

Correlation of Socio-Demographic and Clinical Factors with Quality of Life (QOL) Among Subjects Living with HIV in Port Harcourt, Nigeria

Nkporbu AK^{1*}, Ojule IN² and Stanley CN³

¹Department of Neuropsychiatry, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria

²Department of Preventive and Social Medicine, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria

³Department of Pharmaceutical Microbiology, University of Port Harcourt, Nigeria

*Corresponding author

NKPORBU AK, Department of Neuropsychiatry, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria, E-Mail: nakpigi2008@yahoo.com

Submitted: 16 Apr 2019; Accepted: 29 Apr 2019; Published: 01 June 2019

Abstract

Background: HIV, a viral infectious disease, predominantly affects the physical, social and psychological well-being of PLWHIV which further affect their quality of life. A number of socio-demographic and clinical factors may play important roles.

Aim: The aim of this study, therefore, was to determine the relationship between some socio-demographic and clinical factors and quality of life among PLWHIV.

Methodology: Following ethical approval from the appropriate committee of the hospital and informed consent from the participants, 230 subjects (PLWHIV), were recruited through a systematic random sampling method based on the study's inclusion and exclusion criteria. Subjects were administered with the study's instruments including the socio-demographic questionnaire, the brief version of the WHO Quality of Life instrument (WHOQOL-Bref). The data were analyzed using the SPSS version 20 statistical package. Confidence interval was set at 95% while P- value of less than 0.05 was considered statistically significant.

Results: The study found PLWHIV domain scores quality of life as follows; 60.71±15.57, 62.34±26.32, 61.57±25.04, 55.15±14.00 and 65.81±21.84 for physical, psychological, social relationship, environment domains and general health facet respectively. Age group below 20 years, tertiary education, married with high to average monthly income, no stigmatization, with less emotional reaction were associated with the best quality of life. The only significant relationships were that(i) those who indicated no feelings of stigma had significantly higher quality of life than those who admitted having stigma in the physical domain(p=0.017); (ii) those who were widowed or divorce had significantly lower quality of life than all the other marital groups in the social domain(p=0.002).

Conclusion: The findings in this study indicate some socio-demographic and clinical factors may play significant role in the degree to which HIV infection affects quality of life of the sufferers. It is therefore important that the management of HIV should include attention to factors in order to enhance the quality of care and hence their quality of life.

Keywords: Correlation, Socio-Demographic and Clinical Factors, QOL, PLWHIV

Introduction

HIV infection is a chronic illness that has been ranked among the top leading causes of year of life lived with disability [1]. In Nigeria, HIV infection has been found to have relatively high prevalence of 4.6% [2, 3]. The high rate of complications and mortality associated with this chronic medical condition has equally generated enormous public health concern [4, 5]. Also of concern is the fact that HIV infection is associated with high level of stigma and social discrimination [6-11].

HIV infection is mainly acquired from infected persons or objects [12-15]. Severe emotional trauma can predispose an individual to acquiring HIV due to poor sense of judgment, leading to sexual indiscretion and other risk bearing practices [16]. HIV infections is characterized by chronicity with subsequent need for long term medications, effects on the central nervous system (CNS), high rate of mortality and morbidity and impact on emotion (the component that is often neglected) [17-31]. In addition, patients with the conditions need extensive education, attitudinal change; coping and healthy lifestyle includes diet [45-49]. The need for these adjustments is imperative considering the immediate changes that usually accompany the diagnosis of this medical condition. They include burden of the diseases, regular hospital visits, complications

arising from the primary illness, stigma and job adjustment [32, 33].

Worldwide, over 36 million people have contracted HIV infection and 16 million people have now died of the disease [34, 35]. In Nigeria, an estimated 3.6 percent of the population is living with HIV and AIDS [36]. Although HIV prevalence is much lower in Nigeria than in other African countries such as South Africa and Zambia, the size of Nigeria's population (around 162.5 million) means that by the end of 2009, there were an estimated 3.3 million people living with HIV.

The measurement of health and the effects of health care must include, not only an indication of changes in the frequency and severity of diseases, but also an estimation of well-being, and this can be assessed by measuring the improvement in the quality of life related to health care. WHO, with the aid of 15 collaborating centers all over the world, has therefore developed two instruments for measuring quality of life; one is the WHOQOL-Bref [37].

