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Health Locus of Control and Social Support As Predictor Of Adherence To Anti-Retroviral Treatment Among People Living With Hiv In Eti-Osa Local Government Area Lagos State

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Abstract: *The study investigated health locus of control and social support as predictors of adherence to HIV treatment among persons living with HIV/AIDS in Eti-Osa Local Government Area of Lagos State. The study adopted a descriptive research design using an ex-post facto method. The study sample consisted of 200 persons living with HIV/AIDS comprising 91 representing 45.5% were male while 109 (54.5%) female drawn from randomly selected participants. Four instruments were used in the collection of data: adherence (α =0.87); Social support (family) as (α =0.90); social support on (friends) as (α =0.92); health locus of control as (α =0.87). Two research questions and three null hypotheses were formulated and tested using multiple regression analysis and Pearson product moment correlation (PPMC) at 0.05 level of significance. There was a significant positive relationship between perceived social support of family and adherence to antiretroviral therapy among persons living with HIV/AIDS in Eti-Osa Local Government Area of Lagos State (r = .344**, N= 200, P < .05), perceived social support from friends and adherence to antiretroviral therapy (r = .723**, N= 200, P < .05) and positive relationship existed between health locus of control and adherence to antiretroviral therapy (r = .665**, N= 200, P < .05). The two independent variables when combined effectively predicted 56.6% in the prediction of antiretroviral adherence among persons living with HIV/AIDS. Taken separately, social support and health locus of control contributed significantly to the adherence to treatment among persons living with HIV/AIDS. In conclusion, the adherence rates reported in this study indicate an urgent need to design intervention measures to enhance adherence to antiretroviral therapy among persons living with HIV/AIDS in this setting. It was recommended that patients should be provided with drugs for a longer period and arrange for better laboratory services so patients will not have to return so frequently*.

Keywords: *Social support, Health locus of control, Adherence to antiretroviral*

Introduction

Access to antiretroviral therapy has increased tremendously in Sub-Saharan Africa with the World Health Organization (WHO) estimates pointing to an increase from 100,000 people receiving treatment at the end of 2003 to over two millions in December 2007 representing a 20-fold increase. This has changed the clinical course of Human Immunodeficiency Virus (HIV) with significant decline in morbidity and mortality. Now the challenge has shifted from access to adherence since with increased access to antiretroviral therapy(ART), HIV has become a chronic disease where patients have to take antiretroviral drugs for a long time with substantial side effects and sometimes with complex regimens (WHO 2003a; WHO 2008b). Success of antiretroviral treatment partly depends on patient level of adherence. Good adherence decreases viral load, increases CD4 count and there are decreased opportunistic infections and side effects (Santrock, 2007).

As at the report from National Agency for the Control of AIDS 2019, Prevalence of viral load suppression (VLS) among people living with HIV (PLHIV) age 15-64 years in Nigeria was 44.5%, 46.2% among females and 40.9% among males. Among males, young men age 25-34years have the lowest viral load suppression and among females adolescent females age 15-24years have the lowest viral load suppression. Adults and children or even more are said to be receiving treatment from mostly tertiary hospital based to secondary and even some primary health care facilities that is, medical health schemes and work place programmes.

Prevalence of HIV and AIDS in some parts of Sub-Saharan Africa is increasing, suggesting that an HIV prevention revolution has become a necessity. Of the estimated 39.4 million people living with HIV in the world, approximately 25.4 million of those are living in sub-Saharan Africa and 1.9 million people living with HIV in Nigeria (Nigeria AIDs indicator and Impact Survey, 2019). This amounts to approximately 64.46% of the global HIV positive population (UNAIDS/WHO, 2004). This implies that many patients would potentially start on antiretroviral therapy in the near future. If antiretroviral therapy were to be successful, healthcare providers will need to deal assertively with the problem of adherence. Adherence to antiretroviral therapy is an indication of the degree to which a patient follows advice regarding the treatment (Hsu, 2005) cited in Oparah and Oluyori (2013). Adherence is a renowned predicament in the successful management of the Human Immunodeficiency Virus (HIV) in the specialty field of antiretroviral therapy. One of the factors that could influence adherence to HIV treatment among persons living with HIV/AIDS is social support.

