The economic, psychosocial burden and State ownership of HIV/AIDS Programme in Nasarawa State, Nigeria

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ABSTRACT

Background: Nasarawa State has a high HIV prevalence rate of 7.5%. This may adversely affect the socio-economic and psychological wellbeing of people living with HIV.

Objectives: This study sought to examine the economic and psychosocial burden of HIV on infected people and assess the preparedness of the State government towards HIV/AIDS ownership and sustainability.

Method: The study design is descriptive cross-sectional survey involving 312 respondents' randomly selected from 6 hospitals following a two stage stratified sampling across the State.

Results: Respondents' with the lowest discretional income 41 (44.6%) p-values 0.006 and those with the lowest educational status 24 (55.8%) p-values 0.032 were significantly associated with higher CD_4 counts ($\geq$ 350cells/mm^3). Statistical association exists between stigmatizing attitudes and ART adherence; respondents' who rejected stigmatizing attitudes, stereotypes and negative perceptions ascribed to them by the society recorded significant difference in adherence to medication 92 (98.9%), p-value 0.000; 57 (100%) p-value 0.016; 91 (96.8%) p-value 0.009; and 80 (97.6%) with p-value 0.024. Laboratory parameters indicated that packed cell volume, haemoglobin and CD_4 values before HAART and pre-data collection were below normal values. A Chi-square test indicated significant difference between the State owned drug revolving fund and the assisted (donor-funded) ART scheme; $X^2 = 152.66$, Critical $X^2 = 11.07$.

Conclusion: Respondents' with strong coping mechanism rejected the stigmatizing attributes ascribed to them thereby achieving the recommended level of adherence; poor socio-economic groups recorded better treatment outcomes. This study revealed that the State has not shown significant commitment toward the sustainable provision of HIV/AIDS scheme.

Keywords: HIV/AIDS, Economic, Psychosocial, Nigeria

L', la charge et de l'État psychosocial économique appropriation du programme VIH / sida dans l'État de Nasarawa, au Nigeria

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RÉSUMÉ

Contexte: l'Etat de Nasarawa a un taux élevé de prévalence du VIH de 7,5%. Cela risque d'affecter le bien-être socio-économique et psychologique des personnes vivant avec le VIH.

Objectifs: Cette étude visait à examiner le fardeau économique et psychosociale du VIH sur les personnes infectées et d'évaluer l'état de préparation du gouvernement de l'Etat vers la propriété du VIH / sida et la durabilité.

Méthode: La conception de l'étude est descriptive enquête transversale auprès de 312 répondants »choisie au hasard dans 6 hôpitaux après un échantillonnage stratifié en deux étapes dans tout l'État.

Résultats: Les répondants »avec le plus faible revenu discrétionnaire 41 (44,6%) des valeurs p de 0,006 et ceux qui ont le statut le plus faible de l'éducation 24 (55,8%) des valeurs p de 0,032 étaient significativement associés à des taux de CD4 plus élevés (≥ 350cells / mm3). Association statistique entre attitudes stigmatisantes et observance thérapeutique; «répondants qui ont rejeté les attitudes stigmatisantes, les stéréotypes et les perceptions négatives qui leur sont attribuées par la société ont enregistré de différence significative dans l'adhésion au traitement 92 (98,9%), p = 0,000; 57 (100%) 0,016 Valeur p; 91 (96,8%) p-valeur de 0,009; et 80 (97,6%) avec p-valeur de 0,024. Paramètres de laboratoire ont montré que l'hématocrite, l'hémoglobine et les valeurs de CD4 avant HAART et la collecte de données pré étaient inférieurs aux valeurs normales. Un test du chi-carré indiqué de différence significative entre l'Etat appartenant fonds de roulement de la drogue et de l'économie assistée ART (financé par les donateurs); X2 = 152,66, X2 = 11.07 critique.

Conclusion: Les répondants »avec mécanisme d'adaptation forte rejeté les attributs stigmatisant attribués à les atteindre ainsi le niveau recommandé d'adhésion; groupes socio-économiques pauvres enregistré de meilleurs résultats de traitement. Cette étude a révélé que l'État n'a pas démontré un engagement significatif envers la fourniture durable de régime du VIH / SIDA.