The focus of medical practice has always tended towards relieving physical symptoms, in this case HIV infection, which often neglects the huge impact on the psychological well-being, psychiatric comorbidity and the overall quality of life, often occasioning untoward health consequences [38, 39]. Most patients with serious, progressive illness confront a range of psychological challenges, including the prospect of real and anticipated losses, worsening quality of life, the fear of physical decline and death, and coping with uncertainty. HIV infection and/or AIDS are one such illness that brings additional challenges due to the rapidly changing treatment developments and outlook.

In addition, this disease is unusual in the extent of stigma associated with it and the fact that HIV is both infectious and potentially fatal. Because of the risk of transmission, major and permanent changes are called for in sexual behavior and risk bearing life styles which may not be easily modifiable. However, while treatment success maintains its primary positions in such evaluations, researchers have been making efforts to assess the degree to which chronic clinical disorders and their treatments affect patient's functional capacity, overall sense of well-being, psychological and social health [40-46]. Quality of life assessment measures changes in physical, functional, mental and social health in order to evaluate the human and financial costs and benefit of new programmers and interventions [47-50].

Methodology

Following ethical approval from the appropriate committee of the hospital and informed consent from the participants, 230 subjects (PLWHIV), were recruited through a systematic random sampling method based on the study's inclusion and exclusion criteria. Subjects were administered with the study's instruments including the socio-demographic questionnaire, the brief version of the WHO Quality of Life instrument (WHOQOL-Bref). The data were analyzed using the SPSS version 20 statistical package. Confidence interval was set at 95% while P- value of less than 0.05 was considered statistically significant.

Results

Table 1: Socio-demographic and Clinical Characteristics of People Living with HIV (PLWHIV)

Variables	HIV = 230	Statistical Analysis
Age		X ² = 150.83 df = 4 p=0.001
Freq		
<20 yrs	6(2.6%)	
20-29	56(24.3%)	
30-39	101(43.3%)	
40-49	59(25.7%)	X ² = 0.73 df = 1 p=0.39
≥50	8(3.5%)	
Gender		X ² = 0.73 df = 1 p=0.39
Male	82(35.7%)	
Female	148(64.3%)	X ² = 41.72 df = 4 p=0.001
Marital status		
Married	121(52.6%)	
Single	61(26.5%)	
Divorced	13(5.7%)	
Separated	6(2.6%)	X ² = 20.64 df = 3 p=0.001
Widowed	29(12.6%)	
Educational		
None	5(2.2%)	X ² = 20.64 df = 3 p=0.001
Primary	32(14.0%)	
Secondary	121(52.8%)	
Tertiary	71(31.0%)	
Tribe		X ² = 17.97 df = 6 p=0.006
Hausa	10(4.3%)	
Ibo	103(36.1%)	
Yoruba	4(20.0%)	
Ijaw	46(20.0%)	
Ogoni	23(10.0%)	
Ikwerre	28(12.2%)	
Others	10(4.3%)	X ² = 64.47 df = 10 p=0.001
Occupation		
Managers	2(0.9%)	
Professionals	2(0.9%)	
Technicians and Associates professionals	3(1.3%)	
Clerical support workers	9(2.9%)	
Services and sales workers	14(6.1%)	
Skilled agricultural forestry and fishery workers	26(11.3%)	
Craft and related trade workers	27(11.7%)	
Plant and machine operators and assemblers	31(13.5%)	
Elementary occupation	77(21.4%)	

