

## ORIGINAL ARTICLE

## Perceived Stigma and Highly Active Antiretroviral Treatment Adherence among Persons Living with HIV/AIDS in the University of Port Harcourt Teaching Hospital

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Received: December 30<sup>th</sup>, 2016  
Accepted: February 6<sup>th</sup>, 2017

**DISCLOSURES:** None

**ABSTRACT**

**Background:** HIV/AIDS-related stigma is an important obstacle in the utilization of HIV/AIDS related services, including HIV testing and counselling, and antiretroviral therapy. It is, therefore, necessary to examine the association between perceived stigma and adherence to Highly Active Antiretroviral Treatment (HAART) among Persons Living with HIV/AIDS (PLWHA) in our local setting.

**Objective:** To determine the relationship between perceived stigma and Highly Active Anti-Retroviral Therapy (HAART) adherence among PLWHA attending HAART clinic at the University of Port Harcourt Teaching Hospital (UPTH) Port Harcourt, Rivers State, Nigeria.

**Methodology:** This was a descriptive cross-sectional study involving 302 participants attending the HAART Clinic at UPTH. Systematic random sampling technique was employed. Data on socio-demographic characteristics, stigma and adherence to drug regimen were collected using a validated self-administered questionnaire. Data were presented as tables and charts. Chi-square and Pearson's correlation statistical tests were performed with *p-value* set at 0.05.

**Results:** This study comprised of 200 (66.2%) females and 102 (33.8%) males. The mean age of study subjects were 38.9±9.8years. The prevalence of perceived stigma was 59.9% (*n*=181). A total of 215 (71.2%) of the subjects had good HAART adherence. A lower proportion of good adherence was reported among those with perceived stigma (68%) in comparison to those without perceived stigma (76%). There was no significant correlation between HAART adherence scores and perceived stigma scores (*r*=0.027; *p*=0.639).

**Conclusion:** Perceived stigma is not related to adherence to HAART among patients in this facility. Nonetheless, the high prevalence of stigma among PLWHA necessitates measures targeted at reducing stigma among this group of patients.

**Keywords:** Drug adherence, High prevalence, Nigeria, Prognosis, Quality of Life

**INTRODUCTION**

Nigeria with Human Immune-deficiency Virus(HIV) prevalence of 3% has the second highest number of people living with HIV/(Acquired Immune Deficiency Syndrome(AIDS) in the world.<sup>1</sup> Rivers State

in the South-South geopolitical zone of the country has the highest HIV prevalence (15.2%) in the country.<sup>1</sup>

Stigma has been defined as "the co-occurrence of labeling, stereotyping,

separation, status loss and discrimination in a context in which power is exercised".<sup>2</sup> Stigma breeds feelings of shame, hopelessness and distress, and may lead to a reluctance to seek or accept help.<sup>3</sup> One of the oldest explanations of stigma describes it as an attribute that is "deeply discrediting" and that, in the eyes of society, reduces someone "from a whole and usual person, to a tainted, discounted one" thus, cutting him off from normal accepted relationships.<sup>4</sup>

Stigma may be 'internalized' when the stigmatized person accepts discrediting attitudes as valid, and develops self-defacing beliefs about themselves; 'enacted' when there is an overt act of discrimination directed towards persons with the stigmatized attribute and 'perceived or felt' when the stigmatized person experiences fear in anticipation of being stigmatized or believes that most people will discriminate against them.<sup>5,6</sup> Perceived stigma refers to a real or imagined fear of societal attitudes and potential discrimination, arising from a particular undesirable attribute, disease, or association with a particular group".<sup>7</sup>

Drug adherence is used to describe the participant's use of the study product (in this case HAART) as prescribed by the health care provider.<sup>8</sup> The good adherence to HAART greatly improves the prognosis of HIV, increase life expectancy and overall quality of life of people living with HIV.<sup>9,10</sup> On the other hand, poor adherence causes HIV disease progression, sub-optimal viral suppression and emergence of resistance; which consequently, leads to higher viral load, worsened immune status often referred to as immunological and clinical failure which ultimately leads to shortened life expectancy.<sup>9,10</sup>