Mots-clés: VIH / SIDA, économiques, psychosociaux, Nigeria

INTRODUCTION

There is hardly any infection in the history of mankind that has received the widest international discourse and concern like the Human Immunodeficiency Virus/Acquire Immune Deficiency Syndrome (HIV/AIDS). Since its discovery in 1981, it remains the fulcrum that unites the entire humanity worldwide in search of a health solution. In the early years of its discovery, an infection with the virus is generally considered a "death sentence". Today, with the advent of highly active antiretroviral therapy (HAART), albeit its therapeutic limitations; HIV/AIDS is considered as a chronic illness. However, living with HIV means having to cope with range of HIV-related symptoms over a long period of time, [1] as well as stigma and discrimination.[2] These symptoms may arise from the opportunistic infections and wide range of adverse drug reactions acute or long-term associated with antiretroviral therapies.

While HIV global incidence is declining; [3] the epidemic has continuously defied predictions derived from epidemiological modeling; it is likely to have additional surprises the world must be prepared to contain with. [4] Another dimension to the HIV/ AIDS pandemic is the fact that many are carrying and spreading the virus unknowingly without any physical manifestation.[5] The stigma attached to HIV/AIDS makes the infection far harder to bear, people living with the virus worried that stigmatization and discrimination against them is taking an alarming toll on them than the issue of access to antiretroviral therapy (ART).[6] The stigma associated with HIV and the resulting discrimination can be as devastating as the illness itself; it undermine HIV intervention efforts making people less likely to come in for testing, disclosure of HIV-status and to adopt HIV preventive behaviour or access treatment.[7] Perceptions and stereotypes are complex phenomena arising from the social construction within the family and subsequently an ethnic group and are passed on from one generation to the other.[8] The negative attributes ascribed to victims devalue them and erodes their self-esteem and performance. The sick person is considered to have legitimate reason for not fulfilling his or her normal social role; and sickness is considered beyond individual control, something for which the individual is not held responsible; however, living with illness or disability means living with stigma.[2]

Even more worrisome is the socio-economic burden the virus put on the infected and the affected persons, the community, nation and the world to the largest extent. The rise in mortality and morbidity rates and the devastating effect on the orphaned vulnerable population cannot be overemphasized. The meagre existing resources to the health sector especially in the developing world is again, skewed towards the provision of health care to these population. With budgetary allocation to the health sector consistently below international benchmark, wars and high level corruption ravaging most of the developing countries and in particular, the sub-Saharan Africa which is said to constitute the highest burden of HIV/AIDS globally, [4, 9] these countries would have to depend on international donor agencies and humanitarian gesture from the developed nations for a while in order to fight the dreaded HIV/AIDS scourge. This study sought to assess the economic and psychosocial burden of people living with HIV/AIDS in Nasarawa State; it is an attempt to assess the extent of stigmatization, negative perception and stereotypes on people living with HIV/AIDS in the State and to identify the factors militating against adherence to medication among people living with HIV/AIDS in the State. This research sought to answer the research question "are there institutional capacities on ground for Nasarawa State to independently replicate and sustain the existing assisted provision of access to HIV/AIDS preventive programmes, care and support"?

METHODS

Study sites

The study is conducted in Nasarawa State, the state is located in the North-Central region of Nigeria; the region has the highest HIV prevalence rates in the country; the state has an average prevalence rate of 7.5%, [10] it is bounded by economically privilege states with relatively higher HIV prevalence rates.

Nasarawa State has at least, 899 health facilities as at 31st January 2007; 17 of which are public owned general hospitals and 2 tertiary health centres and Nasarawa State Action Committee on AIDS (NASACA), collaborating with Federal Government and the development partners in the state for the implementation of HIV prevention activities, care and support.

The need for government to take responsibility towards the ownership and sustainability of HIV/AIDS program in the state is imperative, especially when we consider the fact that an adherence level of 95% is needed to achieve optimum therapeutic effect and to reduce the

prevalence for antiretroviral resistance. Thus, delay in lead-time or any aspect of the antiretroviral supply network due to shortfall in funding or withdrawal of foreign aid for HIV/AIDS may have devastating effects on people living with HIV/AIDS.

The study sites are Medical Centre, Mararaba-Gurku; General Hospital, Nasarawa; General Hospital, Akwanga; General Hospital, Nassarawa-Eggon; General Hospital, Doma and General Hospital, Obi.

