ORIGINAL PAPER

Quality of life and its association with anxiety, depression, and social support among people living with HIV in Calabar, Nigeria

Bassey Eyo Edet[1], Emmanuel Aniekan Essien[2], Chidi John Okafor[2], Emmanuel Omamurhomu Olose[2], Daniel Miebaka Faithful[3,4], Bonaventure Michael Ukoaka[5]

[1]Federal Neuropsychiatric Hospital, Calabar, Nigeria
[2]Department of Psychiatry, University of Saskatchewan, Canada
[3]University of Calabar, Nigeria
[4]Department of Clinical Services, Rivers State University Teaching Hospital, Nigeria
[5]Department of Internal Medicine, Asokoro District Hospital, Abuja, Nigeria

Abstract

Introduction: Human immunodeficiency virus (HIV) infection is a chronic disease associated with psycho-social risks, including stigma and poor mental health. Concurrently, these can have a substantial impact on quality of life (QoL). The aim of this study was to determine the pattern of QoL among persons living with HIV, and to assess its association with depression, anxiety, and social support.

Material and methods: This was a cross-sectional study among 209 respondents receiving care from HIV clinic of General Hospital, Calabar. Socio-demographic questionnaire, World Health Organization QoL in HIV – BREF (WHOQOL HIV-BREF), hospital anxiety and depression scale (HADS), and Oslo social support scale (OSSS-3), were administered to consenting clinic attendees. Alpha level for bivariate analysis was set at 0.05.

Results: QoL was lowest in independence domain and highest in spirituality domain. Patients with at least secondary education and those with employment had a significantly better QoL ($p < 0.05$). All QoL domains showed significant negative correlations with both anxiety and depression scores ($p < 0.05$), while physical, psychological, environmental, and spirituality fields had substantial positive correlations with social support ($p < 0.05$). After linear regression, anxiety (β = –0.31; 95% CI: –1.37 to –0.62), depression (β = –0.46; 95% CI: –1.85 to –1.10), and unemployment (β = –0.10; 95% CI: –6.20 to –0.26), predicted QoL.

Conclusions: Anxiety and depression reduce the QoL of people living with HIV. Social support, on the other hand, might be a protective factor. More research is needed to establish causal relationships.

HIV AIDS Rev 2026; 25, 2: 165-170
DOI: https://doi.org/10.5114/hivar/173504

Key words: quality of life, depression, anxiety, protective factors.

Address for correspondence: Emmanuel Aniekan Essien, Department of Psychiatry, University of Saskatchewan, 105 Administration Pl, Saskatoon Canada, e-mail: Bassey.Edet@saskhealthauthority.ca

Article history:
Received: 24.07.2023
Revised: 08.10.2023
Accepted: 08.10.2023
Available online: 10.06.2026

International Journal of HIV-Related Problems
HIV & AIDS Review

Introduction

Since the emergence of the human immunodeficiency virus (HIV) pandemic, it has claimed nearly 40 million lives worldwide [1]. The global prevalence has fallen over the last two decades, but infection rates are increasing in some countries with previously reported decline [2]. Almost 40 million people live with the condition, of which two-thirds reside in Africa [2]. HIV infection is still without a cure, but effective treatments have become available, drastically reducing the associated morbidity and mortality [3]. As a result, HIV infection has become a chronic disease requiring life-long suppressive treatment, thus people living with HIV (PLWH) can lead long, healthy, and productive lives [2]. Nevertheless, they remain a vulnerable population and are exposed to risks, which can negatively impact their quality of life (QoL) [2, 3].

The HIV burden and its impact on other health indices in sub-Saharan countries, such as Nigeria, has remained a cause of concern [4]. Nigeria's prevalence is the highest in West and Central Africa (WCA), ranking fourth worldwide [5]. There were almost two million PLHIV in 2019, with 107,112 new infections comprising over a third of new cases in WCA [5]. Despite significant advancement in the availability and awareness of therapeutics for PLWH in the country, stigmatization persists, impacting QoL and threatening progress in alleviating the disease's burden [6].

Health-related QoL is a metric that assesses how a disease affects the ability of individuals to live fulfilling lives [7]. It is a multidimensional construct with physical, social, and psychological domains, including negative and positive aspects [7]. QoL provides valuable feedback concerning health interventions or systems, and is an essential measure of unmet health needs [8]. Most research have focused on subjective perceptions of life quality, a better predictor of morbidity and mortality than objective measures [9].