Concerns of stigma to HIV have been documented to make HIV-infected adults non-adherent to medications because of the fear of taking these medications publicly and being noticed.<sup>11</sup> Also, a research involving HIV-infected youths in United States revealed that HIV stigma was responsible for poor

medication adherence in 50% of youths, who feared that in taking their antiviral medications, friends or family members might discover their HIV status and reject them.<sup>12</sup> The HIV/AIDS is relatively more stigmatizing than other illnesses.<sup>13</sup> The society views it as a behaviourally acquired contagious disease.<sup>13</sup> Consequently, the stigma that surrounds it may compromise the well-being of Persons Living with HIV/AIDS (PLWHA) as well as their use of the health care systems.<sup>12,13</sup> Noteworthy, is the fact that several researches on HAART adherence in Nigeria did not explore the influence of perceived stigma on adherence to HAART.<sup>10,14,15,16,17</sup>

This research, therefore, sought to determine the relationship between perceived stigma and HAART adherence among PLWHA. It also assessed the HAART adherence and perceived stigma prevalence rates among PLWHA.

## METHODOLOGY

### Study Area and Design

This study was a descriptive cross-sectional study carried out in the Antiretroviral (ARV) Clinic of University of Port Harcourt Teaching Hospital (UPTH), a tertiary health institution located in Port Harcourt, Rivers State, South-South (SS) Nigeria. The clinic is open every day of the week and sees an average of 60 patients per day. It is co-managed by Community Medicine, Internal Medicine and Haematology Departments, and offers outpatient care to adult patients. The study spanned through the months of June to August of 2014.

### Study Population

This study involved PLWHA attending the Antiretroviral (ARV) Clinic of UPTH. Only those who had been on first line antiretroviral drugs for at least three months prior to the study were included in the study. This time period was allowed to ensure the stability of HAART regimen among the patients to be selected. Patients who declined *Informed Consent* and those too ill to respond to the questionnaire, were excluded.

### Sample Size Calculation and Sampling Technique

Sample size was calculated using the formula for cross sectional studies:<sup>18</sup>

$$n = \frac{z^2pq}{d^2}$$

A sample size of 298 PLWHA on HAART was calculated for this study based on the state prevalence (p) of HIV of 15.2%.<sup>1</sup> Additionally, the sample size was calculated with a precision (d) of 0.05, 95% confidence limit (z), design effect of 1.5 and a 10% mark up for non-response. Systematic sampling method was used to select participants into the study. This was done by first determining the sampling interval. The sampling interval, k was calculated by dividing the average daily number of patient at the ARV Clinic, N (60), by the desired daily sample size to cover the three month data collection period, n (20). Hence, sampling fraction,  $k = N/n$ ;  $k = 60/20 = 3$ . Every third eligible client registered at the ARV Clinic for the day was selected from the medical records register for the study. Simple random sampling via ballot method was used to select the first client for the day from the first three eligible patients registered for a particular clinic session. Subsequently, every third from the position selected by the ballot was selected until the end of the clinic session.

### Data Collection

Data collection was carried out using a pre-tested, self-administered and semi-structured questionnaire comprising of sections on respondents' socio-demographics, stigma and HAART adherence. Socio-demographic information of age, sex, marital status, educational level, religion, occupation and income were obtained. Perceived stigma scale was used to assess perceived stigma. This scale is a three-item tool modified for HIV/AIDS with a total score ranging from 0 to 3, with '0' meaning no perceived stigma and 1 to 3 depicting various levels of perceived stigma i.e. mild, moderate or severe.<sup>19,20,21</sup> The adherence to HAART was assessed by the HAART adherence

questionnaire.<sup>9,22,23,24</sup> This was measured based on patient self-report and was limited to the preceding week, in order to minimize the limitations of human memory.

The level of adherence of the PLWHA to HAART was calculated using the formula:

*Adherence percentage (%) over 7 days = Number of pills taken (Number of pills prescribed – Number of pills missed) x 100/ Number of pills that is supposed to be taken (prescribed).*<sup>9,22,23,24</sup>

A score of 95% and above represented good adherence and less than 95% was rated as poor adherence.<sup>9, 22,23,24</sup>

### Statistical Analysis

Perceived stigma was the independent variable while HAART adherence was the dependent variable. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 20.<sup>25</sup> Data were presented as tables and charts as appropriate. Qualitative variables were expressed as counts and proportions while quantitative variables were summarized using means and standard deviations. Proportions were compared using *Chi square* tests. Odds ratio and 95% confidence interval were calculated to determine the strength of the association. Normality tests were performed using Kolmogorov-Smirnov statistics after which Pearson's correlation was chosen to determine the correlation between adherence and perceived stigma scores. A *p-value* of less than or equals to 0.05 was considered significant.

