Original Article

# Disability and Quality of Life among People Living With HIV/AIDS in Ibadan, Nigeria

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## ABSTRACT

***Background:*** Improvements in medical and pharmacologic management of HIV/AIDS has led to increased life expectancy for the afflicted individuals. Hence, the focus of management for People Living With HIV/AIDS (PLWHA) has shifted to issues relating to function and Quality of Life (QoL). Information is scarce on disability issues and quality of life among people living with HIIV/AIDS in Nigeria. This was the premise of this study that assessed the level of disability and how it related to quality of life among people living with HIV/AIDS in Ibadan, the largest city in Nigeria.

***Methods:*** 360 PLWHA (274 females; 86 males)aged 37.79±9.37 years participated in this study. They were recruited from the anti-retroviral clinics of one secondary and one tertiary healthcare facilities in Ibadan, Nigeria. Disability and QoL were assessed using the 12-item WHO Disability Assessment Schedule (WHODAS 2.0) and the WHOQOL_HIV Bref respectively. Data were analysed using Chi square and Kruskal Wallis test at $p = 0.05$.

***Results:*** Almost a quarter (23.6%) reported being currently ill, with HIV/AIDS-related symptoms accounting for the highest perceived illness (42.5%).Majority of these participants (71.1%) had mild to extreme disabilities. There were no significant associations ($p > 0.05$) between disability and each of age, sex and employment status. Disability was however, significantly associated with level of education, alcohol use, CD4 count, history of tuberculosis and QoL ($p < 0.01$).

***Conclusion:*** Disability was relatively high among people living with HIV/AIDS in Ibadan, Nigeria. Although mostly rated mild, disability was associated with poor QoL. This underscores the need for early identification of disability in people living with HIV/AIDS to minimise its impact on their QoL.

## INTRODUCTION

Approximately 35.3 million people are living with HIV globally and more than two-thirds of this population reside in Sub-Saharan Africa.[1]With the introduction of Highly Active Anti-Retroviral Therapy (HAART), there has been a growing increase in the life expectancy of people living with HIV/AIDS.[2]Consequently, HIV/AIDS has become a long-term or chronic illness in which infected individuals experience complex health-related challenges of the disease and its associated treatments. [3, 4,]Many PLWHA find it challenging to attend to daily tasks of living, participate in moderate to vigorous physical activities, or have sufficient energy or vitality to engage in an active social life.[5] This is because the illness predisposes them to multi-system dysfunctions that can cause functional limitations thereby compromising both their independence and their quality of life. According to Madden et al[6] functioning and

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disability are relevant outcomes of studies involving patients with chronic conditions.

Disability in People Living With HIV/AIDS (PLWHA) include fatigue, neuro-cognitive impairments, weakness, pain, difficulties with activities of daily living as well as challenges with social and/or community participation.[7,8]It could be episodic in nature, whereby health challenges fluctuate on a daily basis or experienced over the entire course of living with HIV.[9]The impact of the disease on the immune system, the undesirable side effects of HAART, pulmonary complications (e.g TB and pneumonia), sensory impairments [10, 11]and the indirect effect of aging may promote the development of disability for PLWHA. In addition, a CD4 T-cell count less than 500 has been associated with physical limitations and disability. [12]

With increased longevity in PLWHA, Quality of Life(QoL) has become an important focus for researchers and healthcare providers.[13]PLWHA struggles with numerous social problems such as stigmatization, poverty, depression, substance abuse and cultural beliefs, which can affect their QoL from both the physical health aspect and the mental and social health points of view.[14, 15]Thenegative impact of HIV/AIDS on the QoL of the individual progresses as the HIV infection progresses. [16]Assessing Health-Related Quality of Life (HRQoL) is useful for documenting patients' perceived burden of chronic disease, tracking changes in health over time, assessing the effects of treatment and quantifying return on health care investment.[17]

Early diagnosis and/or recognition of disability are important to minimise its negative impact on the infected individuals, their family and the society at large. For a long time, most studies on disability in the context of people living with HIV/AIDS were from high income countries. [9,18,19] Data from low-income countries are still evolving. Whilst HIV/AIDS has been broadly studied in Nigeria in terms of population prevalence, incidence, quality of life, clinical manifestations and prevalence of depression and depressive symptoms,[20, 21, 22] its impact in terms of other disabilities has not received proper attention. In addition, studies evaluating disability among PLWHA in Nigeria are based on retrospective review of cases. Information on this subject is important to identify individuals at risk of developing disability and for the development and implementation of strategies to promote functional independence among PLWHA in Nigeria.