Research design

The design of this study adopted a cross-sectional, descriptive survey design and an aspect of qualitative design. Opinions of respondents and objective assessment of respondents' medical files as well as assessment based on structured observation of issues relevant to research questions were obtained.

Participants

The study enrolled both male and female HIV positive volunteers aged 18 years and above who have been on antiretroviral drugs (ARDs) for at least 9 months prior to data collection. The research was conducted between 20th September 2011 and 30th October 2011.

Inclusion and exclusion criteria

HIV positive patients below the age of 18 years and those undergoing prevention of mother-to-child transmission (PMTCT) and those whose medical files could not be found at the time of investigation were excluded from the study. Only hospitals which have been operating full-scale ART care in the last 1 year or more were included in the study.

Sample size

The population of people undergoing HAART in the state for the period prior data collection was estimated at 10,000 and a sample size of 368 was calculated and 370 questionnaires were self-administered to respondents; however, only 312 questionnaires were returned and considered useful.

Sampling technique

Two-stage stratified sampling procedure was employed where all the general hospitals and tertiary hospitals in the respective LGAs were grouped into their respective senatorial zones: Northern Senatorial zone which comprises Akwanga, Wamba and Nassarawa-Eggon LGAs; Southern Senatorial zone which consists of Lafia, Awe, Doma, Keana and Obi LGAs; Western Senatorial zone which have Keffi, Kokona, Karu, Nassarawa and Toto LGAs. Within a senatorial zone, one hospital is randomly selected from an urban area and another randomly selected from a rural area.

Ethical clearance

Ethical clearance for this study was obtained from the Nasarawa State Hospitals Management Board, Lafia.

Data collection instruments

Three data collection schedules were employed. The first data collection Schedule in the form of questionnaire consisted of two parts; part A sought information on the respondent demographics-age, sex, level of education etc. while part B is a 12 item statements, 1 of which had sub-statements which sought to answer research questions of the study. The second data collection instrument is designed to obtain objective data from respondents' medical files. These data include serum creatinine levels, Haemoglobin (Hb) and packed cell volume (PCV), CD_4 count, viral load etc. before the initiation of ART and the latest value preceding the study. The third data collection tool consist of the WHO validated instrument for assessing the availability of essential medicines in hospitals [11] as well as an instrument to measure the management of essential medicines.

Data presentation and analysis

Data was analyzed using Statistical Program for the Social Sciences (SPSS) version 16 and presented in tables and mean ratings. Students't-test was used to test difference between means and Chi-square test was adopted to test variables from independent samples. Independent variables are considered significant at p-value < 0.05 on univariate analysis.

Confidentiality

Written informed consent was sought and information on respondents was treated with utmost confidentiality.

RESULTS

The study involved 312 volunteered respondents, randomly selected from six hospitals, two of which were selected from each of the three senatorial zones of Nasarawa State. The demographic data indicated that the age group, 25-29 years constituted the highest number of people 87 (27.9%) receiving HAART. The active working age group, 18-49 years, accounted for 96.5% of adults accessing HAART. Women, representing 224 of the study population accounted for 71.8% of people receiving HAART in the area of study (Table 1).

Table 1: Demographic characteristic of respondents

Variable	Frequency	Percentage (%)
Age (years)		
18-24	52	16.7
25-29	87	27.9
30-34	75	24.0
35-39	42	13.5
40-49	45	14.4
50-59	8	2.6
>60	3	1.0
Sex		
Male	80	25.6
Female	224	71.8
Not indicated	8	2.6

Respondents with the lowest socio-economic status identified as monthly earnings of less than N10, 000 were 148 representing 47.4% of the study population. While 60 (19.2%) of the respondents declined indicating their discretional income, only 8 (2.6%) of the respondents were identified to have an income above N100, 000 per month. Those without formal education were 92 (29.5%) while 139 (44.6%) of these respondents had lower level of education i.e. primary and secondary school education. On1y 77 (24.7%) of the respondents had post secondary school education (Table 2).

