

## **The Impacts of Anti-Retroviral Therapy on Quality of Life of People Living with HIV & AIDS in Nigeria's Delta Region**

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### **Abstract**

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Human Immunodeficiency Virus (HIV) infection remains a major global problem. Advances in the development and use of antiretroviral therapy (ART) have made HIV clinically manageable. However, there are lingering concerns on the effects of treatment on the general quality of life of infected individuals. The aim of this study was to assess the impacts of antiretroviral therapy on the quality of life of people living with HIV and AIDS (PLWHA). A descriptive cross-sectional study was conducted using a purposive sampling method on 510 adults. Participants were recruited from four hospitals in Nigeria. Demographic data, quality of life attributes, and type of ART received were collated with a summarized World Health Organization (WHO) Quality of Life HIV instrument. Qualitative and quantitative measures were used to test the hypothesis that ART use leads to significant improvements in quality of life. Significant differences ( $p < 0.05$ ) were observed between the mean scores of quality of life of respondents on treatment and those not on treatment in four of the five domains investigated. The findings demonstrated that ART use significantly improved overall quality of life for PLWHA and provides scientific underpinning for policy mechanisms aimed at promoting patient enrolment in ART treatment programmes in Nigeria's Delta region.

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**Keywords: HIV, AIDS, World Health Organization, Quality-of-Life, Nigeria, Policy**

### **1.0 Introduction**

Human Immunodeficiency Virus (HIV) infection and Acquired Immune Deficiency syndrome (AIDS) is a viral disease that targets the immune system of infected individuals, culminating in a progressive reduction in the ability of the host's immune system to fight off infections. In addition to its biological and physiological effects, HIV and AIDS also cause adverse effects on the socio-economic and psychological well-being of individuals infected with the virus (Herrmann et al., 2013). Since it began in 1981, HIV and AIDS remains a major global public health problem. This disease is endemic in Sub-Saharan Africa which accounts for about 68% of the 37.9 million people living with HIV and AIDS in the world (UNAIDS 2018). According to the UNAIDS report, in 2018 there were 1.9 million people reported to be living with HIV and AIDS in Nigeria, with a prevalence rate of 1.5% among adults aged 15 – 49 years. In Nigeria, the high-risk populations include homosexual men and women, and injection drug users. However, the scourge of HIV and AIDS has, nonetheless, spread through all social and demographic classes (NACA, 2011). Quality of Life (QoL) refers to an individual's perceptions about their satisfaction with respect to goals, standards, values, and expectations as well as the overall sense of mental and physical health over a period (Campbell et al., 2019; Power, 1998). A recent scientific definition of QoL has described it as one's psychological and functional status and general satisfaction with life (Thiago et al., 2018).

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Different from other physical and physiological monitoring parameters such as the CD4 count and the viral load estimates, the QoL parameter has become particularly important in evaluating the health status of people living with HIV and AIDS (PLWHA) as it relates to the impact of several socio-demographic conditions as well as treatment and nutritional practices (Motilewa, Ekanem, Onayade, & Sule, 2015). To measure the QoL of PLWHA, the WHO introduced the WHOQoL-100 and the WHOQoL-BREF instruments, the latter of which is a short form that facilitates rapid application and has been recommended to be reliable and valid for the evaluation of QoL (Shan et al., 2011). Antiretroviral therapy (ART) refers to the use of a combination of antiretroviral drugs to combat the replication of the viruses within host cells. A report by the National Agency for the Control of AIDS in 2011 (NACA, 2011) estimated that nearly a million of the estimated 3.5 million PLWHA in Nigeria are currently on active ART while a report in 2015 (NACA, 2015) showed that only about 51% of adults have access to ART, a figure expected to improve to 80%. ART has been demonstrated to be very effective in the management of HIV and AIDS in PLWHA with significant reductions in mortality rate and general physiological well-being of the individuals (Liping, Peng, Haijiang, Lahong, & Fan, 2015). However, another important treatment outcome being investigated is the efficacy of HIV and AIDS management with ART in improving other domains of QoL including their socio-economic and psychological well-being [Beard, Feeley, & Rosen, 2009; Zubaran et al., 2014]. Several researchers have demonstrated that the use of ART, while being able to successfully manage the biological effects of the disease, may not have beneficial effects on the social and physiological factors linked to QoL of individuals suffering from the disease (Adedimeji, Alawode & Odutolu, 2010; Duracinsky et al., 2012). Although it is known that PLWHA generally have lower QoL scores than other individuals in the population (Xie, Zheng, Huang, Yuan, and Lu, 2019), uncertainty still exists regarding the impact of ART on QoL of PLWHA, especially in Nigeria's Delta region with the highest prevalence of HIV in Nigeria (WMA, 2013). In this study, the impact of ART treatment on the Quality of Life of PLWHA in Nigeria's Delta region was investigated.