Social support is a broad term which has different dimensions and is expressed in different forms and different ways (Botempi, Burfeson, & Lopez, 2004). Social support is believed to affect adherence behaviours both directly (e.g., through

encouragement, positive reinforcements) and indirectly (e.g., through buffering variables that compromise adherence, including stress, anxiety, depression) and through various mechanisms. Social support can come in the form of emotional support from family, friends and peers, as well as from social interactions in the community including health care providers, and even from interaction with the environment (Burgoyne & Renwick, 2004). These factors have been found to have a great potential to impact on adherence. Another factor that influence adherence to HIV treatment among persons living with HIV/AIDS is health locus of control.

Health locus of control on the other hand is the degree to which individuals believe that their health is controlled by internal or external factors. Whereas internal locus of control is the belief that an outcome is directly the result of one's behavior, 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. Although, there are patients who believe that for them to live a normal live while placed under HIV treatment is based on luck or chance. With internal health locus of control, the patients that are on treatment will be able to control their behaviour from the negative ones such as alcohol use and other drugs that deteriorates the efficacy of the regimen prescribed by the clinicians (Lucas, 2004). Patients with internal health locus of control such an infected individual will be able to seek the attention of the clinicians or professional medical trained health workers on timely basis.

Statement of the Problem

As indicated earlier, ART has been made available at both private and public health centers in Nigeria since 2002. In 2010, the Federal Government expanded ART services to remote areas that were otherwise neglected. The President, Dr. Goodluck Ebele Jonathan directed that: "all relevant government ministries, department, and agencies (MDAs) to accelerate the implementation of the decentralization of HIV treatment, care and support services to the primary health care levels in all parts of the country" (FMOH, 2010: 1). But to maximize the benefits of ART at the primary health care levels, sufficient information is required on the factors that constrain or motivate adherence to ART. However, only a few adherence studies have been conducted in Nigeria and the factors that constrain and motivate adherence in this setting also among the infected patient has not been systematically investigated. If patients do not adhere to the regimen as prescribed by their clinician they run the risk of viral resistance also situations whereby there is no standardized means of measuring the adherence level of patients infected has further compound the challenges of adherence in Nigeria.

Some patients often skipped doses of their regimen because of their financial situation which makes it difficult for some infected person to afford themselves basic needs such as nutrition that will the infected person to use the drugs prescribed. Also the fear of discrimination and stigmatization that is attached to an individual infected with the virus in the society. This makes it difficult for patients to adhere to the regimen prescribed to them. The corruption level in the country has also affected the accessibility and affordability of the regimen among the infected patient which will affect their adherence. The distances from the health center in which patients will get their regimen also make it difficult for the patient to adhere to regimen. Disclosure to family and friends which should have foster support to the patients living with the disease makes it difficult to adhere to the regimen due to the fear of stigmatization and discrimination. Studies have been conducted on antiretroviral drugs among patients of HIV/AID in the western world, but few studies have been conducted on the influence of perceived social support and locus of control on ART adherence among people living with HIV in Eti-Osa Local Government Area of Lagos State. This was the gap that was filled in the study.

Objectives of the Study

The primary objectives of this study is to find out the impact and examine the relation between social support and health locus of control on ART adherence among people living with HIV in Eti-Osa Local Government Area of Lagos State. The specific objectives include to:

i. investigate the extent to which social support will influence ART adherence among persons living with HIV.
ii.determine the relative contribution of health locus of control on ART adherence among persons living with HIV.

Research Questions

1. To what extent will social support influence the adherence to antiretroviral therapy among persons living with HIV?
2. Will there be a positive significant relationship between health locus of control and adherence to antiretroviral therapy among persons living with HIV in Eti-Osa Local Government Area of Lagos State?

Hypotheses

$H_0$1: There will be a positive relationship between social support assurance from family and adherence to antiretroviral therapy among persons living with HIV in Eti-Osa Local Government Area of Lagos State.

$H_0$2: There will be a positive relationship between health locus of control and adherence to antiretroviral therapy among persons living with HIV in Eti-Osa Local Government Area of Lagos State.

$H_0$3: There will be a positive joint influence and health locus of control on adherence to antiretroviral therapy among persons living with HIV in Eti-Osa Local Government Area of Lagos State

Literature Review

Adherence means to stick to or to follow a prescribed health regimen which could be a medication, a special diet, or to abstain from certain drugs or an exercise regimen. Adherence generally refers to the "extent to which a person's behaviour - taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health provider" (WHO, 2003a: 3). In the context of the ART, it is defined as taking all the prescribed doses at the correct time, in the correct doses and in the correct way (Roux, 2004; Aspeling, 2006). It involves a change in the patient behaviour base on a decision-making process between the patient and health care provider (WHO, 2003a). Non-adherence, according to Miller (1997), may take various forms, such as not taking the medications at all, taking medication at the wrong time, taking the wrong dose due to misunderstanding treatment directions or prematurely terminating the medication without consulting the health provider.