Table 2: Discretional income and educational status

Variable	Frequency	Percentage (%)
Discretional Monthly Income (N)		
<10,000	148	47.4
10,000-19,000	45	14.4
20,000 -49,000	27	8.7
50,000-100,000	24	7.7
> 100,000	8	2.6
Not indicated	60	19.2
Educational Status		
None	73	23.4
Quaranic only	19	6.1
Primary	52	16.7
Secondary	87	27.9
Higher	77	24.7
Not indicated	4	1.3

Of the 308 respondents', their opinions on financial burden associated with HIV/AIDS revealed that 163 (52.9%) admitted that HIV/AIDS constitute financial burden on them; out of which, 14.3% accepted that the burden of HIV/AIDS and associated issues were extremely hard. On access to healthcare facilities, 171 (55.5%) of respondents' agreed that they have to travel long distances to access ART care, while 137 (44.5%) of respondents' admitted that roads leading to health facilities were in bad state.

On psychosocial effects, 71 (23%) of respondents' admitted loosing relationship due to HIV/AIDS infection while 238 (77%) stated that relationship with non-infected people was cordial and respected. Majority of respondents' 251 (81%) had disclosed their HIV positive status to either sex partner or family. Respondents' who refused to disclose their HIV positive status to anybody were 59 (19%).

A test of coping strategies of people living with HIV/AIDS in the study revealed that 203 respondents' representing 65.9% accepted that difficulties exists but they were capable of overcoming the situations. While 105 (34.1%) respondents' accepted loosing coping strategies, 78 (25.3%) of those respondents' revealed that HIV/AIDS was wearing them out; 27 (8.8%) of them

feared that HIV/AIDS could have disastrous effect on them.

A subjective assessment of adherence to appointment and medication as documented in patients case file revealed that 92.3% of respondents' adhered to clinic appointments and 92.7% of respondents' attained adherence level of 95% and above on medication. A paired *t*-test (p-value < 0.01) analysis of physiological parameters at initiation of HAART and that preceding data collection revealed the following (Table 3):

i. There was no significant rise in PCV (%) between initiation and pre-data collection (25.57 ±2.17 vs. 31.53 ±2.07) N = 31.
ii. There was no significant increase in Hb (mg/dl) (10.45 ±0.36 vs.10.79 ±0.35) N = 39.
iii. There was a significant increase in CD4 count (cells/mm^3) between onset of HAART and time preceding data collection (231.68 ±14.02 vs. 335.37 ±18.45), N = 198.

Table 3: Comparing mean laboratory parameters

	PCV (%) (N = 31)	Hb (mg/dL) (N=39)	CD_4 (cell/mm^3) (N=198)	Sc (mg/dL) (N=46)	Weight (Kg) (N=271)
Initial	25.57±2.17	10.45±0.36	231.68±14.02	92.92±7.62	55.57±0.63
Present	31.53±2.07	10.79±0.35	335.37±18.45**	67.45±2.36**	58.32±0.69**

****paired t-test P < 0.01**

i. Weights (Kg) of patients was significantly increased (55.57 ±0.63 vs. 58.32 ±0.69), N =271.
ii. There was a significant difference in serum creatinine.

Results also indicated that no patient had his/her creatinine clearance calculated as a basis for the initiation of HAART. No viral load determination was conducted for any of the patients.

The least socio-economic group with discretional income less than 10,000 naira per month 41 (44.6%) p-value 0.006 and those without any form of education 24 (55.8%) p-value 0.032 constitute the majority with better CD_4 marker (CD_4 >350cells/mm^3), (Table 4).

Table 4: Demographic and mean laboratory parameters

Variables	CD_4 < 350(cells/$mm^{3)}$ N (%)	CD_4 ≥350(cells/mm^3) N (%)	P-value*
Discretional Monthly Income (₦)			
<10,000	51(55.4)	41(44.6)	0.006*
10,000 - 19,000	21(61.8)	13 (38.2)	
20,000 -49,000	16 (100)	0 (0)	
50,000 - 100,000	12 (75.0)	4 (25.0)	
> 100,000	0 (0)	1(100.0)	
Educational Status			
None	19 (44.2)	24 (55.8)	0.032*
Informal	9 (60.0)	6 (40.0)	
Primary	20 (74.1)	7 (25.9)	
Secondary	35 (57.4)	26 (42.6)	
Higher	40 (72.7)	15 (27.3)	

***Chi Square P-value < 0.05**

Females 69 (43.1%) represent majority with CD_4>350cells/mm^3 p-value 0.001, while males account for only 7 (16.7%), (Figure 1).

