

Psychiatric Comorbidity and Quality of Life in Persons with Diabetes Melitus and People Living With Hiv (Plwhiv) in Port Harcourt, Nigeria

Nkporbu Aborlo Kennedy^{1,*}, Korubo Ibitrokoemi Faye², Stanley Princewill Chukwuemeka¹

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

²Department of Internal Medicine, University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers State, Nigeria

Email address:

nakpigi2008@yahoo.com (N. A. Kennedy)

To cite this article:

Nkporbu Aborlo Kennedy, Korubo Ibitrokoemi Faye, Stanley Princewill Chukwuemeka. Psychiatric Comorbidity and Quality of Life in Persons with Diabetes Melitus and People Living With Hiv (Plwhiv) in Port Harcourt, Nigeria. *American Journal of Psychiatry and Neuroscience*. Vol. 3, No. 6, 2015, pp. 154-164. doi: 10.11648/j.ajpn.20150306.17

Abstract: Diabetes mellitus and HIV are two chronic medical diseases associated with psychiatric comorbidity, which further affect the quality of life of the sufferers. The aim of this study, therefore, was to determine and compare the relationship between psychiatric comorbidity and quality of life in persons with diabetes mellitus and PLWHIV. Following ethical approval from the appropriate committee of the hospital and informed consent from the participants, 230 subjects living with HIV and 120 subjects with diabetes mellitus were recruited based on the study's inclusion and exclusion criteria. This was after a pilot study. Subjects were further administered with the study's instruments including the socio-demographic questionnaire, GHQ-12, the brief version of the WHO Quality of Life instrument (WHOQOL-Bref) and WHO Composite International Diagnostic Interview (WHO CIDI). The socio-demographic questionnaire, GHQ-12 and WHOQOL-Bref were self-administered while the WHO CIDI was based on interview by the researcher. 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. The study found a prevalence of psychiatric co-morbidity of 17.3% among PLWHIV. For PLWHIV, domain scores quality of life were 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. For persons with diabetes mellitus, domain scores quality of life were as follows; 51.97+ 14.671, 56.20+ 22.186, 57.51 + 26.13, 52.01+ 16.91 and 48.34 + 22.44 for physical, psychological, social relationship, environment domains and general health facet respectively. Furthermore, presence of psychiatric comorbidity significantly inversely correlated with quality of life among persons with both medical diseases. The findings in this study indicate diabetes mellitus and HIV infection are both chronic debilitating illnesses, associated with psychiatric co-morbidity, which significantly inversely correlated with quality of life of the sufferers. The results indicate that the management of both medical conditions should include attention to their mental health status and subjective quality of life of these patients in order to enhance the quality of care.

Keywords: Correlation, Comorbidity, QOL, Diabetes Melitus, PLWHIV, UPTH

1. Introduction

Diabetes mellitus and HIV infections are two chronic medical illnesses that have been ranked among the top leading causes of year of life lived with disability [1]. In Nigeria, these two medical conditions have been found to have relatively high prevalence of 10-15% for diabetes mellitus and 4.6% for HIV infection [2, 3]. The high rate of complications and mortality associated with these two

chronic medical conditions has equally generated enormous public health concern.

Clearly, it may appear pretty difficult to justify the basis for this comparison because these two medical conditions appear dissimilar. Firstly, in terms of mode of acquisition; while diabetes mellitus has a clear genetic component, [5-6] in addition to adverse environmental factors, [7, 8] and prevalent life style, HIV is mainly acquired from infected persons or objects [9-12]. Infact, a number of studies have suggested a strong genetic link between diabetes mellitus and

depression. Secondly, HIV infection is associated with high level of stigma and social discrimination [13-18]. It is also worthy of note that while strong association has been found between some medications used in the treatment of some mental disorders and diabetes mellitus, mental disorders can equally predispose an individual to acquiring HIV due to poor sense of judgment, leading to sexual indiscretion and other risk bearing practices [11]. In addition, the mentally ill are often taken advantage off and subjected to sexual assaults.

Diabetes is one of the most important chronic diseases in the population, with regards to impact on health. Most diabetic patients, i. e. especially those with type 2 diabetes, are cared for in primary health care. In the Nordic countries the prevalence of known diabetes in the whole population has been estimated at around 3%. This could be compared with the estimated prevalence worldwide in 1995 of 4% in adults 20 years of age, with figures from 1% in Sub-Saharan Africa to 24% in Nauru [2, 3]. Diabetes is connected with vascular complications, and in international and national guidelines the overall goal for the treatment of all diabetes is to prevent acute and chronic complications, while preserving a good quality of life for the patient. Thus, knowledge concerning HRQoL in diabetic patients, as well as the determinants of this, is crucial.

Diabetes as a disease may be experienced in different ways around the world. In a large review, "Quality of life and diabetes", by Rubin and Peyrot, it was stated that significant associations have been demonstrated between socioeconomic status and HRQoL in the general population, while no significant association has been found between race and ethnicity and HRQoL among people with diabetes [68].

However, their choice for comparison was basically born out of the observation that they constitute a greater percentage of all the referrals from other non-psychiatric units seeking for psychiatric evaluation in the University of Port Harcourt Teaching Hospital (UPTH) [101]. More so, diabetesmellitus and HIV infections also share some common features in terms of chronicity, with subsequent need for long term medications [19, 20], effects on the central nervous system (CNS) [5] especially their complications like diabetic ketoacidosis and HIV encephalopathy, high rate of mortality [21, 22] and morbidity [23] and impact on emotion [6-8, 24] (the component that is often neglected).