Kyle and Lauren, (1994) conducted a cross-sectional study in which they examined perceptions of social support and locus of control and how these relate to psychosocial adjustment to HIV and AIDS. The results of the study showed a statistically significant ($p< 0.001$) relationship between social support and psychosocial wellbeing ($r = 0.55$). The social support subscales also showed a significant relationship between social support from family ($r =0.33$) and psychosocial adjustment and support from friends (0.56) and psychosocial adjustment. Catz et al. (2000) investigated whether poor social support was related to non-adherence to ART. They examined a sample of 72 individuals who were prescribed antiretroviral medication regimens and who were attending an outpatient infectious disease clinic. They found that a person's perception of lack of support significantly correlated with poor adherence to medication for HIV.

Ncama, Mclnerney, Nicholas, Corless, Bhengu, McGibbon and Davis, (2004), in a cross-sectional design study, examined correlates of social support in a sample of 149 persons on medication for HIV from four outpatient settings in Durban, South Africa. Participants had 7 close friends and family to rely on. However, the study did not find significant relations between measures of social support and measures of adherence. Non-significance in the correlation between support and adherence to medication may be a methodological issue rather than a sample characteristic. As described earlier in theory of social support, having close friends and family may not guarantee that support would be available to an individual if he or she needed it. Friends and family may be close to an individual in need, but they may the lack resources (skills, information, or material) needed by the individual to cope with a situation that demands or exceeds his or her own resources.

In women, a study of LOC and perceived risk for breast cancer showed that those with high internal LOC had a greater belief that they could control whether or not they developed breast cancer (Rowe, Montgomery, Duberstein, & Bovbjerg, 2005). A study was conducted by Wallston,Wallston, and DeVellis, (2008) and found that college students with higher external Locus of control were more likely to report higher levels of stress than those with higher internal Locus of control. Theoretical components of patient activation include several critical concepts in chronic care, many of which have specific tools by which they can be measured. These concepts include self-efficacy, or a patient's beliefs about his or her ability to make changes; health locus of control, or a person's belief that his or her health is determined by his or her own behavior; and readiness to change, or a patient's readiness to make changes related to health.

Studies have found that there is a positive association of social support with self-esteem in people diagnosed with HIV and AIDS. The more individuals perceive their social support as satisfactory, the more they are able to engage in more positive self-talk. These positive self-appraisals in turn promote the development of more effective coping skills. It also equips the individual to effectively deal with life stressors (Galvan, Davis, Banks & Bing, 2008). Ware, Idoko, Kaaya, Biraro, Wyatt, Agbaji, Chalamilla and Bangsberg, (2009) attempted to explain the reason for higher adherence in sub-Saharan Africa. In an ethnographic study, these researchers investigated why adherence to ART is high in sub-Saharan Africa. They used a comprehensive qualitative approach to describe and explain human behavior and culture as they relate to adherence to ART. The high level of adherence in people living with HIV in sub-Saharan Africa may indicate a person's effort to fulfill social responsibilities, which go beyond a person's need to improve health. They also include the need to protect and preserve one's ties or social capital. In brief, the efforts to adhere to ART in people living with HIV in sub-Saharan Africa are driven by the need to preserve the social structures that provide resources and to improve health. Although this argument is suitable to explain how social structures or ties are preserved, it does not create an understanding how social support helps people to cope with taxing events.

Methodology

A descriptive research design was adopted for the study is an ex-post facto design. The population consist of all adult HIV patients male and female (17 years and above) currently enrolled and receiving antiretroviral treatments in clinics in Eti-Osa Local Government Area of Lagos State. A total of 200 HIV infected patients will be selected for the study using a purposive sampling technique to select participants from the support groups who are currently receiving treatment in Eti-Osa Local Government Area of Lagos State. The study made use of questionnaire to gather information from the participants of the study. The questionnaire adapted was a standardized test. It was however given to the supervisor for further verification. The instruments used are in sections. Section A taps into the demographic characteristics of the participants like gender, age, occupation and so on. Section B taps information on Adherence Rating Scale which comprised 24 items. Section C elicited information on Perceived Social Support which comprised 20 items. While section D measured locus of control which consisted of eighteen items. The Cronbach alpha of the whole scale is 0.89. The participants for the study were met at the venues of their support group meetings and within the hospital setting. A letter of

introduction was sought from the department to the clinic as well as the support group. The researcher now introduced herself to the participants.