Armed forces occupation	0(0.8%)	$X^2 = 20.86$ $df = 4$ $p=0.001$	Domestic situation (Live With)		$X^2 = 73.63$ $df = 3$ $p=0.001$
Unemployed	22(6.1%)		Partner	44(19.1%)	
Ave. Income			Family	136(59.1%)	
≤ 10,000	50(25.9%)		Friends	1(4%)	
10,000 – 30,000	75(38.9%)		None	49(21.3%)	$X^2 = 185.75$ $df = 23$ $p=0.001$
30,000 – 50,000	34(17.6%)		Partner	44(19.1%)	
50,000 – 100,000	26(13.5%)		Family	136(59.1%)	
> 100,000	8(4.1%)		Friends	1(4%)	
No income	9(4.3%)		None	49(21.3%)	$X^2 = 10.29$ $df = 2$ $p=0.005$
Unable to estimate	16(8.2%)		Age of onset of Illness		
Rxn to diagnosis		< 20 years	4(1.7%)		
Normal	12(5.2%)	20 – 29 years	93(40.4%)		
Sad	43(18.7%)	30 – 39 years	96(41.7%)		
Very Sad	133(57.8%)	40 – 49 years	37(16.1%)	$X^2 = 8.59$ $df = 2$ $p=0.03$	
With to die	42(18.3%)	> 50 years	0(0.0%)		
Mode of getting drugs		Duration of Illness			
From government	228(99.1%)	5 years and below	194(84.3%)	$X^2 = 7.79$ $df = 1$ $p=0.04$	
Self Purchase	2(0.9%)	6 – 10 years	34(14.8%)		
Both	0(0%)	11 years and above	2(0.9%)		
Source of Support		Duration of Treatment		$X^2 = 7.79$ $df = 1$ $p=0.04$	
CharityOrganization	11(4.8%)	< 1 year	38(16.5%)		
Friends	9(3.9%)	1 – 5 years	159(69.1%)		
Relatives	46(20.0%)	6 – 10 years	31(8.6%)		
None	164(71.3%)	> 10 years	13(3.6%)	$X^2 = 7.79$ $df = 1$ $p=0.04$	
Stigma		Missed Treatment			
Yes	91(39.6)	Yes	43(18.7%)		
No	139(60.4%)	No	187(81.3%)		

Quality of Life of PLWHIV

Quality of life was statistically significantly highest for GHF and lowest on social and psychological domains.

Table2: Quality of life of PLWHIV

QOL	PLWHIV	t-test
Domain 1 (Physical)	62.71 + 15.565	$t = 7.69$ $df = 228$ $P < 0.001$
Domain 2 (Psychological)	62.34 + 26.315	
Domain 3 (Social relationship)	61.57 + 25.04	
Domain 4 (Environment)	63.15 + 14.00	
General Health Facet(GHF)	65.81 + 21.84	

Table 3: Association of quality of life with socio-demographic and clinical factors in PLWHIV

VARIABLES	PLHIV				General Facet
	D1 (Physical)	D2 (Psychological)	D3 (Social)	D4 (Environment)	
Age					
<20	57.17+20.60	59.02+26.39	50.83+33.66	56.77+14.70	70.08+18.40
20-29	57.53+15.91	55.88+17.72	56.99+25.17	51.68+13.54	70.24+20.73
30-39	62.73+14.90	67.14+34.12	60.26+24.69	55.17+13.63	65.47+21.15
40-49	61.81+16.19	62.48+15.47	66.39+24.77	57.51+14.49	62.50+23.21
>50	52.16+11.40	48.42+26.31	61.70+20.63	50.55+15.76	54.69+24.94
	F=1.694	F=2.322	F=1.419	F=1.614	F=1.882
	df = 4/225	df =4/225	df = 4/225	df = 4/225	df = 4/225
	p=0.132	p=0.056	p=0.229	p=0.172	p=0.114
Gender					
Males	61.26+15.77	64.22+17.48	66.16+22.66	55.33+15.29	67.65+23.45
Females	60.42+0.50	58.63+29.93	59.03+25.99	55.05+13.29	62.56+20.77
	t = 0.386	t = 1.777	t = 2.053	t = 0.148	t = 1.638
	df = 288	df = 288	df = 288	df = 288	df = 288
	p = 0.700	p = 0.077	p = 0.038	p = 0.887	p = 0.103
Education					
None	56.30+10.43	58.34+14.13	33.32+22.92	44.38+14.04	52.00+31.13
Primary	60.14+17.29	58.58+56.08	61.14+26.10	53.94+14.36	64.97+22.41
Secondary	60.34+15.82	59.99.+18.30	62.94+24.54	56.61+14.37	67.13+21.62
Tertiary	61.37+14.82	63.84+15.85	65.16+24.54	56.59+12.72	68.66+21.22
	F=0.166	F=1.039	F=2.888	F=2.434	F=1.374
	df = 3/226	df = 3/226	df = 3/226	df = 3/226	df = 3/226
	p=0.919	p=0.379	p=0.036	p=0.066	p=0.252
Marital Status					
Married	60.76+15.14	63.93+32.14	64.69+24.12	56.25+14.56	63.53+21.38
Single	59.37+16.00	58.726+18.05	57.51+23.01	52.15+13.61	71.11+22.42
Divorced	58.52+15.12	59.30+16.85	40.37+28.25	52.88+13.40	67.31+26.78
Separated	57.75+21.25	61.12+20.04	51.37+11.06	54.17+13.92	64.58+20.03
Widowed	65.01+15.60	64.93+17.16	68.67+26.88	58.07+12.26	63.79+19.86
	F=0.784	F=0.511	F=4.270	F=1.298	F=1.317
	df = 4/225	df = 4/225	df = 4/225	df = 4/225	df = 4/225
	p=0.538	p=0.728	p=0.002	p=0.271	p=0.264
Stigma					
Yes	57.71+18.00	59.37+37.75	61.90+26.05	52.61+14.67	65.70+22.56
No	62.69+13.45	64.29+14.50	61.35+24.45	56.81+13.34	65.91+21.43
	t = -2.397	t = -1.390	t = 0.163	t = -2.247	t = -0.085
	df = 288	df = 288	df = 288	df = 288	df = 288
	p = 0.017	p = 0.166	p = 0.871	p = 0.026	p = 0.932
Income					
Low	59.73+14.58	68.05+45.11	60.99+24.89	57.19+14.30	70.25+19.38
Average	61.53+16.12	61.43+18.56	58.89+26.02	53.38+13.48	64.57+22.41
High	61.89+16.55	63.57+16.48	65.45+24.97	58.73+15.38	62.87+23.73
	F=0.270	F=0.987	F=0.860	F=2,474	F=1.508