### Ethical Consideration

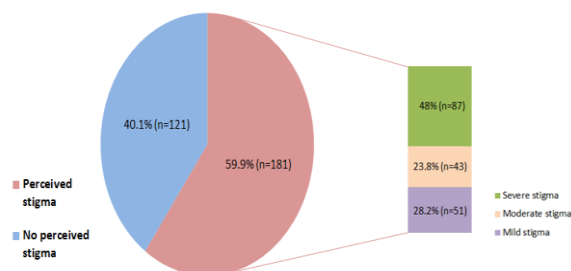
Ethical approval for this study was obtained from the Research and Ethics committees of the University of Port Harcourt Teaching Hospital before commencement of the study. Each potential participant was adequately informed about the purpose, nature and extent of the research before signing a consent form. Participants were assured of confidentiality and were, also, informed that refusal to give consent will not affect their treatment.

**RESULTS**

This study had a total of 302 respondents, comprising of 200 (66.2%) females and 102 (33.8%) males. Their ages ranged from 20 to 76years, with a mean age of 38.9±9.8years. The highest number of respondents 135 (44.7%) were aged 30-39years. Majority, 205 (67.9%) were married with 299 (99%) being Christians. About half, 152 (50.3%) of the population had secondary education while most respondents 241 (80.1%) were employed (Table 1).

A total of 181 (59.9%) of the respondents reported some form of perceived stigma. Among those that had perceived stigma, 87 (48%) reported severe forms while, 51 (28.2%) reported mild forms of stigma (Figure 1). Mean adherence was 94.8±12.5%. Among the study participants, 215 (71.2%) had good adherence (adherence of ≥95%) to HAART while, only 87 (28.8%) recorded poor adherence in the preceding week.

**Figure 1.** Prevalence and grades of perceived stigma among PLWHA



The PLWHA with perceived stigma had lower proportion of good adherence rate (68%) compared to PLWHA without stigma (76%) but, this difference in proportion was not significant ( $p=0.129$ ). Those with stigma

were, also, less likely to have good adherence ( $Odds\ ratio=0.67$ ; 95% CI: 0.40–1.13) but this was not significant. ( $p=0.129$ )

**Table 1.** Socio-demographic characteristics of respondents

Variable (N=302)	Frequency (%)
<b>Age</b>	
20-29	42 (13.9)
30-39	135(44.7)
40-49	83(27.5)
50-59	30(9.9)
60 and above	12 (4.0)
<b>Gender</b>	
Male	102 (33.8)
Female	200 (66.2)
<b>Marital Status</b>	
Single	62 (20.5)
Married	205 (67.9)
Divorced	8 (2.6)
Widowed	27 (8.9)
<b>Religion</b>	
Christianity	299 (99.0)
Islam	2 (0.7)
Traditional	1 (0.3)
<b>Education</b>	
None	1 (0.3)
Primary	50 (16.6)
Secondary	152 (50.3)
Tertiary	99 (32.8)
<b>Employment*</b>	
Employed	241 (80.1)
Unemployed	20 (6.6)
Retired	10 (3.3)
Student	12 (4.0)
Full time house wife	18 (6.0)

\*One respondent gave no information on employment

**Table 2.** Perceived stigma status and HAART adherence status of PLWHA

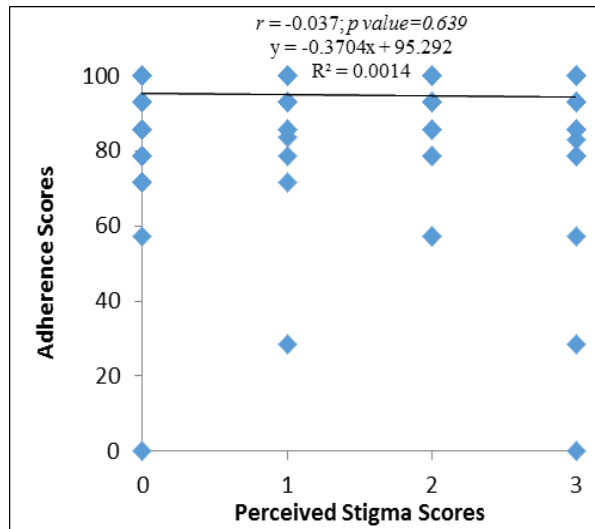
Stigma Status	HAART Adherence Status			
	Good Adherence n (%)	Poor Adherence n (%)	Total (%)	
Perceived stigma	123(68%)	58 (32%)	181(100)	
No perceived stigma	92 (76%)	29 (24%)	121(100)	
<b>Total</b>	<b>215 (71.2%)</b>	<b>87 (28.8%)</b>	<b>302(100)</b>	