The researcher now ensured the participants of confidentiality that the study did not intend to investigate into their privacy and the results of the findings would be used for academic purpose only. The researcher was assisted by research assistants from the department in distribution of the research questionnaire to each participant that participated in the study. The filled copies of the questionnaire were collated for data analysis. Frequency count and simple percentages was used to analyse demographic sections while PPMC was used to test for relationship among the variables and Multiple Regression Analysis was used to test for joint and independent effect of the variables on adherence to HIV treatment.

Results

Table 1: Demographic information of the respondents

Variables		Frequency	Percentage
Gender	Male Female	91 109	45.5 54.5
Age	27-35 36-44 45-53 54-62	80 85 32 3	40.0 42.5 16.0 1.5

Table 1 shows the gender distribution of the respondents where 91 of the study participants representing 45.5% indicated their gender as male while 109 (54.5%) were female. This implies that a large number of the study participants were female by gender. Also, 40% were within the age range of 27 – 35 years, 42.5% were within the age range of 36 – 44 years. In addition, 16% of the respondents indicated their age range to fall between 45 – 53 years and 1.5% were within the age range of 54 – 62 years. This implies that a large number of the study participants were within the age range of 36 – 44 years.

Test of hypotheses

$H0_1$: There will be a positive relationship between perceived social support from family and adherence to antiretroviral therapy among persons living with HIV in Eti-Osa Local Government Area of Lagos State.

Table 2: Relationship between social support from family and adherence to antiretroviral therapy

Variable	Mean	Std. Dev.	N	R	P	Remark
Adherence to antiretroviral therapy Perceived social support of family	92.800 77.050	3.216 5.035	200	.344**	.000	Sig.

**Sig. at 0.05 level

It is shown in the Table 2 that there was significant positive relationship between perceived social support of family and adherence to antiretroviral therapy among persons living with HIV/AIDS in Eti-Osa Local Government Area of Lagos State (r = .344**, N= 200, P < .05). Hence, perceived social support from family had a positive influence on adherence to treatment in the study. Null hypothesis is rejected.

H_02: There will be a positive relationship between social support received from friends and adherence to antiretroviral therapy among persons living with HIV in Eti-Osa Local Government Area of Lagos State.

Table 3: Relationship between social support from friends and adherence to antiretroviral therapy

Variable	Mean	Std. Dev.	N	R	P	Remark
Adherence to antiretroviral therapy Perceived social support of family	92.800 55.350	3.216 4.334	200	.723**	.000	Sig.

**Sig. at 0.05 level

It is shown in the Table 3 that there was significant positive relationship between perceived social support from friends and adherence to antiretroviral therapy among persons living with HIV/AIDS in Eti-Osa Local Government Area of Lagos State (r = .723**, N= 200, P < .05). Hence, perceived social support from friends had a positive influence on adherence to treatment in the study. Null hypothesis is rejected.

$H_0$3: There will be a positive relationship between health locus of control and adherence to antiretroviral therapy among persons living with HIV in Eti-Osa Local Government Area of Lagos State.

Table 4: Relationship between health locus of control and adherence to antiretroviral therapy

Variable	Mean	Std. Dev.	N	R	P	Remark
Adherence to antiretroviral therapy	92.800	3.216				
Health Locus of Control	126.270	6.976	200	.665**	.000	Sig.

**Sig. at 0.05 level

It is shown in the Table 4 that there was significant positive relationship between health locus of control and adherence to antiretroviral therapy among persons living with HIV/AIDS in Eti-Osa Local Government Area of Lagos State (r = .665**, N= 200, P < .05). Hence, health locus of control had a positive influence on adherence to treatment in the study area.

Research Questions

RQ 1. What is the joint effect of social support and health locus of control on adherence to antiretroviral therapy among persons living with HIV in Eti-Osa Local Government Area of Lagos State?

Table 5: Multiple Regression showing the joint effect of social support and health locus of control on adherence to antiretroviral therapy among persons living with HIV.

