Impact of Pharmacists' Interventions on Health Related Quality of Life in HIV/AIDS Patients.

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ABSTRACT

Background: *About 3.11million people were estimated to be living with HIV in Nigeria by 2010.Health-related quality of life assessment is necessary in chronic illnesses.*

Aim: *This study was to assess the impact of pharmacist interventions on health related quality of life of HIV/AIDS patients in a tertiary hospital.*

Methods: *This was a 4 month cross-sectional comparative study with 120 patients who served as their own control. Rand 36-Item Health Survey administered at baseline and after interventions at 2 and 4 months intervals was used to collect data. Pharmacist's interventions included education, counseling, information to patients on regimen, diet and exercise.*

Results: *One hundred and twenty patients, comprising of 71.7% females, were involved in the study. Thirty five percent rated their health to be excellent at baseline. This increased to 83.3% after intervention. The 8.3% who reported they were limited a lot in vigorous activities at baseline reported no form of limitation after. The 3.3% of patients with limitations in moderate activities became 0% after intervention. Those who had difficulty performing their work decreased from 25% to 14.6%. Those (25.0%) who reduced time spent on work decreased to 18.3%. After intervention, those patients (13.3%) who seemed to get sick easier than others reduced to 0% and those who saw their health as excellent increased from 70% to 100%. All the domains were positively affected.*

Conclusion: *The findings revealed that Pharmacists' interventions are effective and necessary in improving health related quality of life of HIV/AIDS patients.*

Keywords: *HIV/AIDS, Pharmacists' intervention, HRQOL, Tertiary hospital, Nigeria.*

INTRODUCTION
Human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) has remained a great challenge to human life with the ability to erode social and economic development. Joint United Nations Program on HIV/AIDS (UNAIDS) estimated 33.4 million people living with HIV globally in 2008[1]. Sub-Saharan Africa, which makes about 12% of the world's population has more than two-thirds (69%) of the global epidemic[2,3].

In Nigeria, about 3.11million people were estimated to be living with HIV by the end of 2010, thereby making about 9% of the global HIV burden[4]. The UNAIDS reported that young people, and increasingly girls, account for most cases of new HIV/AIDS infections in Nigeria[5]. Many HIV patients battle numerous social problem such as stigma and depression, which affect their quality of life (QOL) in terms of their physical, mental, and social health[6].

Health related quality of life (HRQOL) for patients living with HIV disease has become increasingly important, with the goals of therapy now including improvement of HRQOL in addition to the reduction of symptoms, suppression of the virus, and extension of survival[7].Those with AIDS have been known to report a lower HRQOL than do persons with other chronic conditions, such as cancer or depression[8]. Assessment of HRQOL has been found to enhance communication between patients and health care providers and allows patients to emphasize those areas of HRQOL that mostly concern them[9]. Repeated assessment can be used to track changes in functional status over time, especially in chronic illnesses, as well as to evaluate and monitor treatment effects.

Improving overall HRQOL of patients with HIV infection through symptom control and enhancement of positive general health perceptions, therefore, represents an important area of therapeutic intervention[10].This study was carried out to assess the impacts of clinical Pharmacists' interventions on health-related quality of life (HRQOL) of HIV/AIDS patients receiving antiretroviral therapy in a tertiary hospital.

PATIENTS AND METHODS
This study was carried out at the Virology Department of Olabisi Onabanjo University Teaching Hospital (OOUTH), Sagamu, Ogun State, Nigeria.

This was a 4 month cross-sectional comparative prospective study with 150 HIV/AIDS patients who served as their own control in a tertiary hospital. Rand 36-Item Health Survey, the research instrument, was administered at baseline, at 2 and 4 months respectively to collect data in the areas of socio demographic characteristics, general health, limitations of physical functioning, role limitations due to emotional problems, role limitations due to physical health,

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interference of social functions and bodily pain interference.

Pharmacists' interventions which included education, counseling, information to patients on regimen, life style modifications, keeping clinic visit periods, supportive encouragement and how to reduce medication related errors were made at baseline and at 2nd month respectively after each data collection. The last data collection was done at the 4th month from baseline. No intervention was made prior to the first administered questionnaires which served as the baseline data. Ethical approval was sought and obtained from the Local Ethics Committee of OOUTH.

HIV positive patients who were 18 years old and above and willing to participate in this study were included while non-HIV positive individuals, non-willing HIV patients and HIV positive individuals not receiving antiretroviral therapy at the Virology Department of OOUTH were excluded.

The data were analyzed using Statistical Package for Social Sciences (SPSS) version 13.0. Descriptive analyses of frequencies and percentages were generated for all the variables except where specified.

