International Journal of TROPICAL DISEASE & Health

24(4): 1-11, 2017; Article no.IJTDH.35396
ISSN: 2278–1005, NLM ID: 101632866

Comparative Analysis of Clinical Factors Affecting Quality of Life among HIV Positive Clients in Peer Support Group in a Tertiary Hospital in Anambra State, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Authors AOO, ANA and COA designed the study, managed the analyses of data. Author CCN designed the study, performed the Interpretation of results, wrote the protocol and wrote the first draft of the manuscript. Authors ASN and BSCU managed the literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/IJTDH/2017/35396
Editor(s):
(1) Romulo Dias Novaes, Department of Structural Biology, Federal University of Alfenas, Institute of Biomedical Sciences, Ifenas, Minas Gerais, Brazil.
Reviewers:
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(2) Enedina Jimenez-Cardoso, Hospital Infantil de México Federico Gómez, Mexico.
Complete Peer review History: http://www.sciencedomain.org/review-history/20396

Original Research Article

Received 11th July 2017
Accepted 30th July 2017
Published 7th August 2017

ABSTRACT

Background: The new test and treat paradigm for HIV positives irrespective of CD4 count may significantly reduce HIV and related illnesses. Further inroad into the effects of social support and clinical factors on quality of life (QoL) of these clients could improve management strategies. This study compared the support group and non-support group memberships for clinical determinants of QoL among HIV positive clients in a tertiary hospital in Anambra state, Nigeria.

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Methods: This was an institution based comparative study of 482 HIV positive clients selected using a two -stage sampling. Data collection was by interview using WHOQOLHIV-Bref and semi-structured questionnaire, while analysis was with statistical package for social sciences version 22.0. Chi-square test was used to identify statistically significant associations between variables, with level of significance set at p value of ≤ 0.05.

Results: Differences were found in duration of HAART treatment (p=0.003), year client first tested positive (p=0.028) for both groups, and between QoL among support group members thus:HIV stage (p=0.041) and adherence (p=<0.001) in physical domain; number of months on HAART (p=0.041) in psychological domain; HIV stage (p=0.009), adherence (p=0.014) in level of independence domain; adherence (p= 0.012) in social relationships domain; HIV stage (p=0.047) in environment domain and none in spirituality domain.

Conclusions: This study found that some clinical factors as well as support group membership influence QoL and the extent depends on domains. We recommend that these factors, domains and support group membership should be put in perspective in planning care of HIV clients.

Keywords: Quality of life; HIV; peer support group; clinical determinants; Nigeria.

1. INTRODUCTION

Quality of Life (QoL) is a multi-dimensional concept with varied views on its definition and assessment [1]. According to the World Health Organization, QoL has been defined as "individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, standards, expectations and concerns [2]''.

With the advent of highly active antiretroviral therapy (HAART) and the changes in trend of eligibility cascade from CD4 ≤ 200 to CD4 ≤ 350 to CD4 ≤ 500 cells/mm^3, to the recent paradigm shift of the Nigerian national programmes for providing care and free HAART by testing, enrolling and treating all HIV positives the CD4 count notwithstanding, the average lifespan of people living with HIV/AIDS (PLWHA) has increased [3,4]. The resultant significant reduction in morbidity and mortality among HIV positives, has brought a change in perception of HIV from a fatal to a chronic and potentially manageable health condition [3,4,5,6]. Recent advances in clinical tests and treatments for PLWHA, coupled with institutional reforms and political commitment to scaling up access to HAART in Nigeria, has increased the survival of this special group thus placing more of them on life saving medication [7]. According to the United Nations Programme on HIV and AIDS (UNAIDS), Nigeria has an estimated HIV prevalence of 3.1% (though with wide variations within the country) [8]. Several studies have documented that HIV infection affects the QoL [5,9,10,11,12]. Clinical factors that have been shown to affect QoL in HIV include: presence, frequency and severity of symptoms, CD4 cell count, and adherence to therapy [13,14]. In a cross sectional study involving 419 PLWHA attending a clinic in Southwest Nigeria, Adeolu et al. [15] concluded that CD4 count greater than 350 cells /mm^3, absence of tuberculosis and HAART had a positive impact on the QoL of their clients.

From the foregoing, peer support is becoming an increasingly key strategy for dealing with chronic diseases [16]. It provides support based on the sharing of information and experience, and mutual counselling among peers [16]. A study conducted in China that compared the effectiveness of cognitive behavioural therapy (CBT) and peer support therapy/counselling (PSC) in relation to improving mood and QoL in symptomatic HIV clients revealed an improvement in QoL of almost 5% in the intervention group even though the results did not reach statistical significance [17]. In Vietnam, a randomized control trial assessing the effect of peer support on QoL, reported a significant improvement in QoL for participants presenting at stages 3 and 4 HIV clinical disease but that there was no significant effect of peer support on QoL for participants at clinical stages 1 and 2 [18].

