



Prevalence of Comorbidities, AIDS related symptoms and Associated Factors among Workers Living With HIV/AIDS Attending ARV Clinics in Health Institutions in Enugu, Nigeria

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Abstract

Background: As HIV/AIDS has transformed into a chronic medical disease and people living with HIV are living into old age, chronic comorbidities are beginning to appear. The study is aimed at determining the prevalence of comorbidities and associated factors among workers living with HIV/AIDS attending ARV clinics in Health Institutions in Enugu, South East Nigeria. Method: It was a cross sectional descriptive study done in 2014 among 489 HIV positive workers attending ARV clinics in Enugu. Pre-tested self-administered semi-structured questionnaire was the data collection instrument. Result: The age range of the respondents was 22-75 years with a modal age range of 31-40 years (38.7%). Most were females 255 (52.1%), married 291 (59.5%) and government employees 237 (48.5%). The range of working years in present job was 1-45 years. 119 (24.3%) respondents were symptomatic and practically all of them had multiple comorbidities. AIDS defining conditions present among the respondents were fever: 106 (89.1%), persistent diarrhoea: 52 (43.7%) and tuberculosis: 25 (21%). Comorbidities identified were hypertension: 53 (44.5%), arthritis: 44 (37%) and diabetes mellitus: 9 (7.9%). Age above 50 years was the only significant social factor related to co-morbidities. Major challenges faced were high pill burden: 113 (95%), increased side effects: 98 (82.4%) and cost of medication: 67 (56.3%) and workplace victimization (79.8%). Conclusion: AIDS defining and non-AIDS defining comorbidities were prevalent among our respondents. Those above 50 years were more likely to develop comorbidities. HIV workplace policy should include assisting in management of comorbidities.

Keywords: HIV/AIDS, Workers, Comorbidities, Prevalence, Nigeria.

Introduction

When Human immunodeficiency virus and Acquired immunodeficiency syndrome (HIV/AIDS) were initially introduced into the human population in the early 1980's, the major challenges and causes of death were opportunistic infections and AIDS related cancers¹. The health industry was then mainly concerned with prevention of spread of the infection as well as provision of palliative care for pain and management of opportunistic infections in those living with the virus. However over the years, with the advent of antiretroviral therapy (ART) and highly active antiretroviral therapy (HAART), the management of HIV/AIDS tremendously improved and mortality attributable to the virus drastically declined globally particularly in the developed countries².

As a result, people living with HIV/AIDS (PLWHA) in these developed countries are thus living healthier and longer lives with expected life spans near equal to those of uninfected persons if the infection is effectively treated³. Consequently, PLWHA are now living into old age and are thus presenting a number of medical comorbidities hitherto uncommon in

PLWHA^{4,5}. Comorbidities can be defined as the existence of additional distinct disease entities during the clinical course of a patient who has the index disease under study⁶. The index disease in this instance is HIV/AIDS and those infected have been shown to develop comorbidities such as cardiovascular, renal, pulmonary, hepatic and mental diseases as well as non-AIDS defining malignancies at an earlier age and to a greater extent than the uninfected⁴. Reasons deduced for this include: the HIV infection itself which greatly compromises immunity, antiretroviral drugs' toxicity and the high prevalence of behavioral risk factors like tobacco and alcohol use among those living with HIV^{1,7}. Pre-existing chronic medical conditions could also be exacerbated by HIV infection and drugs used for the management of comorbidities can interact with anti-retroviral drugs leading to further health complications¹.

In Africa as in most developing countries, opportunistic infections such as tuberculosis, pneumonia and Kaposi's sarcoma are still highly prevalent in HIV infected adults who are equally prone to various comorbidities as obtained in developed countries⁸⁻¹⁰. Thus as life span is increasing among PLWHA who are on HAART, health care providers should be

on the alert for the onset of comorbidities particularly among those aged 50 and above. In addition, careful selection of the drugs used in the management of the comorbidities should be enforced to prevent interactions with the anti-retroviral drugs.