In addition, patients with these conditions need extensive education on attitudinal change, coping and healthy lifestyle choices including diet and exercise [25-28]. The need for these adjustments are imperative considering the immediate changes that usually accompany the diagnoses of any of these conditions. They include burden of the diseases, regular hospital visits, complications arising from the primary illness, stigma, particularly with HIV infections and job adjustment [29-30]. Due to all these, together with their direct effects on the central nervous system (CNS) [5] and the consequences of labeling, [13-18, 31] the patients commonly present with varying degrees of psychopathology [32, 33, 34-45]. These can, either singly or in association

with other adverse psychosocial and clinical factors, predispose to psychiatric disorders. Furthermore, some of the medications employed in the management of these conditions have been associated with inherent neuropsychiatric complications, [20] either as direct side effects, from drug interactions with psychoactive substances [46-47], from multiple drug therapy (or with other concomitantly administered drugs for other comorbid conditions).

Both illnesses are equally similar in terms of complications in the central nervous system. Diabetic ketoacidosis and HIV encephalopathy may both directly affect the brain cells, causing altered sensorium, neuroaffectations, neurodeficits, cognitive impairment, and seizures in some cases. Similarly, both conditions can directly impair relevant neurotransmitter functions [48] due to direct toxic effects on the brain cells (neurons) either from the viral cells [49-52] or other opportunistic infections [53] and due to ketoacidotic complication, disrupting neurotransmitter system and affectation of the limbic apparatus.

It equally important to note that baseline adverse psychosocial factors, psychological distress or clearly identified psychiatric conditions have been implicated as predictors of diabetes [54-56] or HIV infection, through impairment of judgement in the later. [9-12] In light of the foregoing, there appears to be a bidirectional relationship between associated psychiatric disorders and these medical conditions. This propensity to be associated with emotional disturbances, with tendency to either predispose to or comorbid with psychiatric disorders, has further increased the degree to which they affect the psychological well-being and quality of life of the sufferers. [57-64] The focus of medical practice has always tended towards relieving physical symptoms, in these cases diabetesmellitus and HIV infection, which often neglects the huge impact on the psychological well-being, psychiatric co-morbidity and the overall quality of life, often occasioning monumental health consequences [65, 66].

Quality of life is a multidimensional concept that reflects a subjective evaluation of a person's satisfaction with life and its concerns. It also includes items such as a person's own health, relationship with family, relatives and friends, the health of other close or significant others, concerns of finances, religion, leisure and social activities[102]. From the World Health Organisation's description of health, psychological and social factors are integral parts of health. Some authors have chosen to add role functioning as separate entity to the concept of QOL [103]. Bowling critically looked at several definitions of QOL and defined the concept as optimum levels of health, fitness, life satisfaction and well-being [104]. However, in clinical medicine, QOL refers to the patient's own perception and self evaluation regarding the effects of an illness and its consequences on his or her life [105].

The WHOQOL produces a Quality of Life profile with four domain scores. The four domain scores test an individual's perception of Quality of Life in each particular domain. Scores on domain 1 assess physical health; domain 2 psychological health; domain 3 social relationship and

domain 4 assess individual's perception of the environment. Domain scores are scaled in a positive direction (higher score denotes higher quality of life).

WHOQOL instrument was developed in a wide range of languages in different cultural settings including sub-Saharan Africa, and yielded comparable scores across cultures. It has been validated in Nigeria and found to be quite suitable and relevant to our cultural setting and has no need for modification of any items or inclusion of additional items. [72] The WHOQOL-Bref has equally been shown to display good discriminant validity, content validity, and test-retest reliability. Domain scores produced by the WHOQOLI have been shown to correlate at around 0.9 with the WHOQOL-Bref. It has been successfully used in countries where no validated quality of life measures currently exist. In Nigeria, WHOQOL-Bref was used in a study that examined subjective quality of life of recently discharged and follow-up Nigerian psychiatric patients. [64, 71] Each item of the WHOQOL-Bref have five options to which the patients is expected to respond on a 5-point Likert-type scale.

In medical practice, the WHOQOL instruments may be used with other forms of assessment, giving valuable information that can indicate areas in which a person is most affected and help the practitioner in making the best choices in patient care. In addition, they may be used to measure changes in quality of life over the course of treatment [72-74]. Other uses of the WHOQOL are found in assessing the effectiveness and relative merits of different treatments, in health services evaluation, improving the doctor-patient relationship, in research, in policy making [72-74]. WHOQOL instrument being a generic instrument has an advantage of allowing comparison between disease groups to inform decision for example on resource allocation. WHOQOL assessment responds to patients concerns as human beings and not as cases as they have lives with many facets not connected directly to their disease.

Physicians, at times may have a tendency to re-frame all problems as being related to a presenting disease. The WHOQOL assessment therefore helps to identify a particular part of the patient's life, which has problems or difficulties as the central concern of a patient, which may not be the presence of a disease and its symptoms. Helping patients overcome these difficulties in cases of patients with long term illness like hypertension and HIV, even when they are not directly related to presenting disease, will therefore put less demand on health sector and the patient will indeed have a feeling of better well-being [72].

The research field in quality of life (QoL) has increased enormously since 1990. As QoL represents the effect of an illness on a patient, as perceived by the patient, and yields complementary information to medical or epidemiological data, it is often used as an outcomes measurement. QoL has also been characterized as "the ultimate goal of all health interventions". QoL is a concept that covers a broad range of human experience. In the medical domain it denominates aspects of the health from the patient's or subject's point of view, and could better be expressed as "subjective health" or

"functional status and well - being".