R = .757
R^2 = .573
Adj R^2 = .566
Std. Error of Estimation = 2.11849

Model	Sum of Squares	DF	Mean Square	F	Sig.
Regression	1178.350	3	392.783	87.518	.000
Residual	879.650	196	4.488		
Total	2058.000	199			

It was shown in Table 5 that the joint effect of social support (family and friends) Health locus of control and adherence to antiretroviral therapy among persons living with HIV/AIDS in Eti-Osa Local Government Area of Lagos State was significant ($F(3,196) = 87.518$; $R = .757$, $R^2 = .573$, Adj. $R^2 = 0.566$; $P < .05$). About 56.6% of the variation in adherence to antiretroviral therapy was jointly accounted for by the independent variables.

RQ 2: What is the relative contribution of social support and health locus of control on the adherence to antiretroviral therapy among persons living with HIV in Eti-Osa Local Government Area of Lagos State?

Table 6: Relative contribution of social support (family and friends) and health locus of control of adherence to antiretroviral therapy

	Unstandardized Coefficients		Standardized Coefficients			
Model	B	Std. Error	Beta	T	Sig.	P
(Constant)	59.861	2.844		21.047	.000	<.05
Perceived social support from family	-0.153	.041	-.240	-3.764	.000	<.05
Perceived social support from friends	.420	.059	.566	7.087	.000	<.05

Health Locus of control	.170	.040	.370	4.216	.000	<.05

The result 6 shows relative contribution of the independent variables (perceived social support of family, perceived social support of friends and health locus of control) to adherence to antiretroviral therapy among persons living with HIV/AIDS. It was observed that perceived social support from friends was the most potent contributor to adherence to antiretroviral therapy ($\beta = .566$, $t = 7.087$, $P<.05$) and followed by Health locus of control ($\beta = .370$, $t = 4.216$, $P<.05$). Perceived social support from friends was the least but significant contributor to adherence ($\beta = -.240$, $t = 4.216$, $P<.05$) among persons living with HIV/AIDS in Eti-Osa Local Government Area of Lagos State.

Discussion

Result from hypothesis one revealed that there was significant positive relationship between social support from family and adherence to antiretroviral therapy among persons living with HIV/AIDS. Every individual deserves supports from people that stayed closer to them. This result is in line with the findings of Kyle and Lauren, (1994) found that there was significant relationship between social support from families and adherence to antiretroviral therapy among persons living with HIV/AIDS. Also the finding is in line with the findings of Catz, McClure and Brantley (2000) who found that a person's perception of lack of social support from family significantly correlated with poor adherence to antiretroviral therapy.

Result from hypothesis two showed that there was significant relationship between social support from friends and adherence to antiretroviral therapy among persons living with HIV/AIDS. This corroborates the findings of Ncama,Mclnerney, Nicholas, Corless, Bhengu, McGibbon and Davis, (2004) who observed that non-significance in the correlation between support and adherence to antiretroviral therapy may be a methodological issue rather than a sample characteristic. As described earlier in theory of social support, having close friends and family may not guarantee that support would be available to an individual if he or she needed it.

Result from hypothesis three showed that there is significant relationship between health locus of control and adherence to antiretroviral therapy among persons living with HIV in the study. The finding validates that of Kuwahara, Nishino, Ohkubo, Tsuji, Hisamichi, and Hosokawa (2004) who found that individuals with greater internal LOC are more likely to believe they can control whether or not they develop a specific life-style related disease, and internal LOC was predictive of lower rates of excessive drinking which will impair efficacy of the regimen. It is also in line with the findings of Wallston,Wallston, and DeVellis, (2008) who found similar results of a relationship between internal health locus of control and lower rates of smoking. People living with HIV should be able to adhere to the regimen prescribed by the Clinician, but some lifestyle of a patient affects the efficacy of the regimen since they want to live their normal life they will make use of alcohol and smoke which shows that such an individual give in that their ability to live a normal life is a matter of chance or luck.

Results from research question one showed that the joint of social support (family and friends) and health locus of control contributes 56.6% to the variation in adherence to antiretroviral therapy among people living with HIV/AIDS. The findings corroborates the findings of Galvan, Davis, Banks and Bing (2008) who found that positive self-appraisals promote the development of more effective coping skills. It also equips the individual to effectively deal with life stressors by adhering to their antiretroviral therapy.

Result from research question two revealed that each of the independent variables social support (family and friends) and health locus of control contributed to the adherence to antiretroviral therapy among persons living with HIV/AIDS. The finding is in line with the findings of Ware, Idoko, Kaaya, Biraro, Wyatt, Agbaji, Chalamilla and Bangsberg (2009) attempted to explain the reason for higher adherence in sub-saharan Africa it was found that there was support from significant others also it was revealed that such person's effort to fulfill social responsibilities, which go beyond a person's need to improve health this makes people living with HIV to adhere to their antiretroviral therapy.