RESULTS

Out of 150 copies of the questionnaire administered to the respondents, 120 were correctly filled and returned giving 80% response rate.

Majority of the respondents, 86 (71.7%), were females. The highest age group was in the range 31-40 years (38.3%) and majority of the patients (46%) were being treated for HIV 1-3 years from baseline (table 1). Eight patients (6.7%) were divorced, 19 (15.8%) were single and 93 (77.5%) were married. With regard to family background, 51 (42.5%) were polygamous while 69 (57.5%) were monogamous. On highest educational attainment, 67(55.8%) had secondary, 33 (27.5%) had primary, 14 (11.7%) had no formal and 6 (5%) had tertiary education.

Results of assessment of Health Related Quality of Life (HRQOL) of respondents at baseline, after 1st and 2nd interventions on the parameters of general health, limitations of physical functioning of respondents on a typical day, role limitations due to emotional problems and physical health in the last 4weeks, and limitations of social functions and bodily pain interference in the past 4 weeks are presented in tables 2, 3, 4, and 5 respectively.

Table 1: Age of respondents and duration of HIV treatment.

Age (Years)		
10-19	5	4.2
20-30	43	35.8
31-40	51	42.5
41-50	16	13.3
> 50	5	4.2
Total	120	100.0
Duration of HIV treatment		
< 1 year	41	34.1
1-3 years	56	46.7
4-6 years	17	14.2
> 6 years	6	5.0
Total	**120**	**100.0**

Table 2: General health of respondents

Rating your health	At baseline Frequency (%)	After 1st intervention Frequency (%)	After 2nd intervention Frequency (%)
Excellent	42 (35.0)	85 (70.8)	100 (83.3)
Very good	58 (48.3)	27 (22.5)	20 (16.7)
good	16 (13.3)	4 (3.3)	0 (0.0)
fair	4 (3.3)	4 (3.3)	0 (0.0)
Poor	0 (0.0)	0 (0.0)	0 (0.0)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Rate your health as compared to 1year ago			
Much better	87 (72.5)	113 (94.2)	116 (96.7)
somewhat better	25 (20.8)	4 (3.3)	4 (3.3)
The same	8 (6.7)	3 (2.5)	0 (0.0)
somewhat worse	0 (0.0)	0 (0.0)	0 (0.0)
much worse	0 (0.0)	0 (0.0)	0 (0.0)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**

Table 3: Limitations of physical functioning of respondents on a typical day

Participating in vigorous activities eg running, lifting heavy objects, strenous sport	At baseline Frequency (%)	After 1st intervention Frequency (%)	After 2nd intervention Frequency (%)
Yes, limited a lot	10 (8.3)	0 (0.0)	0(0.0)
Yes, limited a little	20 (16.7)	24 (20.0)	8 (6.7)
No, not limited at all	90 (75.0)	96 (80.0)	112 (93.3)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Moderate activities (eg climbing few stair cases)			
Yes, limited a lot	4 (3.3)	0 (0.0)	0 (0.0)
Yes, limited a little	16 (13.3)	15 (12.5)	15 (15.5)
No, not limited at all	100 (83.3)	105 (87.5)	105 (87.5)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Climbing several story buildings			
Yes, limited a lot	13 (10.8)	15 (12.5)	7 (5.8)
Yes, limited a little	20 (16.7)	20 (16.7)	14 (11.7)
No, not limited at all	87 (72.5)	85 (70.8)	99 (82.5)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Climbing one storey building			
Yes, limited a lot	0 (0.0)	0 (0.0)	0 (0.0)
Yes, limited a little	10 (8.3)	5 (4.2)	4 (3.3)
No, not limited at all	110 (91.7)	115 (95.8)	116 (96.7)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Bending, kneeling or stooping			
Yes, limited a lot	12 (10.0)	10 (8.3)	10 (8.3)
Yes, limited a little	22 (18.3)	20 (16.7)	17 (14.2)
No, not limited at all	86 (71.7)	90 (75.0)	93 (77.5)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Walking more than a mile			
Yes, limited a lot	1 (0.8)	0 (0.0)	0(0.0)
Yes, limited a little	3 (2.5)	2 (1.7)	2 (1.7)
No, not limited at all	116 (96.7)	118 (98.3)	118 (98.3)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Walking several blocks of buildings			
Yes, limited a lot	0 (0.0)	0 (0.0)	0 (0.0)
Yes, limited a little	2 (1.7)	0 (0.0)	0 (0.0)
No, not limited at all	118 (98.3)	120 (100.0)	120 (100.0)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Walking one block of building			
Yes, limited a lot	0 (0.0)	0 (0.0)	0 (0.0)
Yes, limited a little	0 (0.0)	0 (0.0)	0 (0.0)
No, not limited at all	120 (100.0)	120 (100.0)	120(100.0)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Bathing or dressing yourself			
Yes, limited a lot	0 (0.0)	0 (0.0)	0 (0.0)
Yes, limited a little	0 (0.0)	0 (0.0)	0 (0.0)
No, not limited at all	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**