This study therefore was aimed at evaluating and comparing the psychiatric morbidity and Quality of Life in patients with these two medical conditions, and this, no doubt, would be of immense relevance to the practice of consultation liaison psychiatry in the West African sub-region. It will equally contribute to the corpus of knowledge on chronic medical conditions and aid care/service providers to plan better management strategies that will also accord premium to the psychological component and well-being of these patients. Impairments, disabilities and handicaps from chronic conditions may thus be limited and patients' dignity and functional capacity enhanced.

2. Aim

The aim of this study, therefore, was to determine and compare the relationship between psychiatric comorbidity and quality of life in persons with diabetes mellitus and PLWHIV.

3. Methodology

Following ethical approval from the appropriate committee of the hospital and informed consent from the participants, 230 subjects living with HIV and 120 subjects with diabetes mellitus were recruited based on the study's inclusion and exclusion criteria. This was after a pilot study. Subjects were further administered with the study's instruments including the socio-demographic questionnaire, GHQ-12, the brief version of the WHO Quality of Life instrument (WHOQOL-Bref) and WHO Composite International Diagnostic Interview (WHO CIDI). The socio-demographic questionnaire, GHQ-12 and WHOQOL-Bref were self-administered while the WHO CIDI was based on interview by the researcher. The data were analyzed using the SPSS version 16 statistical package. Confidence interval was set at 95% while P- value of less than 0.05 was considered statistically significant.

4. The General Health Questionnaire (GHQ - 12)

It is a self administered screening instrument, which was designed to detect short-term changes in mental health (Anxiety, depression, somatic symptoms and social dysfunctions) and to screen for psychiatric morbidity [67-70]. It is aimed at distinguishing between psychological ill health and well-being. It can detect disorders of less than two weeks duration. [67] It focuses on breaks in normal functioning and is concerned with a person's inability to continue with normal healthy functions and the experience of new phenomena of a distressing nature. In this study, the GHQ-12 was scored using the conventional method in which "less so than usual" and "no more than usual" were scored 0, while "rather more than usual" and "much more than usual" were

scored 1. This method treats the scale as a binominal response as pathological deviations from the normal indicates the presence of the rated item. The expectant resultant loss of information by this method makes it only marginally less efficient. This form of scoring has the advantage of being easy to score this instrument in the Nigerian setting. Psychiatric morbidity was defined as those scoring 3 or more [69-71]. It can be completed in less than 3 minutes.

Goldberg identified the G. H. Q as the most suitable instrument for the detection of minor psychiatric illness in cross-sectional studies. It has been tested extensively in various cultures and linguistics groups and it generally yields high validity and positive results according to Koeter, who also tested among the Chinese and Munoz.[68] The GHQ has been shown to be a valid instrument for the detection of psychiatric morbidity in both general medical settings and in the community. It has been demonstrated by many studies to have a high correlation coefficient with standardized assessment instruments. Moreover, the sensitivity and specificity of the GHQ regardless of its version has remained high with only slight differences depending on the versions.

5. World Health Organization Quality of Life Bref (WHOQOL-Bref)

World health Organization Quality of Life Bref, which is the short version of the World Health Organization’s Quality of Life – 100 (WHOQOL-100) scale assessment instrument, was used to assess the quality of life in People Living With HIV in this present study. In order to control for the factors identified to influence QOL ratings, such as presence of clinical symptoms and advanced age, the patients who participated in this phase of the study were aged 18-54 years. WHOQOL-Bref is a self-administered generic questionnaire, hence applicable to virtually all people. This instrument lays emphasis on subjective responses of patients rather than their objective life conditions in the preceding two weeks.[72]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. [72]

The WHOQOL instruments were developed across cultures by systematic methodology. The important aspects of quality of life and ways of asking about quality of life were drafted on the basis of statements made by patients with a range of diseases, by healthy people and by health professionals in a variety of culture. This involved considerable research and checking over several years to ensure that it accurately measures the issues that are of importance to a person’s quality of life.

The World Health Organization Quality of life assessment instrument, short version (WHOQOL-Bref, used in this study)

is a 26-item questionnaire that assesses how patients feel about their life. Of the 26-items of the WHOQOL-Bref, there are two items that are examined separately: the items on “overall rating of quality of life” and subjective satisfaction with health are not included in the domain, but are used to form one facet on overall quality of life and general health satisfaction [72].

Items were scored between 1 and 5 (with alternate response categories of very poor to very good, not at all to an extreme amount/extremely/completely or very dissatisfied to very satisfied depending on the wordings of the question. Higher scores indicated better quality of life. But there were exceptions in some aspects with negatively scaled items in which the scoring were reversed to fit the patterns of the other items. The WHOQOL study group discouraged the use of the total scores generated by the summation of the scores in the different domains. The mean score of items within each domain was used to calculate domain score. The mean value ± ISD was done for the categorization of the domains since the scores for each QOL domain was normally distributed. Where more than 20% of the data was missing from an assessment, the assessment was discarded and where an item was missing, the mean of the other items in the domain was substituted. Where more than two items were missing from the domain, the domain score was not calculated, this is with exception in domain 3, where the domain was calculated even if 1 item was missing.

6. Results

A total of 125 (35.7%) had associated psychiatric comorbidity in both medical conditions, with diabetes mellitus 56.7% and PLWHIV 16.3%. Depressive illness was the commonest; 51 in all; 26(21.6%) among the diabetic patients and 25(7.14%) among PLWHIV. This was followed by GAD with 29 cases in all; diabetic patients 14.2% and PLWHIV 5.2%, panic without agoraphobia and phantom pain disorder were least with 1 each (with the former in PLWHIV and the later in diabetic patients. See table 1 below.

Table 1. Summary of Psychiatry Diagnosis.