## **2.0 Materials and Methods**

### **2.1 Study Setting and Participants**

This cross-sectional descriptive study was conducted in four hospitals offering comprehensive HIV care services. These centres recorded high populations of PLWHA receiving treatment compared to other centres in the region. A sample size of 510 participants was adopted for this study. Using a purposive sampling technique, participants that met the inclusion criteria were recruited for the study. Adults living with HIV and AIDS attending any of the antiretroviral clinics in the selected hospitals and were on ART or immunopius and septrin treatment for at least six months were recruited as PLWHA and on ART. Adults living with HIV and AIDS attending any of the antiretroviral (ARV) clinics in the selected hospitals and were not on ART or had not received ART for up to six months were recruited as PLWHA not on ART. Pregnant females, children, and individuals deemed mentally unstable were excluded from this study.

### **2.2 DataCollection**

Questionnaires, semi-structured interviews and patients' records were used to collect data. The Questionnaire used to collect information comprised three sections viz: socio-demographic variables, treatment received, social support. A fourth section which adapted the World Health Organization (WHO) Quality of life HIV instrument (WHOQoL BREF) was incorporated. The adapted WHO instrument comprised five domains: physical health, psychological health, social function, environment, and overall impression of health. Each of the five domains had facets containing 2 to 7 items. Two additional sections (an interview guide and a section for clinical variables) were also incorporated into the questionnaire. The questionnaire was translated into pidgin English (widely spoken in Delta State) and both the English version and the Pidgin version were administered depending on the literacy of the participant. All data were collected by five trained research assistants fluent in both English and Pidgin. Some of the data collected were stored in recorded tape, which was reviewed, edited and transcribed.

### **2.3 Data Analysis**

All individual items on the WHOQoL BREF instrument were rated on a 5-point Likert scale where 1 indicated low negative perceptions and 5 indicated high positive perceptions. For questions framed in the negative sense, the scale was reversed so that high scores reflected better QoL scores. Responses to individual items in each domain were reported in terms of mean scores with a maximum score of 5. In order to be comparable with WHOQoL-100, each score was then multiplied by 4 and thus domain scores ranged from a minimum score 4 to a maximum score of 20. Statistical software package for Social Sciences (SPSS) version 15 was used to analyse the data.

A descriptive statistical analysis was performed on the sample profile and quality of life using frequencies and percentages. T-test, ANOVA, Kruskal Wallis tests were used where applicable at a significance level of  $p < 0.05$ .

#### 2.4 Ethical Considerations

In line with the WMA Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subjects (WMA, 2013), ethical approval for this study was obtained from the Delta State Ministry of Health, Asaba. Approval was also obtained from each of the four clinics and permission was granted for data collection. Every participant provided a signed informed consent. Participation was completely voluntary and refusal to participate had no effect on care provision to the individuals. Utmost confidentiality was also ensured and collected data were only accessible to the researcher and research associates.

#### 3.0 Results and Discussion

A large proportion of the respondents in this study (80%) were actively on antiretroviral therapy as shown in Figure 1a. Thirty of the respondents (6%) were on immunopius and septrin while 72 respondents (14%) were not on any treatment. As shown in Figure 1b, 412 respondents (94%) on treatment affirmed that their health status had improved since the beginning of treatment. This study supported other studies that demonstrated that the introduction of combination antiretroviral therapy dramatically improved life expectancy and overall health status of PLWHA (Hsiao & Hewitt 2002; Grierson et al., 2004). Among the respondents on ART, 13 (3%) indicated fluctuating health, 9 (2%) indicated that they had not noticed any change, while 4 (1%) indicated that their health had declined since beginning treatment. One limitation of this study, however, was that adherence was not systematically measured and as such no correlation could be drawn between the general perceived improvements in health status of patients on ART.