Table 4: Role limitations due to emotional problems and physical health in the last 4weeks

Role limitations due to emotional problems: Cut down the amount of time you spent on your work or other activities	At baseline	After 1st intervention	After 2nd intervention
Yes	40 (33.3)	35 (29.2)	35 (29.2)
No	80 (66.7)	85 (70.8)	85 (70.8)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Accomplished less than you would like			
Yes	32 (26.7)	31 (25.8)	24 (20)
No	88 (73.3)	89 (74.2)	96 (80)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Were limited in the kind of work or other activities			
Yes	26 (21.7)	22 (18.3)	17 (14.2)
No	94 (78.3)	98 (81.7)	103 (85.8)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Had difficult performing their work or other activities (for example, it took extra effort)			
Yes	30 (25)	29 (24.2)	17 (14.2)
No	90 (75)	91 (75.8)	103 (85.8)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Role limitations due to physical health: Cut down on the amount of time you spent on your work or other activities	At baseline	After 1st intervention	After 2nd intervention
Yes	30 (25.0)	27 (22.5)	22 (18.3)
No	90 (75.0)	93 (77.5)	98 (81.7)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Accomplished less than you would like			
Yes	31 (25.8)	27 (22.5)	26 (21.7)
No	89 (74.2)	93 (77.5)	94 (78.7)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Didn't do work or other activities as cheerfully as you would like			
Yes	37 (30.8)	35 (29.2)	35 (29.2)
No	83 (69.2)	85 (70.8)	85 (70.8)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**

Table 5: Limitations of social functions and bodily pain interference in the past 4 weeks

Limitations of social functions: Interference of physical health or emotional problems with normal social activities with family, groups friends, e.t.c	At baseline Frequency (%)	After 1st intervention Frequency (%)	After 2nd intervention Frequency (%)
Not at all	78 (65.0)	79 (65.8)	112 (93.3)
Slightly	9 (7.5)	11(9.2)	0 (0.0)
Moderately	17 (14.2)	17(14.2)	0 (0.0)
Quite a bit	12 (10.0)	10 (8.3)	8 (6.7)
Extremely	4 (3.3)	3 (2.5)	0 (0.0)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Interference of physical health or emotional problems with social activities (like visiting friends, relatives etc.)			
All of the time	8 (6.7)	12 (10.0)	0 (0.0)
Most of the time	8 (6.7)	4 (3.3)	0 (0.0)
Some of the time	20 (16.6)	9 (7.5)	8 (6.7)
A little of the time	12 (10.0)	9 (7.5)	0 (0.0)
None of the time	72 (60.0)	86 (71.7)	112 (93.3)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Bodily pain interference: Bodily pain during the past 4 weeks	At baseline Frequency (%)	After 1st intervention Frequency (%)	After 2nd intervention Frequency (%)
None	47 (39.2)	91(75.8)	108 (90.0)
Very mild	15 (12.5)	13 (10.8)	8 (6.7)
Mild	32 (26.7)	12 (10.0)	4 (3.3)
Moderate	24 (20.0)	4 (3.3)	0 (0.0)
Severe	2 (1.7)	0 (0.0)	0 (0.0)
Very severe	0 (0.0)	0 (0.0)	0 (0.0)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**
Bodily pain interference with your normal work (both outside home and house)			
Not at all	78 (65.0)	79 (65.8)	112 (93.3)
Extremely	4 (3.3)	3 (2.5)	0 (0.0)
Slightly	9 (7.5)	11 (9.2)	0 (0.0)
Moderately	17 (14.2)	17 (14.2)	0 (0.0)
Quite a bit	12 (10.0)	10 (8.3)	8 (6.7)
Total	**120 (100.0)**	**120 (100.0)**	**120 (100.0)**

DISCUSSION

This study showed that majority of the respondents were females and there was preponderance of HIV in the age group 31-40 years followed by 20-30 years of age. The preponderance of this age range is consistent with earlier studies[11,12]. Studies have documented an increased exposure to risks of sexually transmitted infections amongst these young people[13,14]. The predominance of females is in agreement with a similar work[11] but in contrast with some other researchers who found higher HIV prevalence among males than females[15,16]. Women are particularly affected by the epidemic in Nigeria. While globally, women constitute 48% of adults infected with HIV, in Nigeria, they constituted 57% with new infections occurring in the 15-25 years old age group[17,18]. Majority of the respondents being within child bearing age is an indication that mother to child transmission could thrive in this group. Also most of the infected people fall within the labour force age indicating potential negative effects on the country's economy.