SN	Psychiatric Morbidity Total	TOTAL	Diabetes mellitus (%)	PLWHIV (%)
1	Depressive disorders	51	26(21.6%)	25(10.9%)
2	GAD	29	17(14.2%)	12(5.2%)
3	Sexual Dysfunctions	13	9(7.5%)	4(1.7%)
4	Mixed Anxiety and Depressive disorders	10	7(5.8%)	3(1.3%)
5	Substance Abuse	6	1(0.8%)	5(2.2%)
6	Adjustment Disorder	8	5(4.2%)	3(1.3%)
7	PTSD	2	0(0)	2(0.8%)
8	Panic without Agoraphobia	1	0(0)	1(0.4%)
9	Dysthymia	5	3(2.5%)	2(0.8%)
10	Phanton Disorders	1	1(0.8%)	0(0)
12	Nil (no psychiatric illness)	225		
	Total	350		

NOTE: Percentages reflect proportions within each medical conditions.

Quality of life in persons with diabetes and plwhiv.

In all 4 domains and general health facet, quality of life

was statistically significantly higher in PLWHIV compared to the diabetic group (p=0.001). (See table 2 below).

Table 2. *Quality of life of persons with Diabetes and PLWHIV.*

QOL	DIABETIS	PLWHIV	t-test
Domain 1 (Physical)	51.97± 14.77	60.71 ± 15.57	t = 7.69 df = 588 P <0.001
Domain 2 (Psychological)	56.20± 22.19	62.34 ± 26.32	t = 4.04 df = 588 P <0.001
Domain 3 (Social relationship)	57.51 ± 26.13	61.57 ± 25.04	t = 3.25 df = 588 P <0.001
Domain 4 (Environment)	52.01± 16.91	55.15± 14.00	t = 3.85 df = 588 P <0.001
General Health Facet(GHF)	48.34 ± 22.44	65.81± 21.84	t =8.79 df = 588 P <0.001

7. Association of Psychiatric Comorbidity with Quality of Life in Persons with Diabetes and PLWHIV

From the study, psychiatric comorbidity was negatively statistically significantly associated with QOL in all domains and GHF among PLWHIV (p=0.001). Among the Diabetics, those with psychiatric comorbidity performed better on psychological and social domains compared with those with psychiatric morbidity among PLWHIV on same domains, while for those without psychiatric comorbidity, those with diabetes performed better only on the environment domain

compared with PLWHIV on the same domain(p=0.001). See tables 3 and 4.

On all domains of quality of life for the PLWHIV, including general health facet, those who had psychiatric comorbidities had correspondingly lower quality of life compared with those without psychiatric comorbidities. Again, all the values of quality of life of those with psychiatric comorbidities fall below the average value of quality of life of all the subjects (PLWHIV), indicating that the presence of psychiatric comorbidity further reduces their quality of life. See table 3 below. Similar scenario was also observed among the subjects with diabetes. See table 4 below.

Table 3. *Association of Psychiatric Morbidity With Quality of Life among PLWHIV.*

Domains of QOL	Quality of life in PLWHIV		
	Psychiatric Comorbidity	No psychiatric Comorbidity	Statistical analysis
Physical Domain	46.70 ± 10.10	66.36 ± 13.69	t = -10.55 df = 288, P <0.001
Psychological Domain	48.67 ± 15.02	67.85 ± 27.88	t = - 5.29 df = 288, P <0.001
Social Domain	46.84 ± 21.03	67.50 ± 24.10	t = - 6.09 df = 288, P <0.001
Environment Domain	50.33 ± 10.46	57.09 ± 14.88	t = -3.39 df=288, P <0.001
General Health Facet	63.83 ± 20.35	66.61 ± 22.412	t = -3.39 df = 288, P <0.001

Table 4. *Association of Psychiatric Morbidity with Quality of Life in Persons With Diabetes Mellitus.*

Domains of QOL	Quality of life in persons with diabetes mellitus		
	Psychiatric Comorbidity	No psychiatric Comorbidity	Statistical analysis
Physical Domain	45.98 ± 13.059	60.36 ± 12.38	t = -10.37 df = 358 P <0.001
Psychological Domain	56.60 ± 24.87	61.25 ± 13.28	t = -4.45 df = 358 P <0.001
Social Domain	48.06 ± 26.16	66.90 ± 21.56	t = - 6.77 df = 358 P <0.001
Environment Domain	44.95± 14.57	59.32 ± 16.43	t = -8.57 df = 358 P <0.001
General Health Facet	47.98± 21.78	51.91 ± 23.49	t = -2.58 df = 358 P <0.001

8. Discussion

The prevalence of psychiatric morbidity in PLWHIV was 16.3%. This was lower compared to that among patients with diabetes mellitus with 56.7%. Although, previous studies found variable prevalence rates of 81.2%, 35% and 21%, among PLWHIV, the lower prevalence rate in this study could be a reflection of increased awareness, following aggressive campaigns by both Government and voluntary organizations, more access to existing medical care, articulated interventional measures by Government, such as the free antiretroviral drug scheme, and efforts aimed at reducing discrimination and stigma. There have been no such aggressive campaign and interventional measures by either government or voluntary organizations in the case of diabetes

mellitus. Furthermore, variable rates reported by previous studies may be due to the setting as well as methodological differences of the various studies.