Conclusion and Recommendations

Based on the findings from this study, it is recommended that:

- Perform proper opportunistic infection (OI) screening, adverse drug reaction (ADR) and adherence monitoring among people living with HIV/AIDS.
- Train staff, including other support staff, in communication skills and adherence counseling this will help relating well with patients living with HIV/AIDS.
- Provide patients with drugs for a longer period and arrange for better laboratory services so patients will not have to return so frequently
- Bring services closer to the patients, and use peripheral community-based health workers for drug distribution.
- Give direct economic support and/or initiate income-generating programs.
- Support stable donor-ship and efforts to reduce costs for opportunistic infection medicines or make arrangements for completely free medicines.

- Stabilize delivery of laboratory material; clarify the question of responsibility when problems arise with equipment maintenance and service.
- Support the use of the pull system for drug distribution among people living with HIV/AIDS.
- Establishing a support group as part of the intervention in which discussions on adherence are encouraged. The support groups should be facilitated in the clinic in order to assist patients with knowledge sharing. Women can also assist each other (especially in cases of abuse) with information and knowledge based on experience, so that they are able to take more control in sexual decision making and insist on safer sex.
- ARVs should be stored at the manufacturers' recommended temperatures to maintain their integrity. As temperatures in the FCT are higher than the recommended 25 degree Celsius, Air Conditioners, Fans and other cooling systems should be provided and room temperatures in the drug stores should constantly be monitored using wall thermometers.

References

Botempi, J.M.B., Burfeson, L., and Lopez, M.H. (2004). HIV medication adherence programs: The importance of social support. *Journal of Community Health Nursing* 21(2): 111-122.

Burgoyne, R. & Renwick R. (2004).Social support and quality of life over time among adults living with HIV in the HAART era. Social Science & Medicine, 58(7): 1353-1366

Catz, E., McClure, P., and Brantley, A. (2000). Positive and negative frames for health relevant.

Galvan, E., Davis, A., Banks, S., and Bing, P. (2008). Adherence to protease inhibitor therapy and outcomes in patients with HIV infection. Annals of Internal Medicine, 133(1), 21–30.

Hsu, J. (2005). Adherence. Johns Hopkins HIV Guide. Point of Care Information Technology (Poc-it).http://www.hopkins-hivguide.org/management antiretroviral therapy/adherence.html.

Kuwahara, A., Nishino, E., Ohkubo, S., Tsuji, A., Hisamichi, E., and Hosokawa, D. (2004). HIV treatment adherence in women living with HIV/AIDS: research based on the Information Motivation-Behavioral Skills model of health behavior. *Journal of the Association of Nurses in AIDS Care,* 12(4), 58–67.

Lucas, G.M. (2004). Once-daily therapy. Johns Hopkins HIV Guide, Point of Care, Information Technology(Poc-it) http://www.hopkins-hivguide.org/management antiretroviral therapy/adherence.html

Ncama, A., Mclnerney, S., Nicholas, E., Corless, A., Bhengu, D., McGibbon, S., and Davis, A. (2004). Social support, stress, and depressive symptoms among the elderly: Test of a process model. Psychology & Aging, 6(2), 190–201

Oparah, O.B. and Oluyori J.O. 2013.Psychosocial Correlates of Adherence to Antiretroviral Therapy (Art) By People Living With HIV/AIDS In Federal Capital Territory, (Fct), Abuja, University of Ibadan, Ibadan.

Santrock, J.W. (2007). A Topical Approach to Human life - span development. (3rd ed). St. Louis, MD: McGraw - Hill.

Wallston, S., Wallston, A., and DeVellis, E. (2008). Responses to a 1 month self-report on adherence to antiretroviral therapy are consistent with electronic data and virological treatment outcome. Aids, 16(2), 269–277.

Ware, A., Idoko, E., Kaaya, S., Biraro, A., Wyatt, E., Agbaji, S., Chalamilla, E., and Bangsberg, M. (2009). Multiple validated measures of adherence indicate high levels of adherence to generic HIV antiretroviral therapy in a resource-limited setting. *Journal of Acquired Immune Deficiency Syndromes,* 36(5), 1100–1102.

World Health Organization.2003a. Adherence to long-term therapies.Evidence for action. Geneva. WHO.

World Health Organization. 2008b. Towards universal access. Scaling up priority HIV/AIDS interventions in the health sector.Progress Report. Geneva.