak to resist infections that would otherwise be fought off. Experience of stressful life events may deter HIV positive individuals from adhering to their treatment regimes. People living with HIV often experience stress related to the symptoms and stigma associated with their disease including interpersonal violence, loss of supportive services, and denial of health care and so on (Monjok, Smesny, Okokon, & Mgbere 2010).

Coping with stress is significant in the life of an HIV positive patient with actual coping efforts aimed at regulating the stressor resulting in the outcomes of the coping process. Kretchy and Sena (2014) found that co-morbid stress moderated the association between side effects and adherence and that the presence of stress moderated the association between side effects and adherence. Children who are affected by their parents should also be taken care. Children have an extremely high risk of poor outcomes from HIV infection. lack of intervention have led to high rate of mortality among children.(Abah , Ebonyi, Ugogwu, & Ojeh 2015). But the introduction of scaling up of early infant diagnosis programmes has increased the identification of infants infected with HIV, but initiating ART early for those who have been found to be infected remains poor. Most HIV-infected children who are suitable for ART are still not being treated. Some countries are already introducing immediate ART for children younger than five years. In 2010, WHO recommended that ARV drugs should be provided either to the mother or the infant throughout breastfeeding which will serve as measure to reduce the risk of postnatal HIV transmission?

There are factors that are responsible for non-adherence to antiretroviral therapy. Such as unavailability of drugs among non-adherent respondents, evaluation of most antiretroviral initiative in resource-poor setting has shown that the purchase, supply and distribution of antiretroviral are not properly managed (Omeje & Nebo 2011). People living with HIV/AIDS can transmit the infection to other people either by sexual transmission, mother -to- child transmission and blood transmission. However, this problem could be arrested if people living

with HIV/AIDS could strictly adhere to antiretroviral therapy to improve the patient's awareness to ART and provide social support to all people living with HIV/AIDS.

The purpose of this study was to find out the correlation among independent variables (health locus of control and HIV status stress) and dependence variable(adherence to antiretroviral therapy) of people living with HIV/AIDS in Ibadan

Null Hypotheses

The following directional null hypotheses were tested in this study at0.05 level of significance.

H_0 1: There is no significant relationship among health locus of control, HIV status stress and adherence of antiretroviral therapy of adults living with HIV/AIDS.

Ho 2: There is no significant combination effect of health locus of control and HIV status stress on antiretroviral therapy of adults living with HIV/AIDS.

Ho 3: There is no significant relative effect of health locus of control and HIV status stress on adherence of antiretroviral therapy of adults living with HIV/AIDS.

Methodology

A descriptive survey research design of correlational type was used in assessing psychosocial predictors of Adherence to Antiretroviral therapy by people living with HIV/AIDS in Ibadan; Oyo State. The population of this study comprised of all adults living with HIV/AIDS in Ibadan, Oyo State, Nigeria. Purposive sampling technique was used to draw representative sample of two hundred (200) peoples living with HIV/AIDS were randomly selected for the study.40 males and 160 females were selected as participants. Only those that picked yes are allowed to 'participate on the study. The simplicity of language and mode of answering the questionnaire used in this study facilitated ease of administration. The respondents were approached at Counselling center for people living with HIV/AIDS at University College Hospital, Ibadan. The purpose of the study was explained to them. An appeal was made to each of the respondents to complete the questionnaire and answer the questions given to them as accurate as possible. The questionnaires were collected straight away after filling it the same day they were administered. The age range of the participants was 25 years to 50 years. A self-developed questionnaire title "Health Locus of Control and HIV status stress as adherence to antiretroviral therapy scales was used for data collection. The instrument is divided into two sections. Section A consisted of information on the participants' demographic characteristics such as sex, age occupation and number of wives. Section B contained: multidimensional Health locus of control Scale by Wallston & DeVellis(1978) an 18 item instrument on a five point rating scale, which was adopted and used to measure participants health locus of control, the HIV status stress scale by Olson (1995) - a 30 item instrument on a five point rating scale, adopted to measure HIV statue stress of the people living with HIV/AIDS, and the Adherence Scale by Oumtance (2001), a 23 item instrument on a five point rating scale adopted to assess how participants are adherence to the use of Antiretroviral therapy to reduce HIV/AIDS among adults. In the present study, the scales yielded Cronbach alpha coefficients of 0.83, 0.75 and 0.78 respectively.

A letter of introduction was submitted to department of President's Emergency Program for AIDS Relief (PEPFAR), University College Hospital, Ibadan. Research approval was sought from the management of the hospital. The researcher used the counselling room in the hospital to administer the questionnaire to twenty respondents at a time. The participants were selected through yes or no method; only those that picked yes were used as participants. 20 respondents were allowed to participate in a session, on Tuesday and Thursday and lasted for

5 days. The participants were adequately informed of confidentiality and the need to be precise and truthful in filling the questionnaire; the questionnaires were then filled and returned by the participants after adequate understanding the wordings of it. Data collected for this study were analyzed using Pearson's product movement correlation and multiple regression analyses at 0.05 level of significance.

Ethical issues
Prior to the commencement of the research approval was sought from the management of the hospital. The management gave their consent after being satisfied with the objectives of the research. For confidentiality, the identity of the respondents was not disclosed.

Results
Null Hypothesis 1: There is no significant relationship among health locus of control, HIV status stress and adherence of antiretroviral therapy of adults living with HIV/AIDS.