HIV infection is known to impact health-related QoL. Among HIV-infected patients, physical health aspects of life quality have greatly improved due to the availability of better treatments, yet it is still lower compared with healthy populations [10]. Other elements, such as psychological or social domains, also suffer adverse consequences [10]. Factors responsible include the experience of stigma and discrimination, psychological impact of the illness, and other social issues, in addition to the underlying infection itself [10]. Studies indicated that QoL among PLWH in Nigeria is affected by various factors, such as education, family support, HIV status, income, and age [8]. Consequently, it is recommended to regularly evaluate QoL of PLWH to promptly identify and address issues that may arise [8]. Additionally, good health-related QoL was observed among HIV-positive Nigerian children and teenagers who followed their treatment regimen [2]. Another Nigerian study showed that married adult patients who took fewer pills and underwent more extended therapy, demonstrated better QoL [11].

The World Health Organization has reiterated the need for a holistic approach to care of PLWH [12]. While physical health remain a priority, psycho-social aspects warrant consideration as they can worsen disease outcomes. Even though it has been proven that PLWH have poorer mental health status compared with the general population, this aspect of their care is primarily neglected [13]. Other factors, such as social support, can act as a buffer against adverse psycho-social experiences seen in this population, and thus improve QoL [13, 14]. Our study aimed to determine the QoL among PLWH. In the spirit of a holistic approach to care, we also sought to investigate how depression, anxiety, and social support are related to QoL in PLWH.

Material and methods

This cross-sectional study was conducted in the General Hospital, Calabar, Nigeria. The State Government owns this facility and provides secondary-level healthcare to the Calabar metropolis, which has a population of over 500,000. The hospital has a bed capacity of 100, and provides daily services to nearly 50 PLWH. The study population comprised registered patients receiving care in the HIV clinic of the General Hospital, Calabar. Inclusion criteria were patients who had received a clinical diagnosis of HIV, were under antiretroviral medication, and aged 18 years and above. Patients who refused consent to participate in the study were excluded.

Using a prevalence from previous research [15], the Cochran formula was implemented to determine the sample size of 246 at a 95% confidence interval and 5% precision [15]. This was adjusted for a finite study population size of 2,000 [16] to arrive at 219.

Ethical clearance was obtained from the State Ministry of Health Research Ethics Committee to conduct the study, while informed consent was obtained from every study participant.

Data were collected between May and August 2021. Consecutive clinic attendees were approached for recruitment while waiting to be seen by their clinician. First, the study's objectives were explained to them, and they were informed that participation was voluntary. Patients who provided informed consent were provided the following questionnaires to fill out:

1. Socio-demographic questionnaire to gather basic information, such as age, gender, etc.
2. World Health Organization quality of life – BREF (WHOQOL HIV-BREF): This instrument was designed by the World Health Organization to assess QoL among PLWH [17]. A brief version of the tool was used, containing 31 items and evaluating QoL in six dimensions: physical health, psychological health, level of independence, social relationship, environmental health, and spirituality. The response to each item uses a 5-item Likert's scale, rated from 1 to 5. Scores are generated for each domain and multiplied by a factor of 4 to yield final scores ranging from 4 to 20. It is one of the most widely used tool, with good psycho-metric properties [18].

3. Hospital anxiety and depression scale (HADS) is a 14-item instrument, designed for rapid psychological distress screening [19]. It has two sub-scales assessing anxiety and depression, each containing seven items, which are scored using a Likert's scale from 0 to 3, with total scores ranging from 0 to 21. Scores from 0 to 7 are considered non-cases, 8 to 10 are borderline, and scores 11 and above indicate anxiety or depression. HADS is known to have good reliability and validity, and has been used globally [20].
4. Oslo social support scale-3 (OSSS-3): OSSS-3 is a brief measure of social support consisting of only three questions on the accessibility of help, how concerned other people are about the respondent, and the number of close confidants the respondent has. Total scores range from 3 to 14, with higher scores indicating a higher level of social support. OSSS-3 has been established to have good psycho-metric properties, and its brevity is considered an added advantage [21].