Although depression was also the highest of all the psychiatric illnesses among PLWHIV with 25 (10.9%), this was equally lower compared with diabetes mellitus in this study, probably for the same reasons above. However, this figure is similar to the finding of Olisah of 14.2% in a study in Nigeria; [64] and also consistent with several other studies which put the prevalence of depression (amongst PLWHIV) at 5-25%, [75] and 10-40%. [76] Females recorded higher percentage of depressive illness in both medical conditions, consistent with the male to female ratio of 1: 2 in depression [64, 75, 77, 78]. The prevalence of suicide ideation, attempt or completed suicide has been reported to be high among PLWHIV [78-81]. In this study, 18.2% reported death wish,

4.3% reported occasional suicidal ideation while 0.9% had attempted suicide, among the PLWHIV. This findings somewhat agree with previous findings of 20%, 12% and 8% respectively [82]. The lower rates of the later found in this study might reflect both the concern shown by government, non-governmental organizations as well as corporate bodies, and the degree of family cohesion that is common in African societies including the Niger Delta.

The possible aetiological mechanisms of depression in both illnesses have been explained from the biological (physical) as well as the psychological points of view. For HIV, the viral cells and even some opportunistic infections and ketoacidosis and glucose deposit in the cerebral cortex may either directly destroy the brain cells responsible for emotions in the limbic system or in both cases, cause direct affection of the neurotransmitter system altering their release or uptake, and in effect causing depression. This is in line with several studies [83]. From the psychological point of view, the burden of the illness, the thought of almost lifetime use of medications, fear of and uncertainty about the future, chronic sense of rejection and feeling of loss, possible loss of functional capability with reduced quality of life, associated stigma in the case of HIV, and chronic leg ulcer and possible amputation in cases of complicated diabetic foot ulcers, regimented lifestyle particularly food intake and fear of impending death, are all depressogenic and may have had additive effects for depression. Several studies have also established similar lines of thought [81, 84, 85]. The threat to life and perceived loss or difficulty having a life partner may be responsible for the anxiety among the PLWHIV. The predominant feeling of loss involves that of functional capability, loss of job, relationship and even difficulty to secure a life partner. Truly, these are both depressogenic and anxiogenic.

Substance abuse in PLWHIV, mainly alcohol, has equal sex distribution unlike in the diabetic patients. Although the prevalence was low (2.2%), this was higher than in diabetesmelitus (0.8%). This finding might further explained by the psychological impact of the “news” of the diagnosis of one’s seropositive status as the major reason to self-medicate their depression and/or anxiety using drugs, particularly alcohol [86-88]. On the other hand, the lower prevalence of alcohol use among the diabetic patients may be due to the fact that reduced intake or complete abstinence from alcohol is often part of the medical advice given to patients with diabetes mellitus because of the carbohydrate content of alcohol.

It is important to note that both the viral cells alone or acting together with opportunistic infections and most substances of abuse, particularly alcohol, can directly impair or damage brain cells [83]. Thus, these will synergistically hasten the deterioration of the health of the individual, thereby negatively affecting his/her psychological well-being and quality of life. Secondly, interactions between substances of abuse, particular alcohol, and antiretroviral medication have also been associated with poor drug adherence, as well as reduced effectiveness of medications, which may result in

unbearable side effects. Thus, this may have contributed to poor adherence among patients in both conditions. Poor drug compliance in both conditions may likely be due to forgetfulness which may be occasion by mild to moderate cognitive impairment.

Posttraumatic stress disorders (PSTD) was exclusively made among the PLWHIV(0.8%). PSTD which may initially present as acute stress disorder usually occurs in the setting of experiences or life events that are of catastrophic magnitude to the mindset. HIV, with all its psycho-social difficulties including stigma, and associated economic burden due to its chronic nature with very little hope of long term survival, could be weighed as catastrophic to many sufferers. Their complete absence among the diabetic in this study might reflect the obvious fact that the diagnosis of diabetes mellitus may not be as catastrophic to the mind as such. Adjustment disorder was more common among the diabetic because their medical condition, upon diagnosis require a lot of life style adjustment particularly in the area of food choices and intake.

Another disorder found in both conditions in this study is disorder of sexual function, hyposexual desire disorder (HSDD). This disorder, characterized by decreased libido, lack of sexual motivation, and decreased sexual fantasies, is still a controversial concept. In fact erectile dysfunction is a symptom complex of diabetes mellitus. The reason is because, it is often difficult to separate sexual symptoms occurring in chronic and disabling conditions such as diabetismelitus and HIV infection from common transient alterations in sexual behavior related to interpersonal problems, life stressors, and just common fatigue, overwork, and sleep deprivation that are part of living in developing world.

Furthermore, decreased libido is often part of major depressive disorder. For this reason, it is possible that decreased libido is more likely to be a residual symptom of moderate to severe depressive episode that has not gone into remission rather than an independent clinical entity. Some researchers have argued that this might only be a part of the symptomatology of depression [77, 78]. The fact that all the females who reported hyposexual desire disorders also had co-morbid depression, appears to lend credence to this argument. On the other hand, the drive or obsession for money and material wealth among young people particularly unmarried females which often compel them into casual and most times unprotected sexual intercourse is more than enough reason for contacting HIV infection, with or without any background personality disorders.

The strength of this study lies in the fact that WHOQOL-bref covers a broad range of domains that are related to quality of life (QOL). The general health facet (GHF) was found to be moderately high in over 7 of every 10 in the two categories of subjects. This result is similar to some studies which found 8 of every 10 psychiatric patients with subjective sense of well-being [89]. The possible reasons being their focus on physical strength (e. g. evident physical health, absence of symptoms, ability to work around,

available family support and a strong religious belief) than on their weaknesses (e. g. social discrimination, difficulty in having intimate relationships and reduced job opportunity). This was also true in all four domains where most subjects in the chronic medical conditions under study in which subjects generally fared well on quality of life. On domains 1 and 4, PLWHIV who had psychiatric comorbidity had better performance on quality of life than the diabetic in similar domains. Furthermore, PLWHIV free of psychopathology also scored higher on GHF than similar group among the diabetic.