For workers living with HIV/AIDS, the development of comorbidity/comorbidities presents a huge challenge particularly in the workplace. Many of these workers ordinarily do not voluntarily disclose their HIV status to management for fear of stigma and discrimination which are still prevalent and in some instances could mean termination of appointment¹¹⁻¹³. For such HIV positive workers who do not wish to disclose their HIV status, the presence of comorbidities which invariably worsen their clinical conditions and demand frequent hospital visits not only exposes their failing states of health but it is also an enormous economic threat as their productivities at their places of work could be questioned¹⁴. Furthermore, the onset of another morbid condition could escalate the fear of an impending death which could precipitate the development of other psychological and/or metabolic comorbidities¹⁵. As at present there is paucity of information on comorbidities and associated factors among workers living with HIV/AIDS in sub-saharan Africa. The present study is aimed at determining the prevalence of comorbidities among workers living with HIV/AIDS in South-east Nigeria. It is also hoped that findings from the study will stimulate the development of Organizational policies aimed at the protection and promotion of the health of workers living with HIV/AIDS and thus improve their quality of life and increase their productivity.

Material and Methods

This was a descriptive cross-sectional study carried out in Enugu State, South East Nigeria between February and May 2014. In the study area there are two government tertiary hospitals (University of Nigeria Teaching Hospital and Enugu State University Teaching Hospital) and two mission hospitals (Annunciation Specialist Hospital and Mother of Christ Hospital) that run major anti-retroviral (ARV) clinics. By simple random sampling, one hospital was selected from both the government hospital (Enugu State University Teaching Hospital) and mission hospital (Annunciation Specialist Hospital). In both hospitals ARV clinics are run three times weekly by medical consultants from different departments: Community Medicine, Paediatrics, Internal Medicine and Obstetrics and Gynaecology. An average number of PLWHA treated in each of these clinics every week was 150. A calculated sample size of 480 was obtained and this was increased to 500 (250 selected from each of the two clinics) to take care of incomplete or wrongly filled data. Ethical permit was obtained from the Ethics Committee of University of Nigeria Teaching Hospital Committee and informed consent obtained from each participant. Inclusion criteria were patient 18 years or older, who gave written informed consent, must have attended care at either of the two clinics within the study period and must have had working experience. Participants who

met the inclusion criteria were then enrolled consecutively until the sample size was reached.

Data management: Data were collected using a pre-tested semi-structured self administered questionnaire that gave information on demography and presence and type of comorbidities. Data were entered and analyzed using Statistical Package for Social Sciences (SPSS) version 13. Results are presented as tables and cross-tabulations. Chi square was used to test for significance.

Results and Discussion

The age range of the respondents was 22-75 years with a modal age range of 31-40 years (38.7%). Only one worker was above 70 years while 78 (15.95%) were over 50 years. Most were females 255 (52.1%), married 291 (59.5%) and government employees 237 (48.5%). The range of working years in present job was 1-45 years. However, 283 (57.9%) have worked for less than 10 years at present place of employment, table-1.

Table-1
Socio-Demographic variables of respondents

| Variables | Frequency (N = 489) | Percent |
|--------------------------|---------------------|---------|
| Sex distribution: | - | - |
| Females | 255 | 52.1 |
| Males | 234 | 47.9 |
| Age range: | - | - |
| 21 – 30 | 104 | 21.3 |
| 31 – 40 | 189 | 38.7 |
| 41 – 50 | 118 | 24.1 |
| 51 – 60 | 67 | 13.7 |
| 61 – 70 | 10 | 2.0 |
| 71 and above | 1 | 0.2 |
| Marital status: | - | - |
| Single | 126 | 25.8 |
| Married | 291 | 59.5 |
| Widowed | 48 | 9.8 |
| Divorced/separated | 24 | 4.9 |
| Present/past occupation: | - | - |
| Government employee | 237 | 48.5 |
| Private employee | 92 | 18.8 |
| Self employed | 160 | 32.7 |
| Total years of working: | - | - |
| 1 – 9 | 283 | 57.9 |
| 10 – 19 | 137 | 28.0 |
| 20 – 29 | 51 | 10.4 |
| 30 – 39 | 12 | 2.5 |
| 40 - 49 | 6 | 1.2 |

Age range = 22 – 75 years. Range of working years in present job = 1 – 45 years

One hundred and nineteen (24.3%) respondents were symptomatic and practically all of them had multiple comorbidities, table-2. AIDS defining conditions present among the respondents were fever: 106 (89.1%), persistent diarrhoea:

52 (43.7%) and tuberculosis: 25 (21%). Comorbidities identified were hypertension: 53 (44.5%), arthritis: 44 (37%) and diabetes mellitus: 9 (7.9%). Although not significant, more males had comorbidities. On the other hand, comorbidities are statistically more likely to occur in those above 50 years, Table- 3. Comorbidities were also most likely to occur among the divorced/separated (45.8%) and least likely to occur in the married (21.3%). However, type of employment does not affect the prevalence of comorbidities.

Major challenges faced by the respondents in the management of HIV/AIDS and comorbidities were having to take too many drugs: 113 (95%), dealing with the side effects: 98 (82.4%) and cost of medication: 67 (56.3%), table-4. Other challenges include social factors such as stigmatization and lack of confidentiality from co-workers and Management as well as victimization at the workplace like denial of opportunities to attend their routine hospital follow-up visits 95 (79.8%).

Discussion: The age range in our study group like previous others showed that PLWHA are presently living into old age^{2,8}. This implies an impending rise in number of comorbidities as chronic medical conditions are known to be commoner among older persons. Ability to metabolize anti-retroviral drugs is also diminished in older persons indicating that increased toxicity to HAART should be anticipated from the older patients¹.

As previously reported, although our study group showed a preponderance of females, the difference did not appear significant¹⁶. Another study in Benue, Nigeria showed a much higher proportion of females infected by HIV/AIDS¹⁷. These are in contrast to an earlier study where males constituted 54.6% of the study group¹⁸. Regarding the prevalence of comorbidities, about 24% of the respondents had co-morbid conditions.

Aprevious report from northern Nigeria had a higher prevalence¹⁰.

Table-2
Prevalence of co-morbid conditions and AIDS-related symptoms among PLWHA at time of study

| Variable | Frequency | Percent |
|--|-----------|---------|
| Presence of co-morbid conditions or AIDS-related symptoms: | N = 489 | |
| Yes | 119 | 24.3 |
| No | 370 | 75.7 |
| Types of co-morbid conditions: | N = 119 | |
| AIDS related comorbidities or AIDS-related symptoms: | - | - |
| Persistent febrile illness | 106 | 89.1 |
| Generalized muscle pains | 67 | 56.3 |
| Persistent diarrhea | 52 | 43.7 |
| Generalized rash | 38 | 31.9 |
| Extreme fatigue | 31 | 26.1 |
| Anorexia | 27 | 22.7 |
| Insomnia | 25 | 21.0 |
| Tuberculosis | 15 | 12.6 |
| Cancer | 2 | 1.7 |
| Epilepsy | 1 | 0.8 |
| None AIDS Related Comorbidities: | - | - |
| Hypertension | 53 | 44.5 |
| Arthritis | 44 | 37.0 |
| Typhoid fever | 13 | 10.9 |
| Diabetes | 9 | 7.6 |
| Hepatitis | 6 | 5.0 |
| Peptic ulcer disease | 4 | 3.4 |
| Renal problem | 3 | 2.5 |

Table-3
Some demographic variables and co-morbid conditions

| Variables | Co-morbid conditions | | Total | χ^2 (P value) |
|---------------------|----------------------|---------------------|------------|--------------------|
| | Present N=119 (%) | Absent N=370 (%) | N=489 | |
| Sex: | - | - | - | 2.22 (0.14) |
| Female | 55(21.6) | 200 (78.4) | 255(100.0) | |
| Male | 64(27.4) | 170(72.6) | 234(100.0) | |
| Age group: | - | - | - | 4.21 (0.04)* |
| < 50 years | 89(22.4) | 308(77.6) | 397(100.0) | |
| ≥50 years | 30(32.6) | 62(67.4) | 92(100.0) | |
| Marital Status: | - | - | - | 7.91 (0.05) |
| Single | 33(26.2) | 93(73.8) | 126(100.0) | |
| Married | 62(21.3) | 229(78.7) | 291(100.0) | |
| Widowed | 13(27.1) | 35(72.9) | 48(100.0) | |
| Divorced/Separated | 11(45.8) | 13(54.2) | 24(100.0) | |
| Employment record: | - | - | - | 3.21 (0.20) |
| Government employee | 53(22.4) | 184(77.6) | 237(100.0) | |
| Private employee | 29(31.5) | 63(68.5) | 92(100.0) | |
| Self employed | 37(23.1) | 123(76.9) | 160(100.0) | |

*Significant

Table-4
Period of diagnosing the co-morbid condition and associated challenges in its management

| Variables | Frequency N = 119 | Per cent |
|---|----------------------|----------|
| Period of diagnosing the co-morbidity: | - | - |
| Before developing HIV/AIDS | 49 | 41.2 |
| After developing HIV/AIDS | 62 | 52.1 |
| I do not know | 8 | 6.7 |
| Challenges in managing the co-morbidities: | - | - |
| Too many drugs to take | 113 | 95.0 |
| More side effects | 98 | 82.4 |
| Increased cost of medication | 67 | 56.3 |
| Difficulties with controlling the co-morbid condition | 26 | 21.8 |
| Nothing | 6 | 5.0 |

Table-5
Workplace Social factors affecting management of the PLWHA and co-morbid conditions

| Ways in which the management has affected treatment of HIV and co-morbid illnesses: | Frequency N = 119 | Percent |
|---|----------------------|---------|
| They do not give day off to go to hospital | 95 | 79.8 |
| They complain that PLWHA do not give enough time to my work | 49 | 41.2 |
| They are indifferent | 20 | 16.8 |
| They give me moral support | 10 | 8.4 |
| Others | 3 | 2.5 |

However, the former study was done among all HIV patients, irrespective of their employment status, attending infectious diseases clinic while the present study was done among HIV positive workers only. The working population is generally known to be healthier than the non-working population. This could be partly because employment is an essential part of leading an independent and self-directed life for all people including PLWHA: work particularly the ones with good working conditions have positive effects on the health of workers¹⁹⁻²¹.

Apart from AIDS defining comorbidities, most of the respondents had more than one chronic medical condition. Similar patterns have been noted previously^{22,23}. The implication is that the health system especially those concerned with providing healthcare to HIV patients should brace up to effectively deal with the dual burden of rapidly growing chronic non-communicable diseases as well as the high rates of HIV-related opportunistic infections. Hypertension was the highest occurring non-AIDS defining co-morbidity in the present study. HIV infected persons are known to exhibit multiple risk factors for developing cardiovascular diseases or exacerbating a pre-

existing one. The use of certain classes of HAART is also associated with increased risk of coronary heart disease²⁴. Therefore efforts to control hypertension which is a precursor to other cardiovascular and multi-systemic maladies should be emphasized.

In addition, 44 participants had arthritis. This could have arisen from bone demineralization which is known to be highly prevalent among HIV patients²⁵. Initiation of antiretroviral therapy is also associated with a 2%-6% decrease in bone mineral density over the first 2 years²⁶. Other comorbidities noted in present study including typhoid fever, diabetes mellitus, peptic ulcer disease and renal diseases have been previously reported in several studies^{9,23,27}. All of these point to the rising prevalence of various comorbidities among HIV patients and to the need for health care providers to consider integration of HIV management with management of common medical comorbidities.

Expectedly and in accordance with previous studies, comorbidities were significantly higher in those 50 years and above than in the younger age group^{1,8}. It is equally noteworthy that the prevalence of comorbidities in the younger age group was also high. This is in agreement with an earlier report about chronic medical conditions occurring at an earlier age among HIV-infected patients than in the general population⁴. Our study found the least rate of comorbidities among the married respondents. This is not surprising as marriage provides economic and social stability necessary for good health. On the contrary, divorce which is common among HIV discordant couples provides a fertile ground for the development of medical comorbidities as seen in present study²⁸.

Most of the challenges faced by our respondents in coping with HIV infection and comorbidities including: taking too many drugs, cost of medication, drugs' side effects and difficulties in controlling the comorbid conditions have been previously documented^{29,30}. Although the anti-retroviral drugs are provided free of charge in most public health institutions in Nigeria including the ones used for our study, the patients have to pay for transportation to the hospital and for the drugs used in treating the comorbidities and for some, affordability becomes an issue particularly in settings such as ours where poverty is prevalent and health insurance is limited to a privileged few. Another major challenge identified by our respondents is dealing with rigid workplace policies. A high percentage of the respondents reported refusal by their employers or management to grant them day off to go for routine hospital checks. This has far-reaching implications for the overall patient's management as the inability to attend regular hospital follow-up visits with its attendant failure to collect required medications will result in poor adherence to the drugs with subsequent development of resistance to HAART and worsening of patient's clinical condition. Interestingly, inflexible work schedule has been reported as a major challenge in coping with HIV and comorbidities³⁰. Furthermore, the employers'/management's

complaints about the insufficiency of time allocated to work by PLWHA raises anxiety in this group of workers who fear that their productivity is being questioned and that their appointment could be terminated. This worry alone could exacerbate an existing psychological comorbidity or trigger off the development of a new one.

Conclusion

AIDS defining and non-AIDS defining comorbidities were prevalent among our respondents. Those above 50 years, males and the divorced/separated were more likely to develop comorbidities. Having to take many drugs, cost and side effects of drugs were among the major challenges identified. HIV workplace policy should include assisting in management of comorbidities.

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