Research

Medication Adherence and Health-Related Quality of Life amongst HIV Patients Receiving Care at Umuebule Cottage Hospital, Etche, Rivers State

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Abstract

Background: HIV treatment is available, free, and accessible for individuals who are infected. The study is aimed at determining the levels of medication adherence and health related quality of life (HRQOL) among HIV patients receiving care at Umuebule Cottage Hospital, Etche, Rivers State.
Method: This cross-sectional study recruited 430 adult clients who have been on ART for at least one year using a convenient sampling method. An average of 10 patients visits the facility on clinic days. After explaining the purpose of study and obtaining consent, patients who met the eligibility criteria were recruited on each clinic day for a period of 12 weeks, until the sample size was reached. Data was collected using semi-structured interviewer administered validated questionnaire; Morisky Medication Adherence Questionnaire (MMAS-8) and WHO-Quality of Life-BREF(WHOQOL-BREF), after a pilot study on 30 PLHIV from Okomoko general hospital, Etche. Data was analyzed with IBM-SPSS Version 25.
Results: The mean age of respondents was 35.9±10.9 years, 59.3% of the respondents' last viral load was suppressed, 19.1% had low level viremia, while (21.6%) were virally unsuppressed. Medication adherence levels were observed to be good (67.7%), poor (32.3%) respectively, while HRQOL of respondents were found to be poor (56.9%) and good (43.1%).
Conclusion: A significant proportion of the respondents adhere to their medication whereas most of them had poor HRQOL. There is need for hospital management to collaborate with social welfare organizations to support PLHIV to set up means of earning to enable them to provide their basic needs for improved HRQOL.

Keywords: People living with HIV, PLHIV, health related quality of life, HRQOL, Human Immune-Deficiency Virus, HIV, anti-retroviral therapy, ART, Medication Adherence, WHOQOL-(BREF)

Introduction

HIV/AIDS is a disease of global importance that affects the body's immune system, progressively leading to death if left untreated.[1] The disease can affect different aspects of health-related quality of life (HRQOL) such as physical, social, psychological and even environmental aspects.[2] However, adherence to antiretroviral therapy (ART) can improve the immune status, causing viral suppression and HRQOL of life will be similar to those uninfected. Global statistics show that about 37.7 million people were living with HIV, 1.5 million people became newly infected by the virus, and 680 000 people died from AIDS-related illness in 2020. Children <15years of age account for about 1.7 million cases and

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adults account for 36.0 million for which 53% were women and girls. About 84% of infected individuals know their HIV status and 27.5million were accessing antiretroviral therapy.[3] HIV is a major contributor to the global burden of disease. In 2010, HIV was the leading cause of disability- adjusted life years worldwide for people aged 30–44 years, and the fifth leading cause for all ages. Global AIDS-related deaths peaked at 2·3 million in 2005, and decreased to 1·6 million by 2012.[4]

Nigeria is the most populated country in Africa and has the second-highest prevalence of HIV/AIDS with a prevalence of 1.4% (1.9 million) among adults 14-49yrs, 0.2% among children aged 0-14yrs[3]. The South-South region of the nation has the highest HIV prevalence rate of 3.1%, according to the most recent epidemiologic data, while Rivers State, which is a part of the South-South region, is third in the nation with a prevalence rate of 3.8%.[5]

HIV treatment is available, free and accessible for individuals who are infected. However, despite the availability of drugs, accessibility of treatment centers, provisions of highly active antiretroviral drugs that are given free to those who are enrolled into the treatment program, some patients still come down with high viral load, low CD4 cell count which are indicative of their immune status, and opportunistic infections that negatively affect their HRQOL.[5]

In addition to wasting healthcare resources, non-compliance with ART increases viral load, opportunistic infection susceptibility, risk of infection transmission, evolution of medication resistance, treatment failure, which may require a switch to second- or third-line regimen; lower QOL, productivity, and life span.[6] Partial or poor adherence of less than 95% can result in the restart of rapid replication, mutation to treatment-resistant strains of HIV, and a lower patient survival rate, poor viral suppression rate, vertical transmission of HIV infection from mother to child.[6,7]