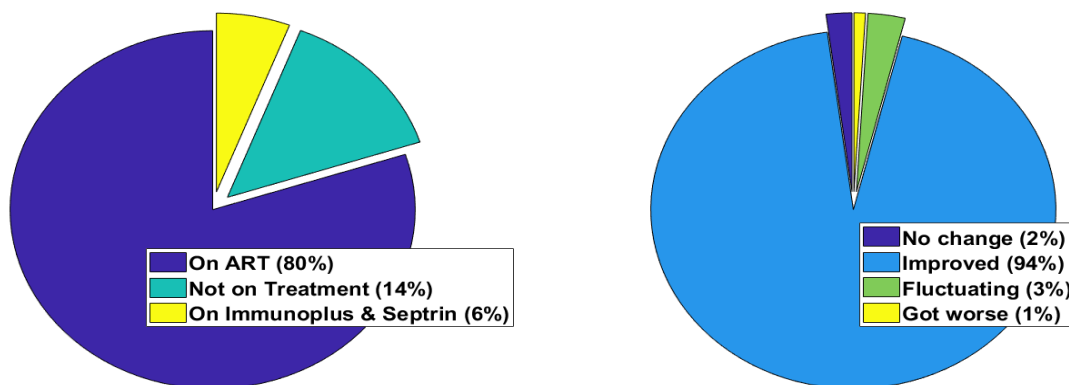


Figure 1: Respondents' treatment regimens (1a) and perceptions about their health status (1b)

HIV care is necessary to maintain health in infected individuals and has greatly been enhanced with the increase in access to ART in resource limited countries such as Nigeria. Global intervention programmes such as the US Presidential Emergency Plan for Aids Relief (PEPFAR, 2003) have greatly increased the number of Nigerians with access to ART. Antiretroviral drugs were given free to all PLWHAs in all the centres sampled in this study as confirmed by the respondents. Despite this availability, however, the proportion of respondents in this study not on active antiretroviral therapy (20%) raises public health concerns. Reasons for non-enrolment in antiretroviral therapy included stigmatization, adverse effects of drugs, as well as misinformation. Some respondents expressed the opinion that the disease is terminal whether treatment regimens are adhered to or not. The respondents on antiretroviral therapy reported the following side effects: deep sleep, deafness, anaemia, excessive weight gain, and extreme dizziness with inadequate food. A respondent in Central Hospital, Warri who was on AZT (Azidothymidine), 3TC (Lamivudine) and EFV (Efavirenz) reported sleep disturbances (bad dreams). Respondents in Baptist Hospital, Eku on D4T (Stavudine) who were experiencing excessive sleep and excessive weight gain, reported that their drug was changed to AZT. HIV care, besides being crucial to the reduction of morbidity and mortality in infected individuals, is also indispensable in preventing the spread and progression of the disease (Dalhatu et al., 2016).

Adherence to antiretroviral therapy among patients has been demonstrated to have positive measurable biological outcomes in individuals infected with the virus, having effect on the HIV RNA levels, disease progression,

and CD4 lymphocyte levels (Oguntibeju, 2012). A total of 318 of the 438 respondents (73%) that were on either ART or immunoplus and septrin had been on treatment for at least 1 year (Figure 2).

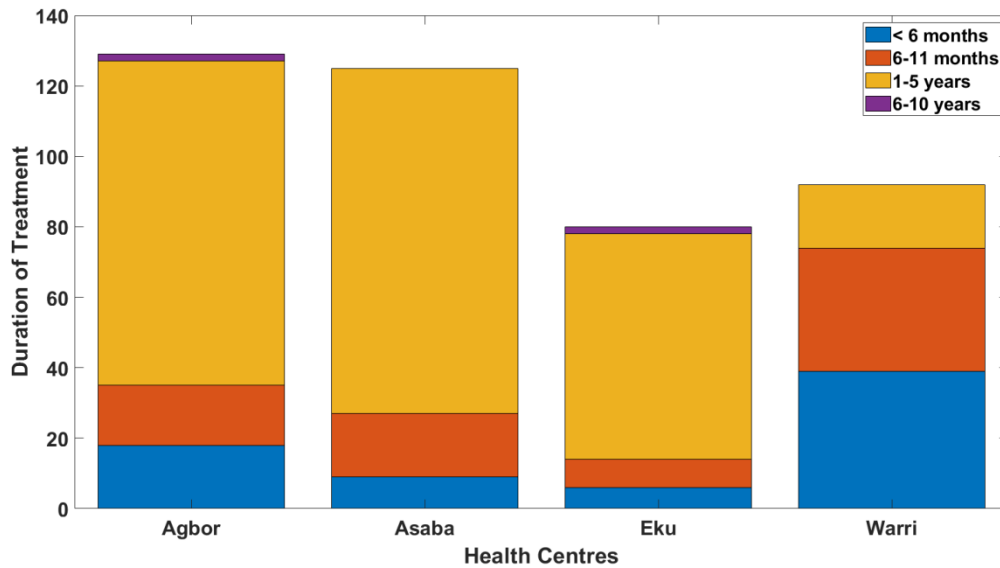


Figure 2: Duration of treatment of PLWHA.