While the QoL of PLWHA has become an important outcome in HIV management as well as a focus for researchers, there is still dearth of data on the QoL of this group of clients and on how membership of peer support groups affect their QoL in the West African sub-region and Nigeria in particular [5,9,10,11,12]. The findings of this study is expected to address the knowledge gap that exists in QoL studies especially in Nigeria. It will contribute to the

development of timely data that can form an evidence base for the formulation and implementation of policies on use of peer support groups in the management of HIV/AIDS in Anambra State and beyond. It is based on this backdrop that this study is designed to determine and compare the clinical factors that affect QoL among HIV positive clients who are members of a peer support group and those who are not in Comprehensive Health Centers of a tertiary hospital in Anambra State.

2. MATERIALS AND METHODS

2.1 Study Area, Period and Design

This institution based cross sectional comparative study was conducted between January and June 2016 at two comprehensive health centers (CHCs) of Nnamdi Azikiwe University Teaching Hospital (NAUTH) at Ukpo and Neni. The NAUTH is a tertiary health institution owned by the Federal Government of Nigeria. It is a multi-complex comprising the main site at Nnewi, Guinness Eye Center Onitsha, Trauma center Oba, Staff annex at Awka and three CHCs at Ukpo, Neni and Umunya. The Nnewi site and all the CHCs offer comprehensive HIV/AIDs services under the FHI360 Strengthening Integrated Delivery of HIV/AIDS Services (SIDHAS).

Each of the centers hosts a 30 to 35 bed facility which employs various cadre of health workers and run HIV clinic twice a week and receive referrals from surrounding towns, cities and states. At the time of this study the first facility has an average monthly attendance of 392 clients and has 779 registered PLWHA accessing care. The center also runs a peer support group for the clients, called the '*CHETANWANNE*' Support Group. The group has a total of 162 registered members. The second facility operates a linkage system with the first CHC, as both facilities are manned by the same group of doctors on a rotational basis. The center has an average monthly attendance of 264 clients and has 689 registered PLWHA accessing care. The peer support group run in this center is called the 'FAVOUR' Support Group. The group has a total of 114 registered members. Although clients are encouraged to join the support group, they are at liberty to decline, withdraw or join a support group outside that attached to the center.

2.2 Study Population and Sampling Technique

The target population comprises all registered HIV positive clients accessing care at the CHCs Ukpo and Neni. All HIV positive clients who are accessing care for at least six months and those of age 18 years or older at the commencement of this study met the inclusion criteria. Verification of clients status of belonging to a peer support group or not was done using their medical records which routinely collect data on whether a client is an active participant in a support group or not. Active participant being defined as a client participating in at least one support group activity in the immediate three months prior to data collection. Terminally ill clients and those with gross cognitive dysfunction were excluded because they were not able to respond to the questions. Pregnant women were also excluded as other factors associated with pregnancy e.g. vomiting, excessive tiredness may affect their responses.

The minimum sample size (n) to determine a difference in the mean quality of life scores between two groups of HIV positive clients that is significant at 5% level and with 90% chance of detecting a difference (power) was calculated using the formula for comparison of two means stated thus; [19] $n = \frac{(u+v)^2(\sigma_1^2+\sigma_0^2)}{(\mu_1-\mu_0)^2}$, where $\mu_1 - \mu_0$ = Difference between means; σ_1, σ_0 = Standard deviations; v = Percentage point of the normal distribution (standard normal deviate) corresponding to the two sided significance level set at 1.96; u= One sided percentage point of the normal distribution (standard normal deviate) corresponding to 100%− power ($1-\beta$) ; power = 80%, therefore u = 1.28. These assumptions were made: Firstly, that this study is on peer support groups, a form of social support, so the social domain of the WHOQoL-HIV BREF was considered the primary end point for the purpose of the sample size calculation [20]. Secondly, that the size of difference between the HRQoL mean scores that is to be detected was derived from the formula to determine effect size; [20] $\Delta = \mu_{ns}-\mu_{z/}\ \sigma$, where Δ = effect size; μ_{ns} =social domain mean of nonmembers of support group =16.09 (from a study "QOL of Nigerians living with HIV" conducted by Adeolu et al. [15] in Osun State, Nigeria); μ=social domain mean of support group members =13.6(from a study by Akpan et al. on 'QoL of people living with HIV/AIDS in Cross River State, Nigeria,' [21] σ = pooled SD = 2.91 [21,22]. Therefore,

$\mu_1 - \mu_0 = 0.86$, and the standard deviations of the social domain scores in each group. $\sigma_1 = 2.81^{105}$, $\sigma_0 = 3.01$ [21]. Calculating $n = 240.6 = 241$ per group.