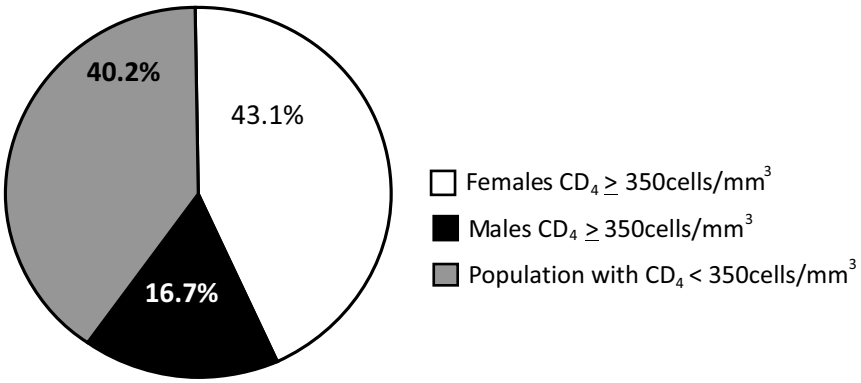

Figure 1: CD_4 Levels by sex

Respondents who are married represent majority with CD_4>350 cells/mm^3 59 (41.3%) p-value 0.047 while singles constitute 14 (25.9%), (Figure 2).

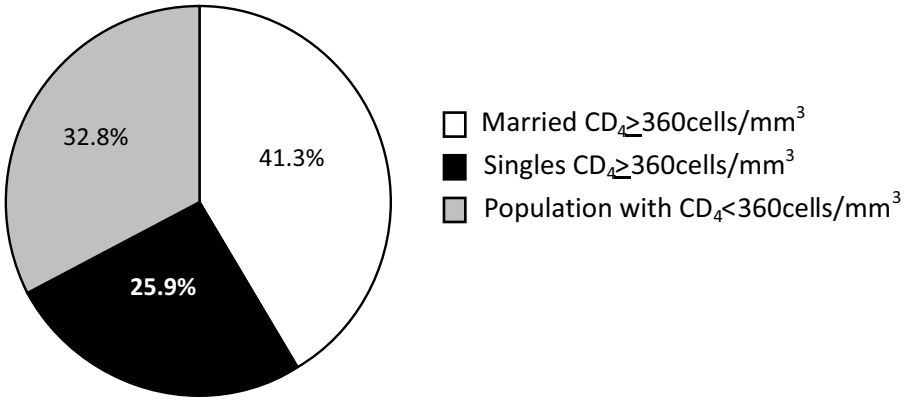

Figure 2: CD_4 Levels by Marital Status

Respondents who disagreed with the stigmatizing perception that HIV is a punishment from God constitute majority of those that adhered to medication 92 (98.9%) p-value 0.000; those who believed they are useful to the society shared similar experience on medication adherence 91 (96.8%) p-value 0.009, while respondents who accepted that they are not useful to the society adhered poorly 60 (85.7%), (Table 5).

Table 5: Association between stigmatization and adherence to medication

Question	Adherence (%)	P-value
Are there negative names or terms that people use in describing people living with HIV/AIDS in your community?		
Yes	67 (90.5)	0.254
No	110 (94.8)	
[+]They think HIV infected people are promiscuous		
Yes	93(90.3)	0.184
No	67 (95.7)	
[+]They believe HIV/AIDS is a punishment from God		
Yes	73 (84.9)	0.000*
No	92 (98.9)	
[+]They feel HIV infected people are responsible for their own problem		
Yes	115 (90.6)	0.016*
No	57 (100.0)	
[+]That HIV infected people are not useful to anyone		
Yes	60 (85.7)	0.009*
No	91(96.8)	
[+]That HIV infected people should not be allowed to mix with uninfected people		
Yes	79 (88.8)	0.024*
No	80 (97.6)	

*Chi-square P-value < 0.05
[+]Adeokun et al., [12]

Level of commitment and preparedness towards ownership of assisted ART scheme

I. Availability at health facilities of key indicator drugs (table 6):
The State owned DRF scheme had an average of 16.6% of 13 key essential drugs on stock while the assisted ART scheme had an average of 79.47% of 13 key ART drugs on stock. A chi-square (X^2) analysis indicated a significant difference (Table 6):
X^2 Calculated 152.66
DF = 5 at 0.05 level of significance
= 11.07

Table 6: Test for assessing availability of drugs

Scheme	Facility						Total	Cal X^2	Crit X^2	Result
	General Hospital Akwanga	General Hospital Doma	General Hospital N/Eggon	General Hospital Nassarawa	General Hospital Obi	Medical Centre M/Gurku				
State Owned DRF	92.3	0.0	0.0	7.7	0.0	0.0	100	152.66	11.07	Rejected
Assisted ART Scheme	92.3	76.9	69.2	76.9	84.6	76.9	476.8			
Total	184.6	76.9	69.2	84.6	84.6	76.9	576.8			

I. On logistics, assisted ART Scheme in all facilities accepted receiving monthly capitation from funding agencies based on evidence and reporting system. No facility, however, accepted receiving any fund under the State owned DRF to cover logistics and communications with clients.

II. All facilities have complete copies of monthly report of ART drugs consumption. No monthly reporting document was identified with the State owned DRF scheme.

DISCUSSION

Although, participants less than 18 years were excluded from the study, it found that the age-group 25-29 years constituted the highest proportion of respondents 87 (27.9%). This distribution by age-group indicated that the productive age-groups are mostly infected by HIV. This agrees with the findings in Uganda which revealed that HIV selectively affects adults at their prime productive years.[13] The finding also accord with Bollinger *et al*.[14] who asserted that HIV differs from other chronic diseases because it strikes people in the most productive age. The report of the Nigeria Sero-Prevalence Sentinel Survey concurs with this finding.[15]

Demographic data revealed that majority 224 (71.8%) of the respondents were females. This is similar to the report of Armstrong[13] and that of Nigeria Sentinel Survey [10] which revealed that HIV prevalence rates are higher among women than men. Green,[6] affirms that women are more vulnerable to HIV infection both due to the physiology of transmission and their inability to refuse sex or insist on condom, since gender-inequality and consequent deprivation increases their vulnerability and dependence on men.

Demographic data on socio-economic variables indicated that majority of respondents 148 (47.4%) are living below a monthly earning of 10, 000 naira; this is far less than the national minimum wage of 18, 000 naira. Socio-economic analysis based on hypothetical test indicated a statistical association between socio-economic status (discretional monthly income and educational status) and laboratory marker (CD_4 count) at P-value < 0.01. Respondents with the least discretional monthly income of less than 10, 000 naira 41(41.6%) and those without any form of education 24 (55.6%) were found to constitute greater proportion of respondents with CD_4 count > 350 cells/mm^3. Studies have shown strong association between poverty and poor health; and vulnerability to STIs and HIV infection; [16,4,17,6] this study, however, found that among those living with HIV/AIDS, those with lower socio-economic index achieved better outcomes compared to the wealthier respondents'.

Though, it is difficult to establish that among PLWHA; those with poor socio-economic index are likely to have better immunological marker (CD_4 count) than their wealthy counterparts. The exemption policy on ART medications and the care mechanism incorporated into HIV/AIDS care programme must have given the poor hope, a sense of belonging and knowledge on HIV/AIDS and its associated issues; an opportunity that must be fully explored. Conversely, the high socio-economic class may shy away from ART centres for social reason and stigmatization or self-esteem.

Although, this study revealed that respondents at the lowest socio-economic status constitute greater proportion of subjects with CD_4 counts above 350cells/mm^3, overall assessment of laboratory parameter such as CD_4 count at the initiation of HAART and that preceding data collection indicated significant difference (231.68 ±14.2 vs. 335.37 ±18.45) P<0.01; CD_4 values at both intervals were below 350cells/mm^3, It is possible that majority of subjects must have reported to hospital for their HIV/AIDS care at a time, their CD_4 count were very low, when signs and symptoms due to disease progression must have overwhelms the process of shame and denial. While Shavadia *et al*.[18] found a mean CD_4 count of 385cells/mm^3, this study found a mean CD_4 count of 335cells/mm^3. Both PCV and Hb values were found to be below the normal range both at initiation of HAART and that preceding data collection. This could suggest poor nutritional intake since 271 (87.4%) of respondents indicated wellness and majority indicated living at the lowest socio-economic levels; it could also be as a result of adverse drug reactions e.g. to zidovudine.

The gender roles imposed on women could have adverse effects on their health [19] and socio-economic disposition;[20] however, this study found a significant association between sex and physiological marker, with females having better CD_4 levels than men. A study revealed that men are more likely to have heightened systemic nervous system activities and this may facilitate HIV replication as well as suppress ART effectiveness.[21] Married individuals recorded similar rise in CD_4 counts than singles, this is most likely due to adherence to medication as couples are likely to share ideas; care, support and encourage each other.

Majority of respondents 163 (52.9%) admitted living with the virus constitute considerable financial burden; despite the exemption policy on ART medicines. Majority of respondents 172 (55.5%) would have to travel long distances to access HIV related care; considerable proportion of subjects 137 (44.5%) agreed the roads are bad. This finding agreed with a report that revealed that limited access to transportation especially in the rural areas significantly limit access for ART intervention even when patients are exempted on ART medicines.[22]

Out of the 312 respondents that participated in this study, only 31 (9.94%) had documented PCV both at the initiation of HAART and at least, one such investigation preceding data collection; 39 (12.50%) had their Hb determined at onset of HAART and at least, one Hb result preceding data collection. This is not in line with recommendations of the National guidelines on the use of HAART. For patients on HAART, our measure of care must not be based on physical assessment, patients' subjective statement of their health or wellness alone; though, they are necessary parameters; therapeutic indicators must include virological index, immunological indices and monitoring for possible actual or potential problem.

The study found a significant association between stigmatization and adherence to medication. It revealed that individuals who reject stigmatizing attitudes, stereotypes and the negative perception imposed on them by the society recorded significant adherence to medication use and appointment. A study revealed that stigmatized persons could adopt certain negative construct of managing stigma: first, there is denial; then shame and when these strategies fail to provide protection against stigma, the last option is to embark on "covering" - no longer hiding their condition but instead trying to deflect attention from it.[2] Negative perceptions and stereotype attributes ascribed to PLWHA erodes their self-esteem and performance, this is likely to influence negatively on their medication adherence. It is possible that stigmatized individuals through counseling, education and social support could have developed coping mechanism against stress, stigmatizing attitudes and negative perceptions. Davis, found that individuals with high coping ability could rise above stigma, giving others an impression that they are no "less human".[23] Individuals with exceptional coping strategies could tame threats and harm-loss appraisals to mere challenge (capable of meeting the demands).[24]

Fife and Wright[25] studied the impact of the four dimensions of stigma: social rejection, financial insecurity, internalized shame and social isolation on self-esteem, body image and personal control among persons with HIV/AIDS and cancer. They found that irrespective of socio-economic background, illness type and functional status; social rejection and social isolation were the only dimensions of stigma that erode self-esteem, while social isolation was associated with body image. In the case of mastery (personal control), social isolation and experiencing greater financial insecurity tend to reduce the amount of control people with HIV/AIDS and cancer feel they have over their lives. These researchers revealed that HIV/AIDS patients experience greater stigmatization on all four dimensions of stigma than cancer patients'. While Fife and Wright[25] explored the dimensionality, mechanisms and interactions of stigma, this study revealed that individuals may develop copping strategy capable of reducing harmful effects of stigma.

Analysis of the hypothetical test to measure the availability at health facilities of 13 drugs indicator common to each scheme indicates a statistical difference in the availability of drugs (X^2 Cal = 152.66; Critical X^2 =11.07). Most government owned hospitals are plagued with the out of stock or stock out phenomenon. This finding corroborated that of Sambo *et al.*[26] and Uzochukwu *et al*.[27] It is therefore logical to suggest that our commitment towards promoting access to medicine with our own drug revolving fund (DRF) scheme in our facilities is a measure of our commitment to implement a sustainable drug supply system, and to implement sustainable ART scheme especially when we consider the fact that adherence to medication to ART must not be less than 95% thus a mere failure to take ART medications for 2 days could have terrible implications.

One limitation of this study is the assessment of adherence on medication, based on subjective statement of respondents documented in their case files.

CONCLUSION

This study suggest that respondents with poor socio-economic disposition and those who overcame stigmatizing and derogatory attributes ascribed to them achieved statistically better treatment outcomes and medication adherence respectively. It also indicates that Nasarawa State lacks adequate commitment and capacity to independently operate a sustainable ownership in HIV/AIDS care and support programme.

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