Data were analyzed using IBM SPSS version 22. Socio-demographic variables were presented as frequencies and proportions, while the pattern of QoL was shown with descriptives, including mean and standard deviations. Shapiro-Wilk test was used to determine whether continuous variables (QoL, depression, anxiety, and social support scores) were normally or not normally distributed ($p < 0.05$). Mann-Whitney U test was employed to calculate the relationships between socio-demographic variables and overall QoL. Spearman's correlation was applied to determine associations between QoL, anxiety scores, depression scores, and level of social support. To control the effect of potential confounding by socio-demographic variables, a linear regression was used to determine predictors of overall QoL. An alpha level for all statistical testing was set at 0.05.

Results

Two hundred and nine respondents filled out the questionnaires, showing a response rate of 95%. Table 1 presents the socio-demographic characteristics of the sample. The mean age was 35 years, and the majority were females. Other main sub-groups included unmarried individuals, those having at least secondary education, and employed. Table 2 displays descriptive QoL scores of the study respondents in 6 domains. Means ranged from the lowest in the level of independence domain to the highest in the spirituality domain. Standard deviations ranged from the lowest in the environment domain to the highest in the spirituality domain. In the bivariate analysis (Table 3), the participants had a better overall QoL compared with those unemployed ($p < 0.05$). Other socio-demographic variables did not show statistically significant relationships with overall QoL. Table 4 illustrates correlation coefficients for study variables, and of interest are the correlations between the domains of QoL

Table 1. Socio-demographic variables of the respondents

Variables	Frequency *N* = 209	Percentage *N* = 100%
Age (years), *n* (%)		
18-34	105	50.2
35 and above	104	49.8
Mean (SD): 35.07 (± 11.06)		
Gender, *n* (%)		
Male	61	29.2
Female	148	70.8
Marital status, *n* (%)		
Married	76	36.4
Not married	133	63.6
Educational status, *n* (%)		
Primary education and below	50	23.9
Secondary	119	56.9
Tertiary and above	40	19.1
Employment status, *n* (%)		
Employed	160	76.6
Unemployed	49	23.4
Time since diagnosis, *n* (%)		
One year or below	77	36.8
Over one year	132	63.2

Table 2. Descriptives of QoL

	Physical	Psychological	Level of Independence	Social relationships	Environment	Spirituality
Mean	14.43	14.01	13.13	13.22	13.80	14.9
Median	14.0	14.4	13.0	13.0	14.0	15.0
Mode	18.0	15.2	14.0	15.0	16.0	19.0
Std. deviation	3.233	2.706	2.424	2.587	2.259	3.294
Range	15.0	15.2	15.0	14.0	12.5	12.0
Minimum	5.0	4.8	5.0	6.0	7.5	8.0
Maximum	20.0	20.0	20.0	20.0	20.0	20.0

with indicators of mental well-being (anxiety and depression) and social support. All domains of QoL had moderate negative correlations with anxiety and depression ($p < 0.05$). Also, social support demonstrated weak positive correlations with physical, psychological, environmental, and spirituality domains of QoL ($p < 0.05$). In linear regression analysis, anxiety, depression, and social support were assessed as QoL predictors, controlling for the effect of age, sex, marital status, educational level, and employment status. Anxiety (B = –0.99, β = –0.31, $p < 0.001$) and depression (B = –1.48, β = –0.46, $p < 0.001$) predicted lower QoL.

Table 3. Socio-demographic correlates of overall QoL among respondents

Variables	Mean (SD) n = 209	Mann-Whitney U test statistic	p-value
Age (years)			
18-34	83.19 (13.15)	5410	0.90
35 and above	83.82 (12.88)		
Gender			
Male	84.29 (12.86)	4278	0.55
Female	83.18 (13.07)		
Marital status			
Married	83.29 (13.25)	4945	0.79
Not married	83.63 (12.89)		
Educational status			
Primary education and below	79.56 (14.44)	2444	0.06
Secondary and above	84.79 (12.29)		
Employment status			
Employed	84.56 (13.04)	3029	0.01*
Unemployed	80.07 (12.34)		
Time since diagnosis			
One year or below	84.77 (13.39)	4502	0.16
Over one year	82.76 (12.75)		

*$p < 0.05$

Discussion

Our study objective was to determine the pattern of life quality among persons living with HIV as well as its association with anxiety, depression, and social support. Our respondents reported the highest QoL in the spirituality domain and the lowest in the level of independence. Likewise, we found that higher educational attainment and being employed were associated with higher QoL. Furthermore, QoL had negative correlations with anxiety and depression, and positive correlation with social support. However, in linear regression, only unemployment, anxiety, and depression emerged as significant predictors of overall QoL.