Because the study compared two groups (support group members and non-support group members), the figure obtained above was multiplied by 2 to obtain the total sample size for the study: 241 × 2 =482. Thus, the minimum sample size required for the study =482 clients. Based on the average attendance over 3 consecutive months and the total monthly attendance over the 3 months, the sample size calculated was proportionately allocated to the two study centers For CHC Ukpo, the average monthly attendance was 392, therefore the minimum number of clients to be interviewed = 392/656 x 480 =286. For CHC Neni, the average monthly attendance was 264, therefore the minimum number of clients interviewed =264/656 x 480 =194. For each center, the number of clients to be interviewed was split equally into those who belong to a support group and those who do not belong to a support group. A minimum number of patients interviewed per data collection day were obtained by dividing the total number of clients to be interviewed from the center by the number of weeks scheduled for data collection. The following sampling technique was then employed: *Stage 1*: For each data collection day, a list of clients booked for appointment was determined from the Records Department. Based on information from their case notes, stratified sampling technique was used to split this list into two- those that belong to a support group and those that do not. *Stage 2:* Systematic random sampling technique was then employed as follows: From the frame of each stratum, a sampling fraction was determined by dividing the number of clients booked for appointment on each data collection day by the minimum number of clients to be interviewed in each group. Then, every n^{th} eligible consenting client presenting for care was recruited for interview until the sample size for each center was obtained.

2.3 Data Collection and Analysis

An interviewer-administered semi- structured questionnaire, was used to obtain data. The QOL was assessed using the WHOQOL HIV-Bref Instrument [22]. The WHOQOLHIV-Bref consists of 31 items with each item using a five (5) point Likert scale where 1 indicates high positive perceptions. These items are distributed in six domains thus:

S/N. domain	No of items	Items and areas assessed
1. Physical domain	Four	Presence of pain, discomfort, energy and fatigue, dependence on substances or treatments, sleep and rest, symptoms related to HIV
2. Psychological wellbeing	Five	Patient's affect, both positive and negative, self-concept, concentration, and body image;
3. Level of independence	Four	Mobility, activities of daily living, dependence on medication, perceived working capacity;
4. Social relationships	Four	Personal relationship, social support, sexual activity, social inclusion
5. Environment	Eight	Freedom, quality of home environment, physical safety and security, financial status, involvement in recreational activity, accessibility and quality of health, social care, opportunities for acquiring new information and skills, transport
6. Spirituality	Four	Forgiveness, blame, concerns about the future and death, dying

Data were collected by four (4) research assistants carefully recruited from Community health extension workers at the CHCs along with the researcher. All who gave consent and whose appointment fell within the study period were interviewed. To ensure data quality, training of data collection team, pre data collection training and regular field monitoring of data collection were done. There was spot checking and reviewing of the completeness of questionnaires during and at the end of each data collection day. The dependent /outcome variable for this study is the QoL score, while the independent variables are support group memberships, CD4 count (CD4 count used was obtained from clients case notes and the test was carried out no later than six months prior to data collection).

The data were reviewed and entered into the computer. The data were cleaned by checking for any data collection or coding errors. Data entry and analysis was carried out with the aid of International Business Machines –Statistical Package for the Social Sciences (IBM-SPSS) Windows version 22.0 [23]. Continuous and categorical variables are displayed as means ± standard deviation (SD), frequencies and percentages respectively. Bivariate analysis with Chi square test was conducted with HIV stage, CD4 cell count and duration of HIV infection as independent variables. All statistical analysis considered p values $\leq$ 0.05 as significant.

2.4 Ethical Consideration

The study has been examined and approved by the Nnamdi Azikiwe University Teaching Hospital Ethics Committee. A written informed consent was obtained from each participant for the conduct and publication of this research study and assurance of confidentiality given. Study participants were free to refuse or withdraw from the study at any time without any penalty. The study's purpose and objectives were explained to each participant prior to interview. All authors hereby declare that the study has therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

3. RESULTS

The mean duration of HIV infection was 6.88±3.20 yearsfor support group members compared to 6.33 ± 3.45 years for non-members (mean difference=- 5. 477, p=0.071).

Table 1 shows association of clinical characteristics with QoL in the physical domain. HIV stage (χ^2=4.167, p= 0.041) and adherence (χ^2=16.617, p=<0.001) among support group members were associated with QoL, while within nonsupport group members, year first tested positive (χ^2 =9.008, p=0.029, HIV stage (χ^2 =23.679, p= <0.001), and last CD4 count (χ^2=4.297, p =0.038) were associated with QoL.

Table 2 shows association of clinical characteristics with QoL in the psychological domain. The association between the number of months on HAART and QoL was significant for support group members (χ^2= 6.366, p=0.041), while in non-support group members, there was an association between level of adherence to medication and QoL (χ^2= 5.782, p =0.016).