## Methods

The study was approved by the University of Ibadan/University College Hospital Health Research Ethics Committee. PLWHA who were at least 18 years old and have been on HAART for upward of 6 months prior to this study were invited to participate in this study. Exclusion criteria were presence of an acute infection or opportunistic AIDS-defining illnesses. Participants were recruited from the anti-retroviral clinics of a tertiary and a secondary healthcare facility in Ibadan, Nigeria. Informed consent was obtained after the purpose and procedure for the research have been explained to prospective participants. Information on socio-demographic and clinical characteristics was self-reported by the participants. The 12-item World Health Organization Disability Assessment Schedule (WHODAS 2.0) was used to measure disability among the participants. The WHODAS 2.0 provides a profile of functioning and disability that is reliable and applicable across cultures in all adult populations.[5]It has been internationally validated for assessing disability levels in the general population and in specific group. It is scored on a 5-point likert scale and obtainable range of scores is from 12 representing no disability (best functional ability) to 60 indicating extreme or maximum disability (poorest functional ability).

The WHOQOL_HIV Bref, a disease-specific measure of quality of life, was used to assess the quality of life of the participants. It comprises 31 items distributed into six domains measuring Physical Health, Psychological Well-being, Level of Independence, Social Relationships, Environment and Spiritual/religion. The instrument has been

validated across cultures. Each item is scored on a 5-point likert scale where 1 indicates low perceived QoL and 5 indicates high perceived QoL. Scores for items in each domain are summed up and divided by the number of items in the domain and then multiplied by 4. Obtainable scores range from 4 to 20. Scores are scaled in a positive direction with higher scores denoting higher QoL.

**Data Analyses**

Data entry and analysis were performed using SPSS version 20.0. Descriptive statistics of mean and percentages were used to summarize the socio-demographic and clinical characteristics of the participants. Chi square test was used to test the association among disability, socio-demographic characteristics and clinical characteristics in the participants. The relationship between disability and QoL was examined using Kruskal Wallis test. The level of significance was set at 0.05.

## RESULTS

Three hundred and sixty People Living With HIV/AIDS (PLWHA) comprising 274(76.1%) females and 86(23.9%) males participated in this study. Their mean age was 37.79 ±9.370 years and majority (42.5%) was within the age range of 31-40 (Table 1). More than three-quarters (77.8%) of the participants reported their health status as either *good* or *very good* while only 2.5% reported very poor state of health. Majority of the participants (76.4%) claimed they had no current illness. HIV/AIDS related symptoms accounted for the highest perceived illness (42.5%) in those who considered themselves as being currently ill. Only 251(69.7%) participants knew their CD4 counts (Table 2) and the mean CD4 count among such participants was 281.9±130.5. Majority of the respondents (85.6%) were on Lamivudine and about four-fifths (81.1%) were drug compliant.