Our finding that QoL among PLWH is higher in the spirituality dimension was different than in some reports [22] but in line with most research conducted in sub-Saharan Africa [23-25]. Nigeria and other countries in the region are known to be very religious, and PLWH may resort to religion to cope with the illness [26]. The domain with the lowest QoL is less consistent across studies, reporting irregularly low level of environment, spirituality, social relationships, or level of independence [22-25]. Other factors, such as culture, norms, or socio-economic factors, could play a role.

Studies have demonstrated that unemployment is associated with a poorer QoL in PLWH [27, 28]. In addition, educational level has been consistently correlated with QoL among PLWH [22, 24, 25]. Both variables are indicators of socio-economic status, which predict poorer QoL [29]. Better educated people might be able to learn more about the disease, and thus make better health choices; they might better understand the implications of the illness when explained, and better understand the need and significance of instructions concerning medication. Employed people are more financially empowered to access the best medical care, and are spared stressful situations, which socially disem-

Table 4. Correlation coefficients among study variables (n = 251)

Variables	1	2	3	4	5	6	7	8	9
1. Physical QoL	1								
2. Psychological QoL	0.58**	1							
3. Level of independence	0.58**	0.42**	1						
4. Social relationships	0.52**	0.65**	0.60**	1					
5 Environment	0.57**	0.81**	0.50**	0.69**	1				
6. Spirituality	0.47**	0.55**	0.32**	0.32**	0.47**	1			
7. Anxiety	–0.42**	–0.60**	–0.40**	–0.41**	–0.53**	–0.48**	1		
8. Depression	–0.56**	–0.53**	–0.54**	–0.60**	–0.60**	–0.32**	0.55**	1	
9. Social support	0.18*	0.23**	0.04	0.09	0.18**	0.16*	–0.16*	–0.10	1

*$p < 0.05$, **$p < 0.01$

Table 5. Linear regression to determine predictors of QoL

Variables	B	Beta	*t*-value	*p*-value	95% CI
Age	0.01	0.12	0.61	0.24	–0.10 to 13.0
Male	0.27	0.10	0.20	0.84	–2.44 to 3.00
Unmarried	0.57	0.02	0.43	0.66	–2.04 to 3.20
Secondary education or above	2.22	0.07	1.46	0.14	–0.76 to 5.20
Unemployed	–3.23	–0.10	–2.15	0.03*	–6.20 to –0.26
Anxiety	–0.99	–0.31	–5.25	< 0.001***	–1.37 to –0.62
Depression	–1.48	–0.46	–7.72	< 0.001***	–1.85 to –1.10
Social support	0.46	0.08	1.61	0.79	–0.10 to 1.02

*$p < 0.05$, ***$p < 0.001$

powered people encounter. It is possible that this association might concern factors other than HIV infection, because, typically, persons who are better educated, employed, or have a higher social class, have a better QoL. A pre-existent socio-economic situation in an individual may only serve as an additional factor that either worsens or improves QoL after HIV infection.

For the other variables, such as age, gender, marital status, and time since diagnosis, while findings from some studies are consistent with ours, others differ [22, 30, 31]. One possible reason for the non-compliance is a difference in the analytic approach. In assessing relationships between QoL and socio-demographic variables, most studies used a bivariate analysis with each domain of an instrument. In contrast, the current study only focused on relationships with the overall QoL score. Also, other studies used a different questionnaire that might contribute. Other factors, such as population characteristics, socio-economic factors, study context and location, and cultural norms, can play an influential role.

Various factors are known to increase the risk of mental disorders in PLWH, including treatment-related factors (e.g., poor quality of health services), health-related factors (e.g., advanced stage of the disease and poorer physical health), psycho-social factors (e.g., social support, adversity, and stigma), and socio-demographic factors (e.g., unemployment) [14]. Poorer mental health has been shown to impact QoL negatively [28]. Among PLWH, anxiety and depression have been consistently shown to have a negative association with almost all domains of QoL in previous research [32]. While social support is known to have a positive association with QoL, though the associations were insignificant in our sample. Since QoL is generally poorer among PLWH, mental disorders or poor social support will inevitably worsen their life quality, leading to poorer outcomes [33].