Table 1. Association of clinical characteristics with QoL in the physical domain among HIV positive support group and non-support group members in comprehensive health centers in Anambra state, Nigeria from January to July 2016

	Support group			Non support		
Variable	**Good**	**Poor**	**χ^2 p value**	**Good**	**Poor**	**χ^2 p value**
Year first tested positive						
1998-2002	5(71.4)	2(28.6)	2.120*	5(45.5)	6(54.5)	9.008
2003-2006	25(59.5)	17(40.5)	0.548	16(43.2)	21(56.8)	0.029
2007-2010	59(56.2)	46(43.8)		51(65.4)	27(34.6)	
2011-2015	57(65.5)	30(34.5)		52(45.2)	63(54.8)	
Source of infection						
Sexual route	122(60.4)	80(39.6)	4.720	97(51.9)	90(48.1)	0.414
Blood products	9(45.0)	11(55.0)	0.094	9(56.2)	7(43.8)	0.813
Others	15(78.9)	4(21.1)		18(47.4)	20(52.6)	
HIV stage						
Asymptomatic	134(62.9)	79(37.1)	4.167	120(57.7)	88(42.3)	23.679
Symptomatic	12(42.9)	16(57.1)	0.041	4(12.1)	29(87.9)	<0.001
Last CD4 count						
>500 cell/mm^3	67(58.3)	48(41.7)	0.496	62(59.0)	43(41.0)	4.297
<500 cells/mm^3	79(62.7)	47(37.3)	0.481	62(45.6)	74(54.4)	0.038
Level of adherence						
Good	142(64.5)	78(35.5)	16.617	112(53.6)	97(46.4)	2.876
Poor	4(19.0)	17(81.0)	<0.001	12(37.5)	20(62.5)	0.090
Duration on HAART(months)						
<60	80(67.8)	38(32.2)	5.791	69(46.0)	81(54.0)	4.853*
60-119	58(55.2)	47(44.8)	0.055	50(61.0)	32(39.0)	0.088
>= 120	8(44.4)	10(55.6)		5(55.6)	4(44.4)	

**likelihood ratio chi square*

Table 2. Association of clinical characteristics with QoL in the psychological domain among HIV positive support group and non-support group members in comprehensive health centers in Anambra state, Nigeria from January to July 2016

	Support group			Non support		
Variable	**Good**	**Poor**	**χ^2 p value**	**Good**	**Poor**	**χ^2 p value**
Year first tested positive						
1998-2002	6(85.7)	1(14.3)	4.389*	8(72.7)	3(27.3)	7.167
2003-2006	23(54.8)	19(45.2)	0.222	17(45.9)	20(54.1)	0.067
2007-2010	68(64.8)	37(35.2)		47(60.3)	31(39.7)	
2011-2015	61(70.1)	26(29.9)		51(44.3)	64(55.7)	
Source of infection						
Sexual route	137(67.8)	65(32.2)	3.097	93(49.7)	94(50.3)	0.573
Blood products	10(50.0)	10(50.0)	0.213	9(56.2)	7(43.8)	0.751
Others	11(57.9)	8(42.1)		21(55.3)	17(44.7)	
HIV stage						
Asymptomatic	143(67.1)	70(32.9)	2.017	111(53.4)	97(46.6)	3.295
Symptomatic	15(53.6)	13(46.4)	0.156	12(36.4)	21(63.6)	0.070
Last CD4 count						
>500 cell/mm	73(63.5)	42(36.5)	0.422	58(55.2)	47(44.8)	1.314
<500 cells/mm	85(67.5)	41(32.5)	0.516	65(47.8)	71(52.2)	0.252
Adherence						
Good	148(67.3)	72(32.7)	3.280	113(54.1)	96(45.9)	5.782
Poor	10(47.6)	11(52.4)	0.070	10(31.2)	22(68.8)	0.016
No. of months on HAART						
<60 months	85(72.0)	33(28.0)	6.366	70(46.7)	80(53.3)	4.728*
60-119 months	65(61.9)	40(38.1)	0.041	46(56.1)	36(43.9)	0.094
>= 120 months	8(44.4)	10(55.6)		7(77.8)	2(22.2)	

**likelihood chi square*

Table 3. Association of clinical characteristics with QoL in the level of independence domain among HIV positive support group and non-support group members in comprehensive health centers in Anambra state, Nigeria from January to July 2016

	Support group			Non support		
Variable	**Good**	**Poor**	**χ^2 p value**	**Good**	**Poor**	**χ^2 p value**
Year first tested positive						
1998-2002	6(85.7)	1(14.3)	0.937*	5(45.5)	6(54.5)	0.880
2003-2006	29(69.0)	13(31.0)	0.816	18(48.6)	19(51.4)	0.830
2007-2010	74(70.5)	31(29.5)		39(50.0)	39(50.0)	
2011-2015	62(71.3)	25(28.7)		50(43.5)	65(56.5)	
Source of infection						
Sexual route	146(72.3)	56(27.7)	1.076	89(47.6)	98(52.4)	0.658
Blood products	13(65.0)	7(35.0)	0.584	6(37.5)	10(62.5)	0.720
Others	12(63.2)	7(36.8)		17(44.7)	21(55.3)	
HIV stage						
Asymptomatic	157(73.7)	56(26.3)	6.750	105(50.5)	103(49.5)	9.808
Symptomatic	14(50.0)	14(50.0)	0.009	7(21.2)	26(78.8)	0.002
Last CD4 count						
>500 cell/mm	78(67.8)	37(32.2)	1.044	53(50.5)	52(49.5)	1.199
<500 cells/mm	93(73.8)	33(26.2)	0.307	59(43.4)	77(56.6)	0.274
Adherence						
Good	161(73.2)	59(26.8)	6.078	98(46.9)	111(53.1)	0.110
Poor	10(47.6)	11(52.4)	0.014	14(43.8)	18(56.2)	0.740
No. of months on HAART						
<60 months	88(74.6)	30(25.4)	2.926	69(46.0)	81(54.0)	0.067*
60-119 months	73(69.5)	32(30.5)	0.231	39(47.6)	43(52.4)	0.967
>= 120 months	10(55.6)	8(44.4)		4(44.4)	5(55.6)	

**likelihood ratio chi square*

Table 3 shows association of clinical characteristics with QoL in the level of independence domain. There was an association between QoL and HIV stage (χ^2 =6.750, p = 0.009) and adherence (χ^2= 6.078, p = 0.014) within support group members. Within the non-support group members, association of HIV stage with QoL was statistically significant (χ^2= 9.808, p= 0.002).

Table 4 shows association of clinical characteristics with QoL in the social relationships domain. The association between adherence and QoL was statistically significant within support group members (χ^2= 6.375, p= 0.012). However, in non-support group members an association was found between QoL and source of infection (χ^2= 15.640, p= <0.001), HIV stage (χ^2= 5.491, p = 0.019) and adherence (χ^2= 8.525, p= 0.004).

Table 5 shows association of clinical characteristics with QoL in the environment domain. There was an association between HIV stage and Qol among support group members (χ^2 = 3.960, p= 0.047), while within nonsupport group members, an association was observed in the association between QoL and HIV stage (χ^2 = 18.491, p = <0.001) and adherence (χ^2 6.707, p = 0.010).

Table 6 shows association of clinical characteristics with QoL in the spirituality domain. There was no statistically significant association observed between all the clinical variables and QoL in support group members. However, in nonsupport group members, there were associations between QoL and source of infection (χ^2 = 7.404, p = 0.025), stage of HIV infection (χ^2 =5.230, p = 0.022) and level of adherence (χ^2= 8.241, p = 0.004).

4. DISCUSSION

This cross sectional comparative study was conducted among HIV positive clients accessing care at two HIV treatment centers in Anambra State. The study determined and compared the clinical characteristics associated with QoL among the two groups (support group and non-support members) of clients.

Table 4. Association of clinical characteristics with QoL in the social relationships domain among HIV positive support group and non-support group members in comprehensive health centers in Anambra state, Nigeria from January to July 2016

	Support group			Non support		
Variable	**Good**	**Poor**	**χ^2 p value**	**Good**	**Poor**	**χ^2 p value**
Year first tested positive						
1998-2002	5(71.4)	2(28.6)	1.297*	7(63.6)	4(36.4)	2.279*
2003-2006	21(50.0)	21(50.0)	0.730	19(51.4)	18(48.6)	0.519
2007-2010	57(54.3)	48(45.7)		50(64.1)	28(35.9)	
2011-2015	49(56.3)	38(43.7		64(55.7)	51(44.3)	
Source of infection						
Sexual route	107(53.0)	95(47.0)	3.008	96(51.3)	91(48.7)	15.640
Blood products	11(55.0)	9(45.0)	0.222	13(81.2)	3(18.8)	<0.001
Others	14(73.7)	5(26.3)		31(81.6)	7(18.4)	
HIV stage						
Asymptomatic	118(55.4)	95(44.6)	0.291	127(61.1)	81(38.9)	5.491
Symptomatic	14(50.0)	14(50.0)	0.589	13(39.4)	20(60.6)	0.019
Last CD4 count						
>500 cell/mm	60(52.2)	55(47.8)	0.599	57(54.3)	48(45.7)	1.107
<500 cells/mm	72(57.1)	54(42.9)	0.439	83(61.0)	53(39.0)	0.293
Adherence						
Good	126(57.3)	94(42.7)	6.375	129(61.7)	80(38.3)	8.525
Poor	6(28.6)	15(71.4)	0.012	11(34.4)	21(65.6)	0.004
No. of months on HAART						
<60 months	65(55.1)	53(44.9)	0.179	83(55.3)	67(44.7)	4.711*
60-119 months	58(55.2)	47(44.8)	0.914	49(59.8)	33(40.2)	0.095
>= 120 months	9(50.0)	9(50.0)		8(88.9)	1(11.1)	

**likelihood ratio chi square*

Table 5. Association of clinical characteristics with QoL in the environment domain among HIV positive support group and non-support group members in comprehensive health centers in Anambra state, Nigeria from January to July 2016

	Support group			Non support		
Variable	**Good**	**Poor**	**χ^2 p value**	**Good**	**Poor**	**χ^2 p value**
Year first tested positive						
1998-2002	5(71.4)	2(28.6)	0.713*	6(54.5)	5(45.5)	3.225*
2003-2006	25(59.5)	17(40.5)	0.870	23(62.2)	14(37.8)	0.358
2007-2010	61(58.1)	44(41.9)		51(65.4)	27(34.6)	
2011-2015	54(62.1)	33(37.9)		61(53.0)	54(47.0)	
Source of infection						
Sexual route	120(59.4)	82(40.6)	1.720	112(59.9)	75(40.1)	0.722
Blood products	11(55.0)	9(45.0)	0.423	9(56.2)	7(43.8)	0.697
Others	14(73.7)	5(26.3)		20(52.6)	18(47.4)	
HIV stage						
Asymptomatic	133(62.4)	80(37.6)	3.960	133(63.9)	75(36.1)	18.491
Symptomatic	12(42.9)	16(57.1)	0.047	8(24.2)	25(75.8)	<0.001
Last CD4 count						
>500 cell/mm	71(61.7)	44(38.3)	0.227	62(59.0)	43(41.0)	0.022
<500 cells/mm	74(58.7)	52(41.3)	0.634	79(58.1)	57(41.9)	0.881
Adherence						
Good	136(61.8)	84(38.2)	2.876	129(61.7)	80(38.3)	6.707
Poor	9(42.9)	12(57.1)	0.090	12(37.5)	20(62.5)	0.010
No. of months on HAART						
<60 months	73(61.9)	45(38.1)	0.860	84(56.0)	66(44.0)	1.243*
60-119 months	60(57.1)	45(42.9)	0.651	52(63.4)	30(36.6)	0.537
>= 120 months	12(66.7)	6(33.3)		5(55.6)	4(44.4)	

**likelihood ratio chi square*

Table 6. Association of clinical characteristics with QoL in the spirituality domain among HIV positive support group and non-support group members in comprehensive health centers in Anambra state, Nigeria from January to July 2016

	Support group			Non support		
Variable	**Good**	**Poor**	**χ^2 p value**	**Good**	**Poor**	**χ^2 p value**
Year first tested positive						
1998-2002	5(71.4)	2(28.6)	1.703*	6(54.5)	5(45.5)	2.147*
2003-2006	21(50.0)	21(50.0)	0.636	17(45.9)	20(54.10	0.543
2007-2010	49(46.7)	56(53.3)		47(60.3)	31(39.7)	
2011-2015	43(49.4)	44(50.6)		62(53.9)	53(46.1)	
Source of infection						
Sexual route	94(46.5)	108(53.5	5.132	94(50.3)	93(49.7)	7.404
Blood products	10(50.0)	10(50.0)	0.077	10(62.5)	6(37.5)	0.025
Others	14(73.7)	5(26.3)		28(73.7)	10(26.3)	
HIV stage						
Asymptomatic	109(51.2)	104(48.8)	3.587	120(57.7)	88(42.3)	5.230
Symptomatic	9(32.1)	19(67.9)	0.058	12(36.4)	21(63.6)	0.022
Last CD4 count						
>500 cell/mm^3	57(49.6)	58(50.4)	0.032	64(61.0)	41(39.0)	2.869
<500 cells/mm^3	61(48.4)	65(51.6)	0.858	68(50.0)	68(50.0)	0.090
Adherence						
Good	111(50.5)	109(49.5)	2.249	122(58.4)	87(41.6)	8.241
Poor	7(33.3)	14(66.7)	0.134	10(31.2)	22(68.8)	0.004
Months on HAART						
<60	56(47.5)	62(52.5)	0.433	78(52.0)	72(48.0)	2.746*
60-119	52(49.5)	53(50.5)	0.805	47(57.3)	35(42.7)	0.253
>= 120	10(55.6)	8(44.4)		7(77.8)	2(22.2)	

**likelihood ratio chi square*

From the index study, clinical characteristics were shown to affect QoL to varying degrees depending on the domain being assessed. In this study, differences were found in duration of HAART treatment, year client first tested positive for both groups, and between QoL among support group members thus: HIV stage and adherence in the physical domain; number of months on HAART in the psychological domain; HIV stage, adherence in the level of independence domain; adherence in the social relationships domain; HIV stage in the environment domain and none in the spirituality domain. This finding corroborates the findings reported in Nigeria and elsewhere, that clinical characteristics affect QoL in their clients [15,24,25,26,27,28,29,30,31,32]. Though these works did not classify the factors reported to have affected QoL based on domains.

The current research found statistically significant associations between QoL and the stage of infection as well as with level of adherence in the physical, level of independence, social relationship and environment domains for support group members. Among non-members, statistically significant associations were found between QoL and the last CD4 count in the physical domain, as well as QoL and source of infection in the social relationship and spirituality domains. Adeolu et al. [15] also found a significant association between CD4 count and QoL in the physical domain. For PLWHA, a higher CD4 count is considered a sign of good physical health and could account for this finding. These associations are interpreted with the view that the index study is a cross-sectional study and temporality cannot be established between the factors and QoL among the respondents. Further studies are suggested in this area.Our study revealed that more than four in every ten (41.9%) of the respondents tested positive in the past five years. This finding agrees with the National Agency for the Control of AIDS (NACA) 2014 report which showed a fifty percent increase in number of counselling and testing done in the report year compared with the previous year [33]. This could be as a result of the increase in uptake of free HIV counselling and testing.

From the findings of the index study, the use of HAART and good adherence to medication are major requirements in PLWHA to prevent onset of symptoms and reduce symptoms already present. Also majority (87.3%) of the respondents in this study were asymptomatic. This finding may be attributed to the increase in uptake of HAART as documented by the United States Programme on HIV/ AIDS [34,35]. It could also be as a result of the huge advancements in management of HIV over the years. This finding is consistent with the findings in studies carried out on HIV positive clients at Enugu, and Ibadan in which more than three-quarters (78.6% and 74.7% respectively) of the participants were asymptomatic [26,31].

5. LIMITATIONS OF THE STUDY

Though WHOQOL-HIV BREF instrument is a well– structured validated instrument for data collection, it measures QOL within two weeks prior to the interview thus the information provided by respondents may be influenced by recall bias. This was overcome by giving participants enough time to reflect and think through a sequence of events in their life before answering. Secondly, the cross-sectional design of the study makes it difficult to causally link or draw conclusions on the direction of the relationship of the variables with QOL.

6. CONCLUSION

In this study, the researchers found that depending on domains assessed, some clinical factors and support group membership influence QoL. We recommend that stakeholders (Clients, Health workers, Government and Non-Governmental Organizations) should put these factors, domains assessed and support group membership in perspective in planning care of HIV clients. Health workers should implement peer support therapy/counselling (PSC) targeted at continued counselling and health education of the clients on the role that participation in support group activities play on QoL. There should also be sustained good treatment and follow up of clients by clinicians so that PLWHA do not develop symptoms.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Swindells C, Susan S, Mohr J, Justis JC, Berman S, Squier C, et al. QOL in patients with human immunodeficiency virus infection: Impact of social support,coping style and hopelesness. Int J STD/AIDS. 1999;10(6):383-91.
2. The WHOQOL Group. Development of the World Health Organization WHOQOL-BREF qulity of life assessment. Psychol Med. 1998;28(3):551-8.
3. Deepeka A, Seema P, Minnie M. Assessment of the quality of life of HIV positive people receiving HAART: An Indian perspective. Indian J of Community Med. 2012;37(3):165-169.
4. Lorenza NC, Cibele CC, Mark Drew CG. Quality of life among HIV infected patients in Brazil after initiation of treatment. Clinics. 2009;64(9):867-875.
5. Basavarajaiah DM, Narasimha murty B, Leelavarthy B, Maheshappa K. Assessment of quality of life of people living with HIV/aids in Karnataka State. IJSTR. 2012;1(10):38-47.
6. Bello SI. Management outcomes of HIV/ AIDS patients on Haart in a secondary health Institution in North Central Nigeria. Pharmacologia. 2012;3(8):336-343.
7. National Population Commission (NPC) [Nigeria] and ICF Macro. Nigeria Demographic and Health Survey. Abuja, Nigeria; 2013.
8. Federal Ministry of Health. 2010 National HIV Sero-prevalence Sentinel Survey. Technical Report. Department of Public Health National AIDS/STI Control Programme; 2010.
9. Amare A, Ameiro Y, Amsalu F, Solomon M.; 2013.
   Available:www.omicsonline.org
   [Cited 2014 April 23].
   DOI: 10.4172/2155-6113.1000272
10. Clayson DJ, Wild DJ, Quarterman P, Duprat-Lomon I, Kubin M, Coons SJ. A comparative Review of health realted quality of life measures for use in HIV/AIDS clinical trials. Pharmacoeconomics. 2006;24(8):751-65.
11. Douaihy A, Singh N. Factors affecting quality of life in patients with HIV infection. AIDS Read. 2001;11(9):450-4.
12. UNAIDS. World AIDS Day Report; 2012. [Cited 2014 May 20]
    Available:http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2012/gr2012/JC2434_WorldAIDSday_results_en.pdf
13. Agu KA, Okojie O, Oqua DA, King RC, Isah MA, Iyaji PG, et al. Health related qualty of life and CD4 cell status of patients receiving anti retoviral therapy in NIgeria. West African Journal of Pharmacy. 2012;23(2):87-97.
14. Abrea K, Gedif T, Engladwork E, Gebre_Mariam T. Quality of life of people livig with HIV/AIDS and on highly active retroviral theray in Ethiopia. African Journal of AIDs Research. 2010;9(1):31-40.
15. Adeolu OA, Suliat OA, Peter BO, Ajani AR, Adetoun AP, Opayemi RA, et al. Quality of life of Nigerians living with human immunodeficiency virus. Pan African Med J. 2014;18:231.
16. Doull M, O'Connor OM, Weich V, Tugwell P, Wells GA. Peer support strategies for improving the health and well being of individuals with chronic diseases (protocol). Cochrane Database of Systematic Reviews. 2005;(3):1-8.
17. Molassiotis A, Callaghan P, Twin SF, Lam SW, Chung WY, Li CK. A pilot study of the effects of cognitive behavioura group therapy and peer support/counselling in decreasing psychological distress and improving quality of life in Chinese patients with symptomatic HIV disease. AIDS patient care STDs. 2002;16(2):83-96.
18. Van TV, Larsson M, Pharis A, Diedrichs B, Nguyen PH, Nguyen CT, et al. Peer support and improved quality of life amongst persons living with HIV on antiretoviral treatment: A randomised control trial from North East Vietnam. Health Qual Llife Outcomes. 2012;10(53). DOI: 10.1186/1477-7525-10-53
19. Kirkwood BR, Sterne JAC. Essential medical statistics. 2nd ed. Massachusettes: Blackwell Science. 2003;420.
20. Walters SJ. Sample size and power estimation for studies with health related quality of life outcomes: A comparison of four methods using the SF- 36. Health and Quality of Life Outcomes. 2004;2:26.

21. Samson Akpan PE, Ojong IN, Ella R, Edet OB. Quality of life of people living with HIV/AIDS in Cross River Nigeria. Int J Med Biomed Res. 2013;2(3):207-212.
22. World Health Organisation. WHOQOL-HIV Bref; 2002.
[Cited 2014 June 7]
Available:www.who.int/./whoqol_hiv_bref.pdf
23. Statistical Package for Social Sciences (IBM SPSS) 22.0 version. Armonk NY: IBM United States. IBM Corp; 2013.
24. Adedimeji AA, Odutolu O. Care support and quality of life outcomes among persons living with HIV in the HAART era: Findings from south west Nigeria; 2012.
[Cited 2014 April 17]
Available:http://www.hsph.harvard.edu/takemi/files/ 2012 /10/RP227.pdf
25. Fatiregun AA, Mofolorunsho KC, Osagbemi KG; 2009.
[Cited 2014 March 21]
Available:www.ajol.info/index.php/,
http://dx.doi.org/10.4314/bjpm.v11i1.48823
26. Odili VU, Isibhakhomhem BI, Usifoh SF, Oparah AC. Determinats of quality of life in HIV/AIDs patients. West African Journal of Pharmacy. 2011;22(1):42-48.
27. Mofolorunsho KC, Nwankwo EO, Mofolorunsho TB. Socio economic factors influencing quality of life of people living with HIV/AIDs in Kogi State Nigeria. Nature and Science. 2013;11(8):33.
28. Razera F, Ferreira J, Bonamigo RR. Factors associated with health related quality of life in HIV infected Brazilians. Int J STD AIDS. 2008;19(8):519-23.
29. Akinyemi OO, Owoaje ET, Popoola OA, Ilesanmi OS. Quality of life and associated factors among adults in a community in south west Nigeria. Ann Ib Postgrad Med. 2012;10(2):34-39.
30. Bello KB, Bello SI. Quality of life in HIV/AIDS patients in a secondary health care facility Ilorin, Nigeria. Proc (Bayl Univ Med Cent). 2013;26(2):116-9.
31. Folarise OF, Irabor AE, Folarise AM. Quality of life of people living with HIV and AIDS attending the retroviral clinic university college hospital Nigeria. African Journal of Primary Health Care and Family Medicine. 2012;4(1):8.
32. Arjun BY, Unikrishman B, Ramapuram JT, Thapar R, Mithral P, et al. Factors influencing quality of life among people living with HIV in coastal India. J Int Assoc Provid AIDS Care; 2015.
pii: 2325957415599213
[Epub ahead of print]
33. Mbakwem AC, Aina FO, Amadi CE, Akinbode AA, Mokwunyei J. Comparative analysis of the quality of life of heart failure patients in South Western Nigeria. World Journal of Cardiovas Diseases. 2013;3: 146–153.
34. UNAIDS. World AIDS Day Report; 2012.
[Cited 2014 May 20]
Available:http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2012/gr2012/JC2434_WorldAIDSday_results_en.pdf
35. UNAIDS. Together we will end AIIDS; 2012.
[Cited 2014 May 21)
Available:http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2012/jc2296_unaids_togetherreport_2012en.pdf

Peer-review history:
The peer review history for this paper can be accessed here:
http://sciencedomain.org/review-history/20396