Poor QOL has an adverse effect on drug adherence over the long term. It is critical that an assessment of their QOL become more significant than an assessment of their lifespan quantity in order to increase the duration and quality of survival of persons living with HIV who are receiving antiretroviral medication.[8]
This study assessed the level of medication adherence and HRQOL amongst HIV patients receiving care at Umuebule Cottage Hospital

Method

Study design: A descriptive cross-sectional study design was carried out in Umuebule, Etche LGA of Rivers State to determine the medication adherence and HRQOL amongst HIV patients receiving care at Umuebule cottage hospital.

Study setting: The study area was carried out in Umuebule, Etche LGA of Rivers State. Etche is one the local government areas that make up the 23 LGAs in Rivers State

Study Population: The study population was the adult HIV patients receiving care at Umuebule Cottage Hospital estimated to be about 900 enrolled in the antiretroviral treatment program, for at least one year.

Sample size determination: The sample size (n) was determined using the sample size for proportions formula.

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

Where, n =the desired sample size.
Z = the standard normal deviate, is set at 1.96 which corresponds to 95% confidence level.
P = prevalence or proportion of the attribute of interest that is present in the population; P = 54%: 54/100 = 0.54 Medication adherence;[7] q = 1-p; d = degree of accuracy desired, is set at 0.05; n = 381 sample size n = 381; Provided for 10% non-response rate = 39; n = 381 + 39 = 420

Sampling Method: Convenient sampling was used to recruit participants for the study. On the average 10 patients are seen each clinic day, and these include old and new patients, for a period of 12 weeks. A convenient sampling method was used to select any patient who meets the eligibility criteria after explaining the purpose of study and consent obtained, until the sample size of 430 was met.

Study Instrument/Tool: A Semi-structured, interviewer – administered questionnaire was used for the study and the sections of the instrument were five (5);
Section A: Socio-demographic data; Section B: Social and lifestyle history; Section C: Medical history; Section D: Medication Adherence 8- Item MMAS; Section E: WHOQoL-BREF Questionnaire.

Administration Method: Face to face interview was carried out amongst respondents in the same population.

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The questionnaire was interviewer administered to the HIV patients in clinic and pharmacy. The data collected included: demographic information (age and gender), current viral load result, medication adherence history, medical history, overall health-related quality of life.

Data Validity and Reliability: Data tool was pretested amongst thirty (30) PLHIV receiving medication in a different facility of care.

Data Collection: Face to face interview as patients present in clinic for clinic appointments for the period of 12 weeks and data entry was done using Microsoft Excel 2016

Data Analysis: Qualitative data was collected, collated, cleaned and analyzed using SPSS Version 25 statistical software and ranked using Likert scale.

Descriptive Statistics: Categorical data was presented in frequencies and percentages, while continuous data was presented in means and standard deviations and WHOQOL scores (Low;0-≤45, Moderate; 46-65, High; 66-100),[9] Medication adherence score (Low;0-≤65, High; 66-100)[7]

Inferential Statistics: Chi-Square and bivariate Logistic regression analysis were used to assess the association of medication adherence and quality of life. All analysis was done at a 95% confidence interval and a p-value<0.05 was considered significant.

Ethical Consideration: Ethical approval to carry out the study was obtained from the Ethics committee of the University of Port Harcourt (UPH/CEREMAD/REC/MM84/013) and a verbal permission was obtained from the hospital medical director before commencement of the study. Informed consent was obtained from each participant before they were included into the study and this was after the procedures of the study has been discussed with the participants. All personal information of the participants remained confidential and not published in any way. During the interview session, privacy was be maintained between interviewer and participant.
There was no harm or withdrawal of treatment services for the participants who refused to participate in the study.