Figure 3 shows the distribution of the respondents according to their WHO stages of disease as documented in their clinical reports. 241 respondents (47%) were in Stage 2, 134 (26%) were in Stage 1, 131 (26%) were in stage 3, and 4 (1%) were in stage 4 of the disease. The WHO clinical stage has been shown to have a significant impact on the psychological and environmental domains of health-related quality of life of PLWHA (Liping et al., 2015). More importantly, however, this index is a clear indication of the proportion of PLWHA at risk of mortality and morbidity in Delta State, Nigeria. Over a quarter of infected individuals in this study were presented in clinical stages 3 and 4 of the disease and reflects the demand for antiretroviral medications and aggressive management and care. Still, the proportion of patients in stage 1 may be an indication of the efficacy of routine testing practices in Delta State as patients in this stage are characteristically asymptomatic.

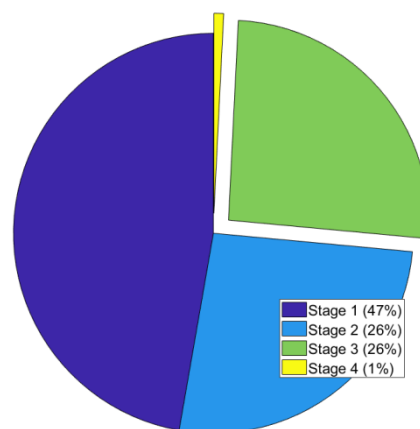


Figure 3: Respondents' clinical stage of HIV infection.

The mean scores of quality of life of PLWHA on treatment showed a statistically significant difference in all the domains except in the environmental domain (Figure 4). This finding is consistent with those of Fatiregun, Mofolorunsho, & Osagbemi (2009) who observed poor QoL scores in patients that were on ART in Kogi State,

Nigeria. As observed by Ndubuka and his colleagues (Ndubuka, Lim, Van der Wal, & Ehlers, 2016), poor QoL scores in the environmental domain may be attributed to lack of social support and stigmatization, amongst others. For respondents on treatment, it was observed that the PLWHA attributed their improved health and quality of life to treatment. However, they consistently indicated the need for better adherence to treatment and strict compliance with hospital appointments. Smeltzer, Bare, Hinkle, & Cheever (2008) note that the goals of treatment included maximal and sustained suppression of viral load, preservation of immunologic function and improved quality of life.

The PLWHA on anti-retroviral therapy or immunoplus and septrin had the highest scores in all the domains compared to those not on treatments.

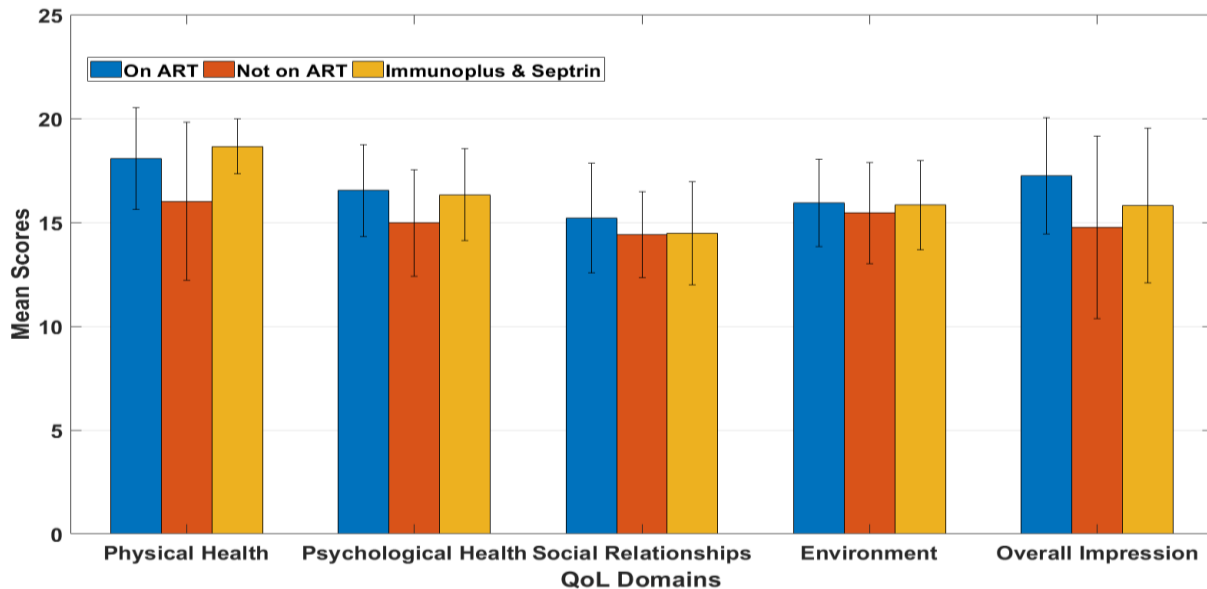


Figure 4: Impacts of treatment on Respondents’ Quality of Life in different domains.