**Table 1: Socio-demographic Characteristics of the Respondents**

| Variable | Frequency (n) | Percentage (%) |
|---|---|---|
| **Age** | | |
| 20-30 | 92 | 25.6 |
| 31-40 | 153 | 42.5 |
| 41-50 | 79 | 21.9 |
| 51-60 | 26 | 7.2 |
| 61 and above | 10 | 2.8 |
| Mean age (yrs): | **37.79 ± 9.370** | |
| **Gender** | | |
| Male | 86 | 23.9 |
| Female | 274 | 76.1 |
| **Level of Education** | | |
| None at all | 28 | 7.8 |
| Primary | 96 | 26.7 |
| Secondary | 157 | 43.6 |
| Tertiary | 79 | 21.9 |
| **Employment status** | | |
| Self-employed | 175 | 48.6 |
| Employed | 76 | 21.1 |
| Unemployed | 109 | 30.3 |

**Table 2: Clinical characteristics of the respondents**

| Variables | Frequency (n) | Percentage (%) |
|---|---|---|
| **Currently Ill** | | |
| Yes | 85 | 23.6 |
| No | 275 | 76.4 |
| **History of Tuberculosis** | | |
| Yes | 44 | 12.2 |
| No | 316 | 87.8 |
| **History of Pneumonia** | | |
| Yes | 10 | 2.8 |
| No | 350 | 97.2 |
| **CD4 Count** | | |
| < 200 | 55 | 15.3 |
| 200 – 500 | 178 | 49.4 |
| > 500 | 18 | 5.0 |
| Missing values | 109 | 30.3 |
| **Adherence to Drug** | | |
| Yes | 292 | 81.1 |
| No | 68 | 18.9 |
| **Presence of Disability** | | |
| Yes | 256 | 71.1 |
| No | 104 | 28.9 |

The mean disability score of the respondents on the WHODAS 2.0 was 16.55 ±5.962. 256 (71.1%) respondents reported disabilities ranging from mild to extreme (Table 3). Disability was mostly in the items of the participation domain and least in the self-care domain (Table 3). Females reported more disability than males. There was no significant association (p> 0.05) between disability and age, sex

and employment status (Table 4). A significant association was found between disability and level of education (p=0.01). There was a significant association between disability and alcohol use (p=0.02). Similarly, disability was significantly associated with past medical history of tuberculosis as well as with CD4 count (p = 0.01). Type of HIV medication and adherence to medication were not significantly associated with disability (p>0.05).

The mean Quality of Life (QoL) score was 3.41 ±0.813. About four-fifth (80.8%) of the participants reported high QoL. Mean scores for the psychological health, social relationships and the

**Table 3: Prevalence of disability by item and domain of the 12-item WHODAS 2.0 (N=360)**

| WHODAS 2.0 Items | WHODAS 2.0 Domains | No Disability n (%) | Disability | | | | |
|---|---|---|---|---|---|---|---|
| | | | Mild n % | Moderate n % | Severe n % | Extreme n % | Total n % |
| **1. How much difficulty did you have in standing for long periods such as 30minutes** | Getting around | 243 (67.5) | 83 (23.0) | 29 (8.1) | 3 (0.8) | 2 (0.6) | 117(32.5) |
| **2. How much difficulty did you have in taking care of your household responsibilities** | Life activities | 256 (71.1) | 80 (22.2) | 18 (5.0) | 5 (1.4) | 1 (0.3) | 104(28.9) |
| **3. How much difficulty did you h ave in learning a new task, for example, learning how to get to a new place?** | Understanding & communication | 262 (72.8) | 88 (24.4) | 7 (2.0) | 3 (0.8) | 0 (0.0) | 98(27.2) |
| **4. How much of a problem did you have joining in community activities** | Participation in society | 233 (64.7) | 100 (27.8) | 20 (5.5) | 5 (1.4) | 2 (0.6) | 127(35.3) |
| **5. How much have you been affected by your health problem** | Participation in society | 219 (60.8) | 88 (24.4) | 36 (10.0) | 15 (4.2) | 2 (0.6) | 141(39.2) |
| **6. How much difficulty did you have in concentrating on doing something for ten minutes?** | Understanding & Communication | 244 (67.8) | 97 (26.9) | 14 (3.9) | 5 (1.4) | 0 (0.0) | 116(32.2) |
| **7. How much difficulty did you have in walking a long distance such as a kilometer (or equivalent)** | Getting around | 248 (68.9) | 79 (22.0) | 21 (5.8) | 9 (2.5) | 3 (0.8) | 112(31.1) |
| **8. How much difficulty did you have in washing your whole body?** | Self-care | 296 (82.2) | 57 (15.9) | 3 (0.8) | 1 (0.3) | 3 (0.8) | 64 (17.8) |
| **9. How much difficulty did you h ave in getting dressed?** | Self-care | 295 (81.9) | 56 (15.6) | 5 (1.4) | 1 (0.3) | 3 (0.8) | 65 (18.1) |
| **10. How much difficulty did you have in dealing with people you do not know?** | Getting along with people | 267 (74.2) | 79 (22.0) | 10 (2.7) | 4 (1.1) | 0 (0.0) | 93 (25.8) |
| **11. How much difficulty did you have in maintaining a friendship?** | Getting along with people | 249 (69.2) | 90 (25.0) | 13 (3.6) | 8 (2.2) | 0 (0.0) | 111(30.8) |
| **12. How much difficulty did you have in your day-to-day work?** | Life activities | 249 (69.2) | 87 (24.2) | 13 (3.6) | 8 (2.2) | 3 (0.8) | 111(30.8) |