	df = 2/190	df = 2/190	df = 2/190	df = 2/190	df = 2/190
	p=0.764	p=0.377	p=0.425	p=0.087	Pp=0.224
Reaction To illness					
Normal	67.57+92.20	95.78+84.53	71.52+19.61	59.11+11.88	75.00+20.64
Sad	61.29+18.18	60.94+21.21	66.09+27.42	53.48+15.38	65.12+22.42
Very sad	61.49+15.33	62.74+15.40	61.43+25.03	55.46+13.98	64.75+22.66
Wish to die	55.72+13.91	52.97+17.54	54.56+22.57	54.75+12.91	67.26+18.71
	F=2.385	F=9.171	F=2.233	F=0.552	F=0.888
	df = 3/226	df = 3/226	df = 3/226	df = 3/226	df = 3/226
	P=0.07	P<0.001	P=0.085	P=0.647	P=0.448

Discussion

Among PLWHIV, age group below 20 years with tertiary education, married or widowed with high to average monthly income, which reported no stigmatization, with less emotional reaction to their diagnosis of the medical conditions had the best quality of life generally. Quality of life gradually increased with age and began to decrease with advancing age. The middle age group generally had the best Quality of life score. This age group is the period of less dependence on others when the individual may still be able to provide for and take quick and meaningful decisions by him or herself. Secondly, immunity may still be developing at younger age and equally waning with advance age. These may have contributed to the better quality of life among middle aged PLWHIV.

Gender had some impact on quality of life among PLWHIV as male generally fared better. This may be because in most cultures, women received a lot of discrimination as women who have the illness are said to be due to their promiscuous life styles. This may affect the social and psychological domains of quality of life. Furthermore, the emotional and psychological burden emanating from living with HIV tend to have more negative impact on the female than male and this may directly affect the psychological domain of quality. Again the issue of dependence on male particularly for marriage couples may contribute sometimes to lack affordability or poor compliance to management and this may ultimately affect their quality of life. From the study, quality of life increases with increasing life of education. Having a good knowledge of the illness and being able to understand and follow instruction regarding management will not only enhance management outcome but will equally help to reduce the anxiety and depression associated with living with HIV, both may help to increase the quality of life.