Figure 5 shows that respondents on treatment (ART or immunoplus and septrin) in Central Hospital, Warri and Central Hospital, Agbor had significantly higher Quality of Life scores than those not on treatment ( $p < 0.05$ ). There was, however, no significant difference between the Quality of Life scores of both sets of respondents in Federal Medical Centre, Asaba and Baptist Hospital, Eku. The findings of better QoL scores in the physical, psychological, social and overall wellbeing domains in PLWHA on treatment in this study is consistent with those of several researchers (Mannheimer et al., 2005; Rosen, Ketlhapile, & Desilva, 2008; Campos, César, & Guimarães, 2009). The development of ART and its continued availability has resulted in a shift in the view of PLWHA that the disease is no longer fatal but chronic and manageable and this has probably contributed to the higher QoL scores observed among patients undergoing treatment. ART-related improvement in QoL as observed in this study necessitates the advancement of measures to facilitate improved access to ART for all PLWHA.

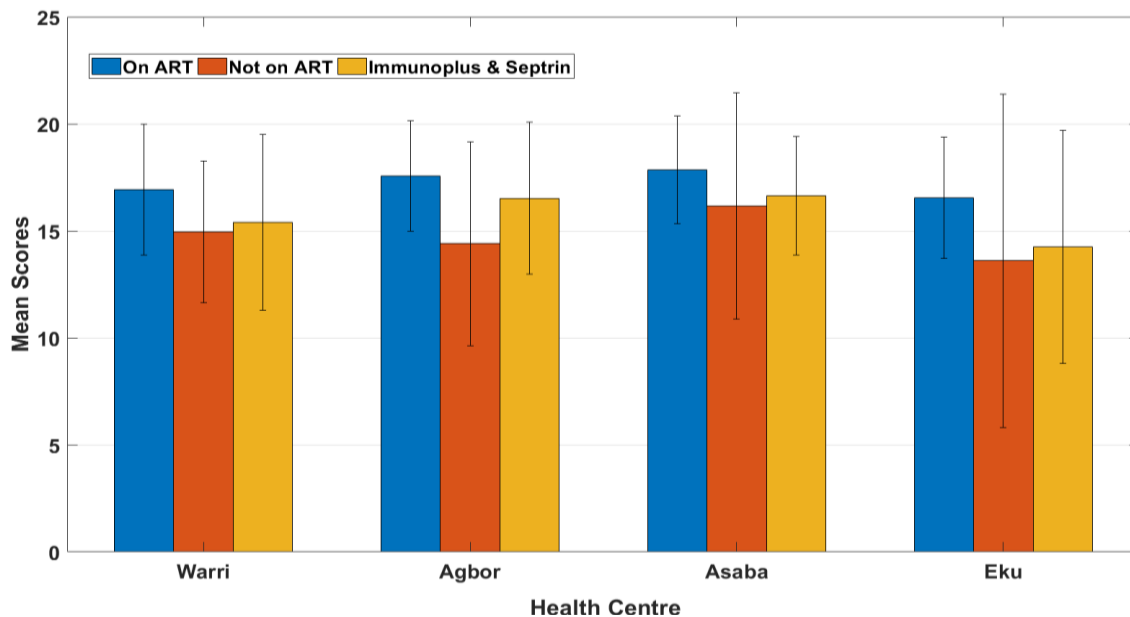


Figure 5: Impacts of treatment on Respondents' Quality of Life in different Health Centres.

#### 4.0 Conclusion

ART has been demonstrated to provide positive biological outcomes in individuals infected with HIV. In this study, we report the positive impact of ART on the Quality of Life of people living with HIV and AIDS as measured in the psychological, physical, and social domains. It is recommended that the focus of policy makers and health care givers should be directed at maximizing the positive effects of ART through continuous patient education and access to treatment, especially in resource-limited settings. Willingness to enrol in ART programs should also be encouraged by addressing issues of stigmatization and discrimination which have been demonstrated to also contribute negatively to patients' treatment-seeking behaviours. Side effects arising from the use of ARTs which is another factor contributing to patient refusal to enrol in treatment programs or adhere to treatment regimens can be mitigated by routine clinical assessment with the view to potentially maintain adherence with fewer undesired side effects, counselling, and general patient education on the benefits of ART.

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