environment domains were low relative to the maximum obtainable scores. There was a significant association between disability and QoL($\chi 2 = 77.26$; $p = 0.01$) among respondents.

**Table 4: Association among Disability, Socio-demographic and Clinical characteristics of respondents**

| Variables | None | | Mild | | Moderate | | Severe | | Extreme | | | p-value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Disability** | n | % | n | % | n | % | n | % | N | % | | |
| **Gender** | | | | | | | | | | | | |
| Male | 32 | 37.2 | 45 | 52.3 | 6 | 7.0 | 1 | 1.2 | 2 | 2.3 | 7.08 | 0.13 |
| Female | 72 | 26.3 | 182 | 66.4 | 17 | 6.2 | 1 | 0.4 | 2 | 0.7 | | |
| **Total** | 104 | 28.9 | 227 | 63.1 | 23 | 6.4 | 2 | 0.6 | 4 | 1.1 | | |
| **Age** | | | | | | | | | | | | |
| 20-30 | 33 | 35.9 | 56 | 60.9 | 2 | 2.2 | 1 | 1.1 | 0 | 0.0 | 15.84 | 0.46 |
| 31-40 | 40 | 26.1 | 100 | 65.4 | 11 | 7.2 | 0 | 0.0 | 2 | 1.3 | | |
| 41-50 | 24 | 30.4 | 47 | 59.5 | 5 | 6.3 | 1 | 1.3 | 2 | 2.5 | | |
| 51-60 | 6 | 23.1 | 17 | 65.4 | 3 | 11.5 | 0 | 0.0 | 0 | 0.0 | | |
| 61 and above | 1 | 10.0 | 7 | 70.0 | 2 | 20.0 | 0 | 0.0 | 0 | 0.0 | | |
| **Total** | 104 | 28.9 | 227 | 63.1 | 23 | 6.4 | 2 | 0.6 | 4 | 1.1 | | |
| **Level of Education** | | | | | | | | | | | | |
| None | 7 | 25.0 | 19 | 67.9 | 2 | 7.1 | 0 | 0.0 | 0 | 0.0 | 28.73 | 0.01* |
| Primary | 18 | 18.8 | 64 | 66.7 | 11 | 11.5 | 1 | 1.0 | 2 | 2.1 | | |
| Secondary | 40 | 25.5 | 108 | 68.8 | 7 | 4.5 | 1 | 0.6 | 1 | 0.6 | | |
| Tertiary | 39 | 49.4 | 36 | 45.6 | 3 | 3.8 | 0 | 0.0 | 1 | 1.3 | | |
| **Total** | 104 | 28.9 | 227 | 63.1 | 23 | 6.4 | 2 | 0.6 | 4 | 1.1 | | |
| **Employment Status** | | | | | | | | | | | | |
| Self-employed | 57 | 32.6 | 104 | 59.4 | 11 | 6.3 | 2 | 1.1 | 1 | 0.6 | 9.08 | 0.34 |
| Employed | 23 | 30.3 | 48 | 63.2 | 3 | 3.9 | 0 | 0.0 | 2 | 2.6 | | |
| Unemployed | 24 | 22.0 | 75 | 68.8 | 9 | 8.3 | 0 | 0.0 | 1 | 0.9 | | |
| **Total** | 104 | 28.9 | 227 | 63.1 | 23 | 6.4 | 2 | 0.6 | 4 | 1.1 | | |
| **History of TB** | | | | | | | | | | | | |
| Yes | 9 | 20.5 | 24 | 54.5 | 9 | 20.5 | 0 | 0.0 | 2 | 4.5 | 22.93 | 0.01* |
| No | 95 | 30.1 | 203 | 64.2 | 14 | 4.4 | 2 | 0.6 | 2 | 0.6 | | |
| **Total** | 104 | 28.9 | 227 | 63.0 | 23 | 6.4 | 2 | 0.6 | 4 | 1.1 | | |
| **Alcohol use** | | | | | | | | | | | | |
| Yes | 10 | 45.5 | 9 | 40.9 | 2 | 9.1 | 1 | 4.5 | 0 | 0.0 | 11.29 | 0.02* |
| No | 94 | 27.8 | 218 | 64.5 | 21 | 6.2 | 1 | 0.3 | 4 | 1.2 | | |
| **Total** | 104 | 28.9 | 227 | 63.0 | 23 | 6.4 | 2 | 0.6 | 4 | 1.1 | | |
| **CD4 Count** | | | | | | | | | | | | |
| < 200 | 8 | 14.5 | 30 | 54.5 | 11 | 20.0 | 2 | 3.6 | 4 | 7.3 | 45.77 | 0.01* |
| - - | 75 | 42.1 | 95 | 53.4 | 8 | 4.5 | 0 | 0.0 | 0 | 0.0 | | |
| > 500 | 6 | 33.3 | 12 | 66.7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |
| Missing value | 15 | 13.8 | 90 | 82.5 | 4 | 3.7 | 0 | 0.0 | 0 | 0.0 | | |
| **Total** | 104 | 28.9 | 227 | 63.0 | 23 | 6.4 | 2 | 0.6 | 4 | 1.1 | | |