Having a gainful employment will not only afford psychological stability but will also help provide the financial ability to comply with management needs of the illness. In the study, those who were gainfully employed tended to have better quality of life than those had less viable occupation. In the ILO occupational classification, those at the top like managers and professional, receive more income than those at the lower part of the classification. This group of people will have more money to take care of the medical condition in terms of medications, investigations and transportation and even easy mobility to healthcare facility. There will also be more funds to feed well, travel for vacation and recreation which will provide alternative sources of happiness, and also be able to meet up other basic needs of life. Therefore, similar trend of observation influence of income on quality of life was made, where those with higher and average monthly income generally fared better in all domains of QOL.

Education also had some impact on QOL among PLWHIV in the study. Those with secondary and tertiary education tend to have better QOL score compared to those with primary or no education. Education no doubt plays a pivotal role in understanding the provided explanation for the nature of illness as well as encouraging compliance to management instructions, and thereby reducing the anxiety and worry associated with chronic conditions. Ultimately, this may improve QOL.

The widowed scored better compared to those who were married and the single. HIV infection is a communicable disease with sexual intercourse serving as one of its most frequent routes of transmission. In this regard, the illness in one partner or both partners may cause a lot of disaffection between the couple; this may even lead to separation or divorce. Furthermore, the single may be under intense worry and anxiety over been able to get married. All these may contribute additional emotional trauma which may further affect the QOL sufferers.

A strong relationship was observed between stigma and quality of life, with those who admitted to having experience social stigma and discrimination from the disease tending to have lower QOL compared to those who have not experienced stigma. Social stigma and discriminations negatively impacts QOL as is directly associated with psychological stress and trauma. It is true that the stress, adverse psychosocial factors, unfavorable socio-demographic factors and social support often may synergistically hastened the progression of HIV to AIDS, and may by so doing cause rapid deterioration in their psychological well-being and quality of life.

In the presence of psychosocial stressors such as stigma, unemployment, low income, the quality of life in PLWHIV was significantly affected, particularly on the psychological and social domains. This suggests that the stigma and social rejection associated with PLWHIV may play a significant role in the development of psychological illness in PLWHIV, WHICH WILL FURTHER AFFECT THE QOL. Incidentally, many of the socio-demographic and clinical variables assessed in this study, had poor outcomes including employment, education, income, marital status, initial reaction to diagnosis, and source of support.

These results are consistent with several studies [51, 52]. These suggested that a good number of psychosocial and clinical factors affected the outcome of HIV infection. The implication of this is that these factors have to be addressed in the holistic management of HIV infection and indeed, other chronic conditions, because when they are favorable, the rate of psychiatric co-morbidity tended to reduce,

which consequently improves the Quality of Life in both conditions.

Conclusion

The findings in this study indicate HIV infection is a chronic debilitating illness, associated with some socio-demographic characteristics which further affect the quality of life of sufferers. The results indicate that the management of HIV should include attention to their mental health status and subjective quality of life of these patients in order to enhance the quality of care.