It is true that the stress, depression and lack of adequate social support which often may synergistically hastened the progression of HIV to AIDS, and by so doing, cause rapid deterioration in their psychological well-being and quality of life. However, in this study, it appeared that the combined effects of Government intervention programs and education for the general public as well as the supportive involvement by significant family members may have helped to increase the level of social support, reduced economic burden of care and associated stress which ultimately reduced the prevalence and severity of depression and other psychiatric disorders. This often results in improved quality of life. At present, more concern and care are given to PLWHIV, unlike diabetic melitus patients, from both governmental and non-governmental organizations, other social groups as well as the family. Perhaps, this will explain why there is decreased rate of psychiatric co-morbidity particularly depression among the former compared with persons with diabetesmelitus. This observed low rate of psychiatric comorbidity in PLWHIV may account, in addition to other factors, for their better quality of life compared with diabetic melitus.

There are no local studies to compare with the present study where both psychiatric co-morbidity and QOL were studied together. Some authors have opined that quality of life will be poor in the developing countries like Nigeria where factors of finances, social relationships, health and personal safety are considered to be poor [90-92]. Diabetes in adults has a high impact on the economy and with consequent low quality of life of individuals. The results in this study is consistent with many studies else-where [93, 94]. All domains of quality of life in those whose illness was complicated with psychiatric disorders among PLWHIV were affected, significantly worse in domains 1-4, compared to those without psychiatric co-morbidity. This finding varied a little from previous studies where all domains of QOL except domain 4 (environment) and health satisfaction, were affected by psychiatric co-morbidity [95].

The result of this study is also consistent with the finding of Olisah in his study done in Nigeria which found that 63.6% subjects with depression had poor overall QOL while only 11.3% of subjects with no depressive disorder had poor overall quality of life and asserted that this could be representative, as depression has been identified as the most prevalent psychiatric illness in PLWHIV/AIDS [64]. In this study, depression was equally the commonest psychiatric co-

morbidity in both PLWHIV infection and subjects with diabetic mellitus patient.

In the presence of psychiatric co-morbidity, the quality of life in PLWHIV was significantly affected, particularly on the psychological and social domains compared with diabetes mellitus. This suggests that the stigma and social rejection associated with PLWHIV may play a significant role in the development of psychological illness in PLWHIV. This also implies that even though psychiatric comorbidity is more common in the diabicmelitus and affecting quality of life generally, the presence of psychiatric comorbidity in PLWHIV tended to have more severe negative impact on quality of life [96]. Thus, the higher prevalence of psychiatric co-morbidity might have played a significant role in lowering the quality of life in persons with diabetic mellitus more than in PLWHIV.

Incidentally, many of the socio-demographic and clinical variables assessed in this study, had better outcomes among diabetic mellitus except employment, education, income, and initial reaction to diagnosis. The presence of symptoms of hypertension alone appear to be more disabling than those in PLWHIV, bearing in mind that acute cases were excluded. Severe cases of diabetic mellitus cause more symptoms and it is more disabling than mild to moderate hypertension. Thus, this may explain the lower quality of life scores on both the physical and environment domains among the diabetic melitus compared with PLWHIV.

HIV not complicated with AIDS is most times symptom free or stable on medication and this stability is often less sensitive to adverse environmental factors unlike in diabetes mellitus where little adverse changes in the environment could affect profoundly the patients who had hitherto remained stable on medications. Such changes may include; change in income level, employment, marital status (prolonged difficulty, disharmony, separation, divorce or widowhood), and poor drug adherence.

In this study, it was observed that socio-demographic and clinical characteristics of respondents in the two diagnostic groups had some significant relationships with quality of life. Factors like; increased age, marital status (married), later age of onset of illness, education, employment, average to high monthly income, shorter duration of illness, longer duration of treatment with good drug adherence and emotional stability, all positively affect both psychiatric co-morbidity and quality of life in the study group as well as control. These results are consistent with several studies [64, 89]. These suggested that a good number of psychosocial and clinical factors affected the outcome of both diabetic mellitus and HIV infection. The implication of this is that these factors have to be addressed in the holistic management of these two, 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.

The effect of gender was variable. Although, females were more affected in most of the psychiatric illnesses which is consistent with existing literature, [75, 76] this did not

translate into lower quality of life for females on most domains of quality of life. This suggests that psychiatric comorbidity in females tended to have better prognosis compared with males. From the study, females performed better on the overall quality of life, domains 2 - 4, while males fared better on health satisfaction and domain 1. This might be due to their better health-seeking behaviour. Secondly, the obvious fact that most of the psychiatric disorders found in this study are usually associated with better prognosis in females, might have contributed to their better Quality of Life.

The finding in this study of higher rate of psychiatric comorbidity in diabetic subjects is also consistent with increasing GHQ values, and where all mean values of GHQ-12 for diabetic melitus were consistently higher than that of PLWHIV. This appears that since GHQ is a screening instrument for psychiatric caseness, high GHQ values does not only suggest the likely presence of psychiatric illness, but also gives an indication of its severity [97-99, 100].

9. Conclusion

From the study, presence of psychiatric comorbidity and other psychosocial factors also influence the outcome of these medical conditions and to some extent significantly determined the psychological consequence and QOL.

However, in spite of all these, it appears there is still low level of awareness of the psychological impact of these medical diseases particularly among most non- psychiatric clinicians. This often results in poor management, prognosis, and higher mortality.

On account of the above, advocacy for a formal integration of functional Liaison-psychiatric practice has become imperative in the management of most chronic medical conditions for optimal benefits of patients and physicians. Early identification of these diseases, and paying prompt attention to the psychological components will, no doubt, go a long way in improving the clinical outcomes of the sufferers.