Table 1: Pearson Person Product Movement Correlation Showing the Relationship between Adherence to Anti-retroviral Therapy and Independent Variables

Variables	Adherence To ART	Health Locus of Control	HIV Status Stress
Adherence to Antiretroviral therapy	1		
Health Locus of Control	-0.220[xx]	1	
HIV Status Stress	0.306[**]	0.015	1
Mean	74.8650	63.7400	96.0900
S.D.	18.22409	11.20043	22.11600

Correlation is significant at 0.05

Table 1 shows the inter-correlation matrix of the independent variables (health locus of control and HIV status stress) and dependent variable (adherence to antiretroviral therapy) score. Table reveals that adherence to antiretroviral therapy has significant relationship with HIV status stress ($r = 0.306, p < 0.05$) antiretroviral therapy had but negative significant relationship with health locus of control ($r = -0.220. p < 0.05$)

Null Hypothesis 2: There is no significant joint effect of Health locos of control and HIV status stress on adherence to Antiretroviral Therapy.

Table 2: Summary of Regression Analysis Showing the Joint Effect of the Independent Variables on Adherence of Antiretroviral Therapy.

Model	Sum of squares	DF	Mean square	F	Sig.
Regression	9541.286	2	4770.64	16.619	.000
Residual	56550.069	197	287.056		
Total	66091.355	199			
*R=0.380	R Squared =0.144		Adjusted R Squared =0.131		Std. Error of the Estimate=16.98590

Table 2 revealed the joint effect of influence of the independent variables on the adherence of antiretroviral therapy. $F_{(2,197)} = 16.619$, $P < 0.05$) The result generated a coefficient of multiple regression R of 0.380 and Adjusted $R^2 = 0.131$ which indicates that the two independent variables jointly accounted for 13.1% of the variation adherence to antiretroviral therapy. The remaining percentage could be explained with reference to extraneous variables that were not part of this study.

Null Hypothesis 3: There is no significant relative effect of Health Locus of Control and HIV Status Stress on adherence to Antiretroviral Therapy

Table 3: Multiple Regression Analysis Table showing the Relative Effects of Each of the Independent Variables on Adherence to Antiretroviral Therapy.

Model	Unstandardized coefficient		Standardized coefficient	t	Sig.
	B	Std. Error	Beta		
(Constant)	74.739	13.560		5.512	0.000
Health Locus of Control	-0.3.67	0.108	-22.5	3.395	0.001
HIV Status Stress	0.257	0.056	0.311	4.608	0.000

Table 3 shows the relative effects of the independent variables on the dependent variable. Health locus of control ($\beta = -22.5$, $t = 3.395$, $p < 0.05$) and HIV status stress ($\beta = 0.311$, $t = 4.608$, $p < 0.05$). Hence, the two independent variables significantly and relatively have effect on adherence to antiretroviral therapy. HIV Status stress has highest relative effect on adherence to Anti-Retroviral Therapy followed by Health locus of control.

Discussion of Findings

The result from first research question revealed that adherence Anti Retroviral Therapy (ART) correlated positively with the two predictors' variables. The positive value of the effects of HIV status stress and Health Locus of Control implies that adherence to Anti Retroviral Therapy (ART) is encouraging. This finding was corroborated by Falope (2010) who found that there is significant joint contribution of influence of Health Locus of control and HIV status stress on adherence to Anti Retroviral Therapy (ART). Ogunbanjo (2006) revealed that there was joint contribution of multi-dimensional health locus of control, HIV status stress and self-efficacy on adherence to Anti Retroviral Therapy (ART).

The second research question result showed that HIV status stress has highest contribution to adherence to ART, followed by Health locus of control. This is in line with the finding of Erah and Anite (2014) who found that individuals experience a lot of stress both before making the decision to test and after testing, while waiting for their test result are the effects of any type of stress that emerge as a barrier to HIV prevention in people living with HIV?AIDS. Also Falope (2010) found out that HIV status stresses have a specific and particular Influence on adherences to ART by people living with HIV/AIDS. They concluded that stigma-related and discrimination released stress impeded prevention of HIV/AIDS.

Finally finding on the third result reveal that Adherence to AntiRetroviral Therapy (ART) was significant with Health Locus of Control and HIV status stress. This is in consonance with the findings of Falope (2010) and Nachega and Chaisson (2009) who found that there is significant interring correlation of HIV status stress and Health locus of control at

adherence of Anti-Retroviral Therapy (ART) among people living with HIV/AIDS. This result is so because people living with HIV are very stressful in term of going to the hospital for test and collection of antiretroviral drugs every time.

Conclusion

This study which is health locus of control and HIV status stress as Predictors of adherence to Anti-Retroviral Therapy (ART) by People Living With HIV/AID (PLWHA) in Ibadan. Efforts must be made to make the service accessible by commencement of Anti-Retroviral Therapy (ART) service in more healthy centers to improve patient's awareness to Anti Retroviral Therapy (ART) and to provide social support to all people living with HIV, particularly those who have dependents. This study also trained the respondents on how to handle problems which would have disorganized their lives and hinder their psychological and social wellbeing.

Recommendations

Based on the results of this study, the following recommendations were made.
1. Adherence to Anti Retroviral Therapy (ART) is very useful to improve the quality of life and survival of people living with HIV/AIDS.
2. The healthcare professionals should provide all information to the patients in a manner that they can understand.
3. The medical staff should ensure that no patient start medication without going through three preparation visits or counseling to ensure readiness.
4. Nigeria government should create awareness to adherence to Anti Retroviral Therapy (ART) through various media.
5. There should be cooperation between the traditional and spiritual healers to work together with the western medical professionals by supervising treatment and providing HIV education.

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