This study showed baseline poor health related quality of life in all the domains which improved after the first interventions with even greater improvement after the second interventions without exception. This is consistent with a previous study[19], where significant improvement in QOL after 1 to 4 months of treatment with antiretroviral therapy was reported and the improvement persisted till 12 months, and also another work which recorded a significant improvement in all the domains after 6 months interventions on QOL of hypertensive patients[20].

A study found marital status had a significant effect on patients' QOL[21]. Marital status could also have contributed to our results since above 70% of the respondents were married. One may tend to believe that the physical, emotional, and social support received from their partners could contribute to improve QOL. Contrary to this, another work showed that marital status had no significant association within any domain of QOL[22]. In Nigeria, QOL has also been

found to be determined by education, income, family support, HIV serostatus, and patient age[23].

Educational background of the respondents indicated that a good number of them completed secondary school education making their understanding and knowledge encouraging which could have also contributed to the great improvement of their HRQOL.

Our results showed great improvement in social domain as much as in the other domains and this is in agreement with some previous studies[24,25] but in contrast with some other findings[11,26] where social domain score was found to be the least across board.

The benefits of pharmacists' care cannot be overemphasized especially to patients as they entail access to education about diseases and prevention, information to patients on regimen, diet and exercise, medication-related problems and prevention, lifestyle modifications and better outcomes. A recent study[27] demonstrated that patients who were managed by pharmacists had significant improvement from baseline in their CD4+ lymphocyte counts, viral loads, and drug-related toxicities. Other studies[28,29] have shown that pharmacists' care significantly contributes to the care of HIV-infected patients.

CONCLUSION

This study showed great improvement of health related quality of life in all the domains assessed. It also revealed that the 2nd interventions showed a significant improvement on the 1st outcome indicating that four months of pharmacists' intervention may not be enough to effect the desired impact that could improve HRQOL in HIV/AIDS patients. A periodical assessment of QOL of people living with HIV/AIDS is imperative for holistic care. The impact of clinical pharmacists cannot be over emphasized in the management of HIV/AIDS.

As the burden of HIV/AIDS continues to take its toll in manycountries, an opportunity exists for the clinical pharmacists to apply the prinicples of pharmaceutical care to redesign the role of pharmacy practice. It is, therefore, important to include the clinical pharmacist in the management team of HIV/AIDS patients and other chronic diseases.

POTENTIAL CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

REFERENCES

1. United Nations Programme on HIV/AIDS (UNAIDS). Report of the Global HIV/AIDS epidemic. Geneva: UNAIDS; 2009.

2. United Nations Program on AIDS (UNAIDS). Report on the Global AIDS Epidemic. Geneva: UNAIDS; 2012.

3. Population Reference Bureau. World Population Data Sheet, 2011.

4. Federal Ministry of Health. Technical Report on the 2008 National HIV/Syphilis Seroprevalence Sentinel Survey Among Pregnant Women Attending Antenatal Clinics in Nigeria. Abuja, Nigeria: Department of Public Health National AIDS/STI Control Programme; 2010.

5. United Nations Program on AIDS (UNAIDS). Report of the Global HIV/AIDS epidemic. Geneva: UNAIDS; 2004.

6. Semba RD, Martin BK, Kempen JH, Thorne JE, Wu AW, Ocular Complications of AIDS Research Group. The impact of anemia on energy and physical functioning in individuals with AIDS. Arch Intern. Med. 2005; 165 (19):2229–2236.

7. Murdaugh C. Health-related quality of life in HIV disease: achieving a balance. J. Assoc. Nurses AIDS Care. 1998; 9:59-71.

8. Hays RD, Cunningham WE, Sherbourne CD. Health-related quality of life in patients with human immunodeficiency virus infection in the United States: results from the HIV Cost and Services Utilization Study. Am. J. Med. 2000; 108:714-722.

9. Detmar SB, Muller MJ, Schornagel JH. Health-related quality-of-life assessments and patient-physician communication: a randomized controlled trial. JAMA. 2002; 288:3027-3034.