Furthermore, efforts of both Governmental and Non-Governmental Organizations in the management of chronic health conditions, including communicable and non-communicable conditions should have clear objectives backed by legislation and not on ad hoc basis, as this would guarantee its sustenance.

References

- [1] Centres for Disease Control and Prevention HIV/AIDS Surveillance Report, 2004; 12 (No. 1): 1-42.
- [2] King H, Aubert RE, Herman WH. Global burden of diabetes, 1995/2025: Prevalence, numerical estimates, and projections. *Diabetes Care* 1998; 21: 1414/31.
- [3] Vilbergsson S, Sigurdsson G, Sigvaldason H, Hreidarsson AB, Sigfusson N. Prevalence and incidence of NIDDM in Iceland: Evidence for stable incidence among males and females 1967/1991/the Reykjavik Study. *Diabet Med* 1997; 14: 491/8.
- [4] Kolson DL, Lavi E, Gonzalex - Scarano, F. The Effects of HIV on the Central Nervous System. *Adv Virus Res.* 1998; 50: 1-47.
- [5]] Johansen J, Claudi T, Holtedahl K. Insulin treatment for poorly regulated diabetic patients in general practice. Better regulation and symptom relief? *Scand J Prim Health Care* 1999; 17: 244/9.
- [6] Barroso J, Hammill B, Ieseman J, Salahuddin N, Hamon J, Pence B. Physiological and psychosocial factors that predict HIV-related fatigue. *AIDS Behav.* 2010; 4: 1415-27.
- [7] Stevens P, Tighe Doerr B. Trauma of discovery: women's narrative of being Informed they are HIV-Infected. *AIDS Care* 1997; 9: 523-38.
- [8] Bharat S, Aggleton P. Facing the challenge: household responses to AIDS in Mumbai, India. *AIDS Care.* 1999; 11: 31-44.
- [9] 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.* 1997; 49: 33-38.
- [10] Susser E., Valencia E, Miller M., Tsai WY, Meyer-Bahlburg H. & Conover S. Sexual behavior of homeless mentally ill men at risk for HIV. *American Journal of Psychiatry* 1995; 152: 583-587.
- [11] Watters JK, EstilioMJ, Clark GL & Lorvick, J. Syringe and needle exchange as HIV/AIDS prevention for injection drug users. *JAMA* 1994; 271: 115-120.
- [12] Herek GM, Capitanio J P. AIDS stigma and sexual prejudice *Am BehavSci* 1999; 42: 1130-45.
- [13] Fife BL, Wright ER. The dimensionality of stigma: A comparison of its impact on the self of persons with HIV/AIDS and cancer. *J Health SocBehav* 2000; 41: 50-67.
- [14] Herek GM, GluntEK. An epidemic of stigma: public reactions to AIDS: *Am Psychol.* 1988; 43: 886-91.
- [15] Herek GM. AIDS and Stigma. *AmBehav Science* 1999; 42: 1106-16.
- [16] Bird ST, Bogart LM, Delahanty DL. Health-related correlates of perceived discrimination in HIV care. *AIDS Patient Care STDs* 2004; 18: 19-26.
- [17] Holtgrave DR, Pinkerton SD. 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.* 1997; 16: 54-62.
- [18] Letendre S., Margule-Beck J, Capparell E, et al. CHARTER Group. Validation of the CNS Penetration- Effectiveness rank for quantifying antiretroviral penetration Into the central nervous system. *Arch Neurol.* 2008; 66: 65-70.
- [19] Clark U, Cohen R. Brain dysfunction in the era of combination antiretroviral therapy: implications for the treatment of the aging population of HIV-infection individuals. *CurrOpin Investing Drugs.* 2010; 11: 884-900.
- [20] Murray CJ, Lopez AD. Mortality by cause for eight regions of the world. *Global burden of disease.* *Lancett,* 1997; 349: 1269-1276.