References

1. Centres for Disease Control and Prevention HIV/AIDS Surveillance Report (2004) 12: 1-42.
2. National Agency for the Control of AIDS (NACA) (2009) National HIV/AIDS strategic framework (NSF) 2010-2015.
3. Federal Ministry of Health (2003) Situation analyses report on STI/HIV/AIDS in Nigeria, Abuja: Federal Ministry of Health and National Action Committee on AIDS.
4. Hiza PR (1988) International co-operation in the national AIDS control programme; In 'the global impact of AIDS'.
5. Guaraldi G, Orlando G, Zona S, Menozzi M, Carli F, et al. (2011) Premature age-related comorbidities among HIV-infected persons compared with the general population. *Clin Infect Dis* 53: 1120-1126.
6. Herek GM, Capitanio J P (1999) AIDS stigma and sexual prejudice *Am BehavSci* 42: 1130-45.
7. Fife BL, Wright ER (2000) The dimensionality of stigma: A comparison of its impact on the self of persons with HIV/AIDS and cancer. *J Health SocBehav* 41: 50-67.
8. Herek GM, GluntEK (1988) An epidemic of stigma: public reactions to AIDS: *Am Psychol* 43: 886-891.
9. Herek GM (1999) AIDS and Stigma. *AmBehav Science* 42: 1106-1116.
10. Bird ST, Bogart LM, Delahanty DL (2004) Health-related correlates of perceived discrimination in HIV care. *AIDS Patient Care STDs* 18: 19-26.
11. HoltgraveDR, Pinkerton SD (1997) Update of Cost of Illness and Quality of life Estimates for use in Economic Evaluations of HIV Presentation Programs *J. Acquir Immune DeficSyndr Gum Retroviral* 16: 54-62.
12. Bharat S, Aggleton P (1999) Facing the challenge: household responses to AIDS in Mumbai, India. *AIDS Care* 11: 31-44.
13. Windle M (1997) The trading of sex for money or drugs, sexually Transmitted Diseases (STDs) and HIV related risk behaviors among polysubstance use and alcoholic inpatients. *Drug. Alcohol Depend* 49: 33-38.
14. Susser E, Valencia E, Miller M, Tsai WY, Meyer-Bahlburg H & Conover S (1995) Sexual behavior of homeless mentally ill men at risk for HIV. *American Journal of Psychiatry* 152: 583-587.
15. Watters JK, EstilioMJ, Clark GL & Lorvick J (1994) Syringe and needle exchange as HIV/AIDS prevention for injection drug users. *JAMA* 271: 115-120.
16. Kelly J, Murphy D, Bahr G, Koob JJ, Morgan MG (1993) Factors associated with severity of depression and high risk sexual behavior among persons diagnosed with HIV infection. *Health Psychol* 12: 215-219.
17. Robertson K, Smurzynski M, Parsons T, Wu K, Bosch RJ (2007) The prevalence and incidence of neurocognitive impairment in the HAART era. *AIDS* 21: 1915-1921.
18. Letendre S, Margule-Beck J, Capparell E, Best B, Clifford D (2008) CHARTER Group. Validation of the CNS Penetration-Effectiveness rank for quantifying antiretroviral penetration into the central nervous system. *Arch Neurol* 66: 65-70.
19. Clark U, Cohen R (2010) Brain dysfunction in the era of combination antiretroviral therapy: implications for the treatment of the aging population of HIV-infection individuals. *Curr Opin Investing Drugs* 11: 884-900.
20. Kolson DL, Lavi E, Gonzalez - Scarano F (1998) The Effects of HIV on the Central Nervous System. *Adv Virus Res* 50: 01-47.
21. Murray CJ, Lopez AD (1997) Mortality by cause for eight regions of the world. *Global burden of disease. Lancett* 349: 1269-1276.
22. De Santis JP, Provencio-Vasquez E, Mata HJ, Martinez J Depression and Co-Occurring Health Determinants of Hispanic Men with HIV Infection in the U.S.-Mexico Border Region (2016) A Pilot Study. *J SocServ Res* 42: 305-312.
23. Cook J, Grey D, Burke J, Cohen MH, Gurtman AC (2004) Depressive symptoms and AIDS-related mortality among a multisite cohort of HIV-positive women. *Am J Public Health* 94: 1133-1140.
24. Windle M (1997) The trading of sex for money or drugs, sexually Transmitted Diseases (STDs) and HIV related risk behaviors among polysubstance use and alcoholic inpatients. *Drug. Alcohol Depend* 49: 33-38.
25. Susser E, Valencia E, Miller M, Tsai WY, Meyer-Bahlburg H & Conover S (1995) Sexual behavior of homeless mentally ill men at risk for HIV. *American Journal of Psychiatry* 152: 583-587.
26. Watters JK, EstilioMJ, Clark GL & Lorvick J (1994) Syringe and needle exchange as HIV/AIDS prevention for injection drug users. *JAMA* 271: 115-120.
27. Herek GM, Capitanio J P (1999) AIDS stigma and sexual prejudice *Am BehavSci* 42: 1130-1145.
28. Barroso J, Hammill B, Iseman J, Salahuddin N, Hamon J, et al. (2010) Physiological and psychosocial factors that predict HIV-related fatigue. *AIDS Behav* 4: 1415-1427.
29. Stevens P, TigheDoerr B (1997) Trauma of discovery: women's narrative of being Informed they are HIV-Infected. *AIDS Care* 9: 523-538.
30. Catalan J, Burgess A, Klimes I. *Psychological Medicine of HIV infection*. Oxford: Oxford University Press.
31. Kearney PM, Whelton M, Renolds K, Muntner, P WhentonKP (2005) Global burden of hypertension: analysis of worldwide data *Lancet* 365: 217-223.
32. Heaton B, Velin B, McCutchan J, Gulevich SJ, Atkinson JH, et al (1984) Neuropsychological Impairment in HIV Infections: implications for employment HNRC Group- HIV, Neurobehavioral Research Center. *Psychosom Med* 56: 08-17.
33. Marcotte T, Lazzaretto D, Scott J, Roberta C, Woods S, et al. (2006) Visual attention deficits are associated with driving accidents In cognitively-impaired HIV-Infected individuals. *J ClinExpNeuropsychol* 28:13-28.
34. Sewell DD, Jeste DV, Atkinson JH, Heaton RK, Hesselink JR, et al. (1994) HIV -associated psychosis: A study of 20 cases. *San Diego HIV Neurobehavioural Research Center Group. Am J, Psychiatry* 151: 237-242.
35. Harris MJ, Jeste DV, Gleghorn A, Sewell DD (1991) New-onset psychosis in HIV infected patients. *J Psychiatry* 52: 369-376
36. WHO/UNAIDS/UNICEF 'Towards Universal Access (2010) Scaling up priority HIV/AIDS interventions in the health sector.
37. Schoepf BG (1995) Culture, sex research and AIDS prevention in Africa. In: Brummelhuis H, Herdt G, editors. *Culture and sexual risk. Anthropological perspectives on AIDS*. Amsterdam:

Gordon and Breach Publishers.

38. Wells K, Golding J, Burman M (1988) Psychiatric disorders in a sample of the general population with and without chronic medical conditions. *Am J Psychiatry* 145: 976-981.
39. Evans D, Charney D (2003) Mood disorders and medical illness a major public health problem. *Blot Psychiatry* 64: 177-180.
40. Archer T (2016) Physical exercise improves health domains in HIV patients: 'Lifting the burden'. *HIV: Current Research* 1: 2.
41. Archer T (2016) Aspects of cognition/health failure by HIV-infected individuals: amelioration through exercise. *HIV: Current Research* 1: 1.
42. Robertson K, Smurzynski M, Parsons T, Wu K, Bosch RJ (2007) The prevalence and incidence of neurocognitive impairment in the HAART era. *AIDS* 21: 1915-1921.
43. Letendre S, Margule-Beck J, Capparell E, Best B, Clifford D (2008) CHARTER Group. Validation of the CNS Penetration-Effectiveness rank for quantifying antiretroviral penetration into the central nervous system. *Arch Neurol* 66:65-70.
44. Clark U, Cohen R (2010) Brain dysfunction in the era of combination antiretroviral therapy: implications for the treatment of the aging population of HIV-infection individuals. *Curr Opin Investing Drugs* 11: 884-900.
45. Grassi I, Right A, Sighinolfi L, Makoui S, Ghinelli F (1998) Coping styles and psychosocial-related variables in HIV-Infected patients. *Psychomatics* 39: 350-359.
46. Organizations. *Am J Public Health* 84: 227-231.
47. Wolf T, Balson P, Morse E (1991) Relationship of coping style to affective state and perceived social support in asymptomatic and symptomatic HIV-Infected persons: Implications for clinical management *J Clin psychiatry* 52: 171-173.
48. Nichotao W, Long B (1990) Self-esteem, social support, internalized homophobia, and coping strategies of HIV+ gay men. *J Consult Clin Psychol* 50- 873-876.
49. Grassi I, Right A, Sighinolfi L, Makoui S, Ghinelli F (1998) Coping styles and psychosocial-related variables in HIV-Infected patients. *Psychomatics* 39: 350-359.
50. Murray CJ, Lopez AD (1997) Mortality by cause for eight regions of the world. *Global burden of disease. Lancett* 349: 1269-1276.
51. Olaniran VO, Biayewu O, Sheikh TL (2011) Depression Underdiagnosis and the effects on quality of life in outpatients with HIV at a Nigerian University Teaching Hospital. *African Journal of AIDS Research* 10: 247-254.
52. Eboreime HI (1995) Quality of Life in Hypertensive, Epileptic and Schizophrenic Patients Receiving Treatment in Benin City: A comparative Study. *Dissertation, WACP* 47.

Copyright: ©2019 NKPORBU AK. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.