Chi-Square=2.30;  $p=0.129$ ; Odds Ratio: 0.67 (95% Confidence Interval: 0.40–1.13)



Scatter plot in Figure 2 shows the relationship between adherence scores and perceived stigma scores. There was no significant correlation between adherence scores and perceived stigma scores ( $r=-0.037$ ;  $p$  value=0.639)

**Figure 2.** Correlation between adherence scores and perceived stigma scores among PLWHA



## DISCUSSION

The findings from this study reveal that two-thirds of study participants experienced perceived stigma. It also revealed that more than two-thirds of study participants were adherent to their antiretroviral treatment. In addition, perceived stigma was not associated with adherence to HAART among the study participants.

The high prevalence of perceived stigma among this study population is comparable to findings from other studies in South-South Nigeria and a rural population in India.<sup>26,27</sup> A higher prevalence of perceived stigma (95.8%) was, however, found in a qualitative study in South Africa.<sup>28</sup> Some other studies have reported lower prevalence of perceived stigma in comparison to the present study.<sup>29,30</sup> These studies were done in developed countries, where PLWHAs are less likely to be exposed to HIV stigma than in developing

countries due to their implementation of laws against discrimination.<sup>3</sup> Lower prevalence of perceived stigma may facilitate greater access and utilization of health care services in developed countries in comparison to developing countries.<sup>3</sup>

This study did not find any significant association between perceived stigma and HAART adherence among the study population. This is in consonant with a systematic review and meta-synthesis study of six out of seven longitudinal studies which reported a null finding between perceived stigma and HAART adherence, though 71% of the cross-sectional studies in the systematic review found a positive association.<sup>31</sup> Similarly, perceived stigma was not reported as a reason for poor drug adherence in a cross sectional study that used self-reporting to determine drug adherence in a tertiary institution in South-East Nigeria.<sup>32</sup>

This research finding is also supported by another cohort study in five cities in US where stigma was not a significant predictor of HAART medication adherence.<sup>13</sup> This null relationship may be explained by the fact that despite high level of perceived stigma being experienced by people living with HIV/AIDS, many have accepted it as part of life, thereby, developing resistance to the seemingly high perceived stigma which they felt. Rather, so many other factors like transfers to other location or travels, forgetfulness, drug reaction, out of stock, work demand, poor health care satisfaction and frequent shut down in public health care institutions following industrial actions may have mediated non-HAART adherence observed in this study population. However, in another study in South-East Nigeria, poor drug adherence was associated with stigma amongst other things.<sup>33</sup> In contrast to this

study, Waite *et al.*, found only moderate or high level of perceived stigma to be associated with poor HAART adherence.<sup>34</sup> Also, Rintamaki *et al.* identified stigma as a significant independent predictor of HIV medication adherence.<sup>35</sup> These findings may have also changed with time following several interventions and health education programmes geared towards improving access and uptake and utilization of HAART by increasing proportion of persons living with HIV/AIDS globally.

Again, with training and re-training of health care workers on management techniques in relating with patients, health care satisfaction by PLWHA may also have improved, such that the negative influence of stigma on adherence found by some studies seems to have been ameliorated by other factors. Hence, there appears to be no association between the high level of perceived stigma and drug adherence noticed in this study. Efforts, therefore, should be directed towards addressing stigma.

This study may be prone to information bias as perceived stigma is based on personal opinion and adherence is based on self-reporting method. However, measures of anonymity and confidentiality of information were adopted in this study to reduce information bias. Also, this research being hospital-based could limit the generalizability of the research findings to the larger population.

## CONCLUSIONS

There was no significant association between HAART adherence and perceived stigma among PLWHA in this tertiary health facility. The authors, therefore, advocate for further studies using analytical study designs to investigate the relationship between HAART adherence and perceived stigma among

PLWHA. Nonetheless, the high prevalence of perceived stigma reported among PLWHA uncovers the need to implement measures such as public health campaigns targeted at reducing stigma of PLWHA.

## ACKNOWLEDGEMENTS

The authors kindly acknowledge Dr Ibitein N Okefor and the management of Eagles Watch Research Centre and Care for the support during the period of the development of this manuscript. We also thank the reviewers for their thoughtful comments and suggestions.

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