*Significant $p < 0.05$

## DISCUSSION

Measuring disability in the context of HIV is important for determining the prevalence and impact of HIV-associated disability and the effectiveness of interventions to reduce the presence and severity of disability.[23]This study estimated the prevalence of disability in PLWHA in Ibadan, Nigeria and investigated the association between disability and quality of life. The mean age of participants in this study was 37.79 ±9.37years. This is comparable to the mean age of 38.1 ±9.0 and 35.4±7.0 years reported in the studies of Folasire et al[21] and Tran[24] respectively. Most of the PLWHA in the current study were females. This is similar to the findings of Folasireet al[21]who had reported a male: female ratio of 1:2. This is however, in contrast to findings of more males than females among PLWHA from some other studies. [25, 24]The variation in the findings may be because the studies by Tran[24]and Tramarin et al [25]were from developed countries. According to the UNAIDS report[1], women compose nearly 60% of cases of HIV/AIDS in Sub-Saharan Africa in contrast to other regions. Almost all studies involving PLWHA recruited more females than males. In a review by Hanass-Hancock et al, [26]more than 70.0% of the sample was made up of females in 61.0% (25 articles) of the articles reviewed**.** The finding of significantly more females than malesaligns with reports with earlier findings. It may also be because one of the venues of the study is a maternity teaching hospital. Though, the anti-retroviral clinic in the hospital caters for both males and females, women constitutes a higher percentage of the clientele, as the focus of the hospital was largely women health.