- [21] Cook J, Grey D, Burke J, et al. Depressive symptoms and AIDS-related mortality among a multisite cohort of HIV-positive women. *Am J Public Health* 2004; 94: 1133-40.
- [22] Aalto AM, Uutela A, Kangas T. Health behaviour, social integration, perceived health and dysfunction. A comparison between patients with type I and II diabetes and controls. *Scand J Soc Med* 1996; 24: 272/81. Catalan J, Burgess A, Klimes I. *Psychological Medicine of HIV infection*. Oxford: Oxford University Press,
- [23] Grassi I, Right A, Sighinolfi L, Makoui S, Ghinelli F. Coping styles and psychosocial-related variables in HIV- Infected patients. *Psychomatics* 1998; 39: 350-9.
- [24] Wolf T, Balson P, Morse E. 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*. 1991; 52: 171-3.
- [25] Nichotaon W, Long B. Self-esteem, social support, internalized homophobia, and coping strategies of HIV+ gay men. *J Consult ClinPsyohcl*. 1990; 50-873-6. 53.
- [26] Grassi I, Right A, Sighinolfi L, Makoui S, Ghinelli F. Coping styles and psychosocial-related variables in HIV- Infected patients. *Psychomatics*. 1998; 39: 350-9.
- [27] Heaton B, Velin B, McCutchan J, et al. Neuropsychological Impairment in HIV Infections: implications for employment HNRC Group- HIV, Neurobehavioral Research Center. *Psychosom Med*. 1984; 56: 8-17.
- [28] Marcotte T, Lazzaretto D, Scott J, Roberta C, Woods S, Letendre S. Visual attention deficits are associated with driving accidents In cognitively-impaired HIV-Infected individuals. *J ClinExpNeuropsychol*. 2006; 28: 13-28.
- [29] Wredling R, Adamson U, Berne C, Dahle'n M. O 'stman J, Larsson Y, et al. Quality of life among a representative sample of people with diabetes mellitus in Sweden. *DiabNutrMetab* 1993; 6: 393/5.
- [30] American Psychiatric Association. *Diagnostic and statistical manual of mental disorders: DSM-IV*. Washington, DC: American Psychiatric Press; 1994.
- [31] Pita R, Fotakopoulou O, Kiosseoglou G, Zafiri M, Roikou K, Simos G, et al. Depression, quality of life and diabetes mellitus. *HIPPOKRATIA* 2002; 6: 44-47.
- [32] Ribu L, Wahl A. How patients with diabetes who have foot and leg ulcers perceive the nursing care they receive. *J Wound Care* 2004; 13: 65/8.
- [33] Barroso J, Hammill B, Ieseman J, Salahuddin N, Hamon J, Pence B. Physiological and psychosocial factors that predict HIV-related fatigue. *AIDS Behav*. 2010; 4: 1415-27.
- [34] Johnson J, Williams J, Rabkin J, et al. Axis I psychiatric symptomatology associated with HIV Infection and personality disorder. *Am J Psychiatry*. 1995; 152: 551-4.
- [35] Gala C, Pergami A, Catalan J, et al. The psychosocial impact of HIV infection on gay men, drug users and heterosexuals. *Controlled Investigation*. *Br J Psychiatry*. 1993; 163: 661-9.
- [36] Dille J, Ochitill M, Peri M, volderbing R. Findings in psychiatric consultations with patients with AIDS. *Am J Psychiatry*. 1985; 142: 82-6.
- [37] Celsia J, Roberts J. Meta-analysis of the relationship between HIV Infection and risk for depressive disorders. *Am J Psychiatry*. 2001; 158: 725-30.
- [38] Lyketos C, Hoover D, Guccione M, et al. Changes In depressive symptoms as AIDS develops: The Multicenter AIDS Cohort Study. *Am J Psychiatry*. 1996; 153: 1430-7.
- [39] Myers H, Durvasula B. Psychiatric disorders In African, American men and women living with HIV/AIDS. *Cult DivEthn Min Psychol*. 1999; 5: 249-62.
- [40] Dew M, Becker J, Sanchez J, et al. Prevalence and predictors of depressive, anxiety and substance use disorders in HIV-infected and uninfected men: a longitudinal evaluation. *Psychol Med*. 1997; 27: 395-409.
- [41] Roberts RE, Kaplan GA, Camacha TO. Psychological distress and mortality: evidence from the Alameda County Study. *SocSci) Mad*. 1990; 31: 527-530.
- [42] Lipsitz J, Williams J, Rabkin, et al. Psychopathology in male and female drug users with and without HIV Infection. *Am J Psychiatry*. 1994; 151: 1662-8.
- [43] Rosenberger P, Bonsterin R, Nasrallah H, et al. Psychopathology in HIV: lifetime and current assessment. *Compr Psychiatry*. 1993; 34: 150-8.
- [44] McDowell J, Chittick G, Stevens C, Edwards K, Stein D. Pharmacokinetic Interaction of abacavir (159U89) and ethanol In HIV infected adults. *Antimicrob Agents Chemoter*. 2000; 44: 1686-90.
- [45] Antoniou T, Tseng A. Interactions between recreational drugs and antiretroviral agents. *Ann Pharmacother*. 2002; 36: 598-613.
- [46] Lyketos C, Hoover D, Guccione M, et al. Changes In depressive symptoms as AIDS develops: The Multicenter AIDS Cohort Study. *Am J Psychiatry*. 1996; 153: 1430-7.
- [47] Johnson RT. *HIV in Viral Infections of the Nervous System* (2nd Edition). Johnson A (Ed). Lippincott-Raven, PA. USA, 1998; 287-313
- [48] Rottenberg D, Moeller J, Strother S, et al. The metabolic pathway of the AIDS dementia complex *Ann Neurol*. 1987; 22: 700-6.
- [49] Grant I, Atkinson J, Hesselink J, et al. Evidence for early central nervous system involvement in AIDS and other HIV infections. Studies with neuropsychologic testing and magnetic resonance imaging. *Ann Intern Med*. 1987; 107: 828-36.
- [50] Heaton A, Grant I, Butters N, et al. The HNRC neuropsychology of HIV infection at different disease stages. HIV neurobehavioral research center. *J IntNeuropsycholSoc* 1995; 1: 231-51.
- [51] Center for Disease Control and Prevention. *Prevention and Treatment of Tuberculosis Patients Infected with Human Immunodeficiency Virus: Principles of Therapy and Revised Recommendations*. *MMWRMorb Mortal Wkly Rep*. 1998; 47 (RR-20): 1-51.
- [52] Gwatkin D, Guillot M, Heuveline P. The burden of disease among the global poor. *Lancet*, 2000; 354: 586-589.
- [53] Frasure-Smith N, Lesperance F. Reflections on depression as a cardiacriskfactor. *Psychosom Med* 2005; 67: S19-25.

- [54] Ola BA, Adewuya AO, AjayiOE, Akintomide AO, OginniOO, OlogunYA. Relationship between depression and quality of life in Nigerian outpatients with heart failure. *J Psychosom Res* 2006; 61: 797-800.
- [55] Wittchen HU, Carter RM, Pfister H, Montgomery SA, Kessler RC. Disabilities and quality of life in pure and comorbid generalized anxiety disorder and major depression in a national survey. *IntClinPsychopharmacol* 2000; 15: 319–28.
- [56] Anderson RB, Testa MA. Symptom Distress Checklists as a Component of Quality-of-Life Measurement Comparing Prompted Reports by Patient