10. Calman KC. Quality of life in cancer patients-a hypothesis.J. Med. Ethics. 1984; 10:124-127.

11. Bello SI, and Bello IK. Quality of life of HIV/AIDS patients in a secondary health care facility, Ilorin, Nigeria. Proc (Bayl Univ Med Cent). 2013; 26 (2):116–119.

12. Mini KV, Ramesh A, Parthasarathi G, Mothi SN, Swamy VT. Impact of pharmacist provided education on medication adherence behaviour in HIV/AIDS patients treated at a non-government secondary care hospital in India. J AIDS/HIV Res. 2012; 4(4):94–99.

13. Ajuwon AJ, Fawole F, Osungbade K. Knowledge of AIDS and sexual practices of young female hawkers in truck and bus stations in Ibadan, Nigeria. Int'l Quarterly of Community Health Education. 2001; 20 (2):131-141.

14. Dare OO, Oladepo O, Cleland JG, Badru OB. Reproductive health needs of young persons in markets and motor parks in South West Nigeria. Afr. J. Sci. 2001; 30:199-205.

15. Tsevat J, Leonard AC, Sza? arski M, Sherman SN, Cotton S, Mrus JM, Feinberg J. Change in quality of life after being diagnosed with HIV: a multicenter

longitudinal study. AIDS Patient Care STDS. 2009; 23(11):931– 937.

16. Schifano P, Borgia P, Wu AW, Spadea T, Milanese G, Perucci CA. Validity and reliability of the Italian translation of the MOS-HIV health survey in persons with AIDS. Qual Life Res. 2003; 12: 1137 – 1146.

17. Federal Ministry of Health of Nigeria (FMOH). National HIV/AIDS and STI Control Program (HAST). The 2005 National Seroprevalence Sentinel Survey. Abuja: FMOH/HAST; 2006.

18. United Nations Program on HIV/AIDS (UNAIDS). (2006). Report on the global AIDS epidemic. [Accessed 2012 Oct 11]. Available from www.unaids.org/en/HIV_2006GlobalReport/default.asp

19. Mannheimer SB, Matts J, Telzak E, Chesney M, Child C, Wu AW, Fried- land G. Terry Beirn Community Programs for Clinical Research on AIDS. Quality of life in HIV-infected individuals receiving antiretroviral therapy is related to adherence. AIDS Care. 2005; 17(1):10–22.

20. Shahina PT, Revikumar KG, Krishnan R, Jaleel VA, Shini VK. Impact of pharmacist interventions on quality of life in patients with hypertension. International journal of Pharmaceutical sciences review and research. 2010; 5(3) 172-176.

21. Nojomi M, Anbary K, Ranjbar M. Health-related quality of life in patients with HIV/AIDS. Arch. Iran. Med. 2008; 11(6):608–612.

22. Razavi P, Hajifathalian K, Saeidi B, Esmaeeli Djavid G, Rasoulinejad M, Hajiabdolbaghi M, Paydary K, Kheirandish P, Foroughi M, Seyedalinaghi S, Mohraz M, McFarland W. Quality of life among persons with HIV/ AIDS in Iran: internal reliability and validity of an international instrument and associated factors. AIDS Res. 2012; 8(4):94–106.

23. Odili VU, Ikhuronian BI, Usifoh SF, Oparah AC. Determinants of quality of life in HIV/AIDS patients. West Afr. J. Pharm. 2011; 22(1):42–48.

24. Diamond, C., Taylor, T. H., & Anton-Culver, H. Quality of life, characteristics and survival of patients with HIV and lymphoma. Quality of Life Research. 2010; 19:149–155.

25. Hasanah CI, Zaliha AR, Mahiran M. Factors in?uencing the quality of life in patients with HIV in Malaysia. Qual Life Res. 2010; DOI 10.1007/s11136-010-9729-y).

26. Fatiregun AA, Mofolorunsho KC, Osagbemi KG. Quality of life of people living with HIV/AIDS in Kogi State, Nigeria. Benin J. Postgrad. Med. 2009; 11(1):21–27.

27. March K, Mak M, Louie SG. Effects of pharmacist's interventions on patients outcomes in an HIV primary care clinic. Am. J. Health Syst. Pharm. 2007; 64:2574-2578.

28. Calderón HB, Santolaya PR, Pérez SC, Gómez CJJ, Luque IR. Detección de errores en la administración del tratamiento antirretroviral en pacientes externos. Farm Hosp. 2004; 28(3):201-204.

29. Foisy MM, Akai PS. Pharmaceutical care for HIV patients on directly observed therapy. Ann Pharmacother. 2004; 38(4):550-556.