The mean CD4 count among the participants was 281.9±130.5. This value is low relative to the normal values in literature, but Tran [24]had similarly reported a low CD4 count among PLWHA in Vietnam. There had been reported variations in CD4 counts which were partially explained by factors such as age, race/ethnicity, BMI and underlying diseases,[27, 28]Low level of CD4cells have been reported in HIV-negative Africans compared to Caucasians,[29]Factors such as BMI and smoking hadalso been associated with low CD4 count in HIV-negative Africans.[30] These variations may contribute to the low level of CD4 count reported in our study compared to CD4 counts of PLWHA in other regions.

There was a low incidence of tuberculosis and pneumonia among the study sample. This is an interesting finding, considering that pulmonary infections are common opportunistic infection in PLWHA.[31, 32]HIV/AIDS is the most powerful known risk factor for TB infection [33] and TB is the leading cause of death among PLWHA. [34]Our finding of low incidence of pulmonary TB among the participants may bebecause participants in this study were already on HAART for a minimum of six months prior to inclusion in the study. This could have conferred on them some measure of immunity against pulmonary infections. It could also be related to the predominance of females in our study population. It has been posited that males were more likely to have active TB infections than females. [35, 36]

More than two-thirds of the participants had one form of disability or the other, although majority reported mild level of disability. Previous studies have reported some level of disability in PLWHA.[19,37m] Prevalence of disability was highest in participation domain. High level of participation restriction especially in sexual roles, student/employee roles and financial roles had previously been reported among PLWHA.[18] This may not be unrelated to the stigmatisation, poverty and depression often faced by PLWHA.[14, 15]There was no significant association between disability and socio-demographic variables of age, gender, and employment status. This is contrary to most reports in literature. Study has reported an association between age and disability in PLWHA. [38] Higher prevalence of various disabilities had also been reported in females than males. [39] The difference in our findings and that of Ávila-Funes and colleagues[38] may be because of their sample. Their study was conducted among elderly people living with HIV/AIDS whereas our own sample comprised mostly young and middle-aged adults.

Level of education was significantly associated with disability. This suggests that individual with low level of education had a higher prevalence of disability than those with higher level of education. Similar findings had been reported in literature.[38, 40, 41] It is probable that individuals with high level of education had access to better healthcare based on their employability and earning power. It could also be that highly educated individuals tend to make healthy choices in the light of their health status and are proactive on symptoms that could precipitate disability.

Our results revealed a significant association between disability and history of tuberculosis, alcohol use and CD4 count. These factors had been reportedly associated with the presence of disability in PLWHA. For instance, Spano et al [31] found higher level of disability in PLWHA with history of tuberculosis infection compared with those without tuberculosis. The detrimental effect of alcohol consumption on the development of neuropathies, HIV disease progression and disability had also been reported.[42] Low CD4 count has also been associated with a higher level of disability in PLWHA. [19, 41] Disability was significantly associated with quality of life among participants in this study such that the more severe the disability, the worse the quality of life. Earlier studies have also demonstrated that QoL is lowered by an increased level of disability in PLWHA.[43] The negative impact of HIV/AIDS on the QoL of the individual progresses as the HIV infection progresses. [16, 44] HIV/AIDS has been associated with greater unemployment, depression and dependency in Activities of Daily Living (ADL) even in the face of HAART.[45] These may contribute to the negative impact of HIV on QoL.

The strength of this study lies in the fact that it is one of the first studies to comprehensively assess disability in PLWHA in Ibadan, Nigeria. There are however, inherent limitations in studies based on self-reports from participants. Participants may be biased in reporting the presence/severity of disability as they may feel this could lead to further stigmatisation and its attendant problems. Another possible limitation of this study is that data were based on a single evaluation. The severity and prevalence of disabilities could be greater and/or different if participants were longitudinally assessed.

## CONCLUSION

Majority of PLWHA in Ibadan, Nigeria had mild to moderate disability. Disability was highest in the participation domain and was associated with low level of education, alcohol use, history of tuberculosis and low CD4 count. Increased disability was associated with poor quality of life. To reduce the burden associated with HIV/AIDS, preventive measures targeting factors associated with disability should be adopted. Timely and effective intervention to prevent chronic health states such as disablement should be provided for at-risk individuals.

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