Limitations

The current study was cross-sectional in design, and this limits conclusions in terms of causality. Self-assessment might lead to reporting bias, and diagnostic assessments would have yielded more reliable findings. A comparison of our sample with healthy control might have made a stronger case for the role of HIV as a determinant of QoL. Moreover, we did not assess the stage of the disease, which can be an important determinant.

Conclusions

Our findings show that anxiety and depression correlate negatively with QoL, while social support has a positive relationship. These results underscore the necessity for an increased awareness of psychological and social needs of PLWH regarding assessment, clinical care, health interventions, and policies. In addition, educational achievement and employment status are associated with QoL. In terms of work opportunities, socio-economic empowerment of PLWH and the prevention of discrimination would improve their QoL significantly.

Disclosures

1. Institutional review board statement: This study was approved by the Ethics Committee of the State Ministry of Health Research (approval number CRS/MH/HREC/016/VOL.V/078).
2. Assistance with the article: None.
3. Financial support and sponsorship: None.
4. Conflicts of interest: None.

References

1. UNAIDS. Global HIV & AIDS statistics – Fact sheet [Internet]. UNAIDS Geneva, Switzerland. Available from: https://www.unaids.org/en/resources/fact-sheet (Accessed: 26.08.2023).
2. World Health Organization. HIV and AIDS Fact sheet [Internet]. Available from: https://www.who.int/news-room/fact-sheets/detail/hiv-aids (Accessed: 26.08.2023).
3. HIV.gov. HIV and AIDS Epidemic Global Statistics [Internet]. Available from: https://www.hiv.gov/hiv-basics/overview/data-and-trends/global-statistics/ (Accessed: 26.08.2023).
4. Dwyer-Lindgren L, Cork MA, Sligar A, Steuben KM, Wilson KF, Provost NR, et al. Mapping HIV prevalence in sub-Saharan Africa between 2000 and 2017. Nature 2019; 570: 189-193.