Results

A total of 430 questionnaires out of 440 were properly filled and subjected to analysis. Hence the study had a completeness rate of 97.7%

Table 1: Distribution of age, sex, tribe, education, and marital status of respondents

Variable	Frequency n=430	Percent (%)
Age (years)		
20-29	121	28.1
30-39	160	37.2
40-49	97	22.6
50-59	36	8.4
≥60	16	3.7
Mean age: 35.9±10.9 years		
Sex		
Male	231	53.7
Female	199	46.3
Education		
None	8	1.9
Primary	35	8.1
Secondary	215	50.0
Tertiary	172	40.0
Marital status		
Single	157	36.5
Married	160	37.2
Cohabiting	28	6.5
Separated	45	10.5
Divorced	15	3.5
Widowed	25	5.8

Table 1 Above shows that the age group between 30-39 years with a mean age of 35.9±10.9 had the highest distribution of respondents 160(37.2%) while 60years and above had the least respondents. Additionally, 231(53.7%) respondents were males, and majority of the respondents were married 160(37.2%). Also respondents with secondary level of education were 215(50.0%).

Table 2: Distribution of employment status, occupational category, religion, income level, and living status

Variable	Frequency n=430	Percent (%)
Employment status		
Employed	214	49.8
Unemployed	216	50.2

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Variable	Frequency n=430	Percent (%)
Occupation category		
Military or other uniformed services	24	11.2
Professional/high managerial occupation e.g., Doctor, Lawyer, Engineer, Accountant	38	17.8
Intermediate/lower managerial occupation e.g., Banker, Teacher	73	34.1
Non-manual skilled occupation e.g., Secretary, Business	73	34.1
Manual skilled occupation e.g., Tailor, Mason/brick layer, Carpenter	51	23.8
Partly skilled occupation e.g., Clerical officer, Trader	47	21.9
Unskilled occupation e.g., Janitor, day or night watchman	37	17.2
Never worked/Long term unemployment	56	25.9
Others	31	14.5
Religion		
Christians	390	90.7
Islam	16	3.7
Traditional	13	3
Others	11	2.5
Income level (₦)		
≤30000	119	27.7
30001-60000	122	28.4
60001-90000	85	19.8
90001-120000	58	13.5
>120000	46	10.7
Living status		
Living alone	203	47.2
Live with friends	60	14.0
Live with spouse and children	130	30.2
Live with spouse and relatives	37	8.6

Table 2 Shows that 214(49.8%) of the respondents had some form of employment, 73(17.0%) had professional/high managerial jobs and non-manual skilled jobs respectively. Additionally, 390(90.7%) Christians responded, while 122(28.4%) respondents earn between 30001-60000. Also, the table shows that 203(47.2%) respondents live alone.

Table 3: Level of medication adherence using dichotomous scale

Variable	Frequency	Percentage (%)
Poor (≤5)	139	32.3
Good (6-8)	291	67.7

Table 3 above shows the level of medication adherence on a dichotomous scale. According to results, 67.7% of respondents had good adherence to medication while 32.3% had poor adherence.

Table 4: HRQOL Mean of Domain scores on a scale of 100

Domain	Mean ± SD
Physical domain	70.0±16.0
Psychological domain	66.0±14.6
Social domain	57.1±23.8
Environmental domain	54.7±17.5
Overall mean score of HRQoL	**61.95±15.45**

Table 4 shows mean scores of the overall health-related quality of life of respondents with highest values seen in the physical domains followed by psychological domain.

Table 5 It shows that 245(56.9) of the respondents had poor HRQoL while 185(43.0) had good HRQoL respectively.

Table 5: Overall HRQoL of respondents on a dichotomous scale

Variable	Frequency	Percent (%)
Poor (0-65)	245	56.9
Good (66-100)	185	43.1

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Table 6: Relationship between medication adherence and HRQOL

Variable	Health related Quality of life		x^2(p-value)	OR (95% C.I.)
	Poor	Good		
Medication adherence				
Poor	80(57.6)	59(42.4)	0.028(0.867)	1.0(0.7-1.6)
Good	165(56.7)	126(43.3)		

Table 6 shows no statistically significant relationship between HRQOL and medication adherence

Discussion

Adherence to antiretroviral therapy has proven to be effective in the treatment of those infected with HIV as they benefit from improved immunity devoid of opportunistic infection, achieve viral suppression, and low transmission. Thereby, improved QOL and productivity is achieved. High levels of antiretroviral therapy (ART) adherence are required to achieve long-lasting viral suppression.

The level of medication adherence showed that most of the participants had good level of medication adherence, and some of them had poor medication adherence. The level of medication adherence was far higher in the study in Ilorin, Nigeria,[11] Ghana[12] and a study in India.[13] This finding was different from the finding of a study in Brazil[14] who observed poor adherence to medication. The respondents who adhered more to their medication were found to be virally suppressed in this study. Their motivation to adherence to treatment may be due to experience with poor adherence and it's deleterious effects like occurrence of opportunistic infection, high chance of transmission especially vertical transmission as a result of high viral load. Hence, they may not want to go through such ordeal again.

The study showed that most of the respondents had good health-related quality of life. The majority of them were satisfied with their health, most of them were not limited due to physical pain and a significant proportion of the respondents felt that they were not too dependent on the medical treatment. Some of the respondents felt they were not enjoying their lives and hence, do not have a meaningful life. A lot of the respondents could concentrate to a large extent, a significant proportion of the respondents feel they were safe daily, a lot of them reported a healthy physical environment and most of them felt they do have a lot of energy.

The level of health-related quality of life showed overall good quality of life scores. Most of the respondents had poor health-related quality of life, a good proportion of the respondents had good health-related quality of life. A study in Kaduna Nigeria reported a slightly better health-related quality of life among the participants.[15] The health-related quality of life in this study was different from what was observed in Mizan-Tepi University Teaching Hospital (MTUTH) Ethiopia[2] and in the Philippines[16] who observed good HRQoL respectively.

The viral load of the respondents had no significant association with health-related quality of life. This may be because of presence of comorbidities which may have negative impact on the respondents. This is similar to the finding of a study in South Africa[11] and a meta-analysis reported that there is no significant association between medication adherence and higher or lower QoL,[18] but different from what was a Phillipines study that reported that higher CD4 count and, being on ARV for more than 3 months was associated with good QOL[16] and a study from South-Eastern Nigeria, indicated that treatment adherence positively predicted the characteristics of health-related quality of life that dealt with physical health, social relationships, and cognition, but not those that dealt with treatment impact[19].

Implication of study: There are few studies centered on both health-related quality of life and medication adherence simultaneously which makes it of upmost importance to carry out this study. Thus, providing valuable knowledge in addition to the existing knowledge for future researchers and academia.

Furthermore, when this study is published, it will aid in data-driven decision making for implementation of focused interventions such as:

- Encourage HIV/AIDS Infected Patients to engage in activities that improves health-related quality of life
- Develop methods to disclose outcomes of patients viral load results to improve adherence to medication, give special attention for medication adherence and administer drugs with reduced

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quantity of doses and frequency with management of comorbidities

Research Limitations: The study participants could not respond to some personal questions like income levels and current sex which might affect the results of the associated factors to medication adherence and HRQOL. Just like every other cross-sectional study, the results cannot be used to derive causal relationship.

Strengths of the Study: The research was conducted in a community facility and all the participants were exposed to same environmental factors and disease, they also accessed medical aid and drugs from the same health facility. This shows help calculate prevalence of medication adherence and HRQOL

Conclusion

This study has shown that a significant proportion of the respondents receiving care at Umuebule Cottage Hospital, do not adhere strictly to their medication. While most of them have poor health-related quality of life, which showed no relationship with adherence to ART. Factors like employment status, marital status, dietary pattern, physical activities, and treatment of comorbid conditions were the determinants of health-related quality of life. There is need for stakeholders to pay more attention to medication adherence and health-related quality of life of HIV/AIDS infected patients receiving treatment.

Declarations

Ethical consideration: Ethical approval for this study was given by the University of Port Harcourt Ethics Committee Board with approval number UPH/CEREMAD/REC/MM84/013.

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IA: Design of questionnaire, study design, supervision, and review.
IJE Data analysis and preparation of manuscripts
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