5. UNAIDS. Country progress report – Nigeria. Global AIDS Monitoring 2020 [Internet]. Available from: https://www.unaids.org/sites/default/files/country/documents/NGA_2020_countryreport.pdf (Accessed: 26.08.2023).
6. Friedland BA, Gottert A, Hows J, Baral S, Sprague L, Nyblade L, et al. The people living with HIV Stigma Index 2.0: generating critical evidence for change worldwide. AIDS 2020; 34: S5-S18. DOI: 10.1097/QAD.0000000000002602.
7. Johns Hopkins Arthritis Centre. What is Health Related Quality of Life? [Internet]. Available from: https://www.hopkinsarthritis.org/arthritis-research/patient-centered-outcomes-research/what-is-health-related-quality-of-life/ (Accessed: 26.08.2023).
8. Centers for Disease and Control Prevention. Why is Quality of Life Important? [Internet]. [cited 2021 Oct 30]. Available from: https://www.cdc.gov/hrqol/concept.htm (Accessed: 30.08.2023).
9. Dominick KL, Ahern FM, Gold CH, Heller DA. Relationship of health-related quality of life to health care utilization and mortality among older adults. Aging Clin Exp Res 2002; 14: 499-508.
10. Cooper V, Clatworthy J, Harding R, Whetham J; Emerge Consortium. Measuring quality of life among people living with HIV: a systematic review of reviews. Health Qual Life Outcomes 2017; 15: 220. DOI: 10.1186/s12955-017-0778-6.
11. Bello SI, Bello IK. Quality of life of HIV/AIDS patients in a secondary health care facility, Ilorin, Nigeria. Proc (Bayl Univ Med Cent) 2013; 26: 116-119.
12. World Health Organization. Global health sector strategy on HIV 2016-2021. Towards ending AIDS. World Health Organization; 2016.
13. Nakimuli-Mpungu E, Musisi S, Smith CM, Von Isenburg M, Akimana B, Shakarishvili A, et al. Mental health interventions for persons living with HIV in low- and middle-income countries: a systematic review. J Int AIDS Soc 2021; 24 (Suppl 2): e25722. DOI: 10.1002/jia2.25722..
14. Brandt R. The mental health of people living with HIV/AIDS in Africa: a systematic review. African J AIDS Res 2009; 8: 123-133.
15. Cochran WG. Sampling Techniques. 3rd ed. Ther Drug Monit Toxicol by Liq Chromatogr; 2017.
16. Olose EO, Adubina B, Okafor CJ, et al. Sexual dysfunction among psychiatric patients on antipsychotic medications. Biol Med 2021; 13: 100291.
17. World Health Organization (WHO). WHOQoL-HIV Bref [Internet]. World Health Organization; 2002. Available from: https://apps.who.int/iris/bitstream/handle/10665/77775/WHO_MSD_MER_Rev.2?sequence=1 (Accessed: 30.08.2021).
18. O'Connell KA, Skevington SM. An International Quality of Life Instrument to Assess Wellbeing in Adults Who are HIV-Positive: A Short Form of the WHOQOL-HIV (31 items). AIDS Behav 2012; 16: 452-460.
19. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand 1983; 67: 361-370.
20. Abiodun OA. A validity study of the Hospital Anxiety and Depression Scale in general hospital units and a community sample in Nigeria. Br J Psychiatry 1994; 165: 669-672.
21. Abiola T, Udofia O, Zakari M. Psychometric properties of the 3-item oslo social support scale among clinical students of Bayero University Kano, Nigeria. Malaysian J Psychiatry 2013; 22: 32-41.
22. Suleiman BA, Yahaya M, Olaniyan FA, Sule AG, Sufiyan MB. Determinants of health-related quality of life among human immunodeficiency virus positive (HIV-positive) patients at Ahmadu Bello University teaching hospital, Zaria, Nigeria- 2015. BMC Public Health 2020; 20: 531. DOI: 10.1186/s12889-020-08659-9
23. Fatiregun A, Mofolorunsho K, Osagbemi K. Quality of life of people living with HIV/AIDS In Kogi State, Nigeria. Benin J Postgrad Med 2009; 11. DOI: 10.4314/bjpm.v11i1.48823.
24. Akinboro AO, Akinyemi SO, Olaitan PB, Raji AA, Popoola AA, Awoyemi OR, Ayodele OE. Quality of life of Nigerians living with human immunodeficiency virus. Pan Afr Med J 2014; 18: 234. DOI: 10.11604/pamj.2014.18.234.2816.
25. Surur AS, Teni FS, Wale W, Ayalew Y, Tesfaye B. Health related quality of life of HIV/AIDS patients on highly active anti-retroviral therapy at a university referral hospital in Ethiopia. BMC Health Serv Res 2017; 17: 737. DOI: 10.1186/s12913-017-2714-1.
26. Olawoyin ON. Philosophical basis for nigerian religious pluralism. Philos Int J Philos 2017; 18: 91-101.
27. Betiku OB. Health-related quality of life in persons living with HIV/AIDS before and after HAART attending Federal Medical Centre, Owo, Ondo State, Nigeria. Fellowship [Dissertation]. National Postgraduate Medical College of Nigeria; 2017.
28. Oparah AC, Soni JS, Arinze HI, Chiazor IE. Patient-reported quality of life during antiretroviral therapy in a Nigerian hospital. Value Health Reg Issues 2013; 2: 254-258.
29. Mofolorunsho KC, Nwankwo EO, Babatunde T. Socio-economic factors influencing the quality of life of people living with HIV/AIDS in Kogi, Nigeria. Nat Sci 2013; 11: 33-39.
30. Adewuya A, Afolabi M, Ola B, Ogundele OA, Ajibare AO, Oladipo BF, Fakande I. Relationship between depression and quality of life in persons with HIV infection in Nigeria. Int J Psychiatry Med 2008; 38: 43-51.
31. Abasiubong F, Ekott JU, Bassey EA, Etukumana EA, Edyang-Ekpa M, et al. Quality of life in people living with HIV/AIDS in Niger Delta Region, Nigeria. J Ment Health 2010; 19: 211-218.
32. Degroote S, Vogelaers D, Vandijck DM. What determines health-related quality of life among people living with HIV: an updated review of the literature. Arch Public Health 2014; 72: 40. DOI: 10.1186/2049-3258-72-40.
33. Nojoomi M, Anbari K. A comparison of the quality of life in HIV/AIDS patients and control group. Res J Med Sci 2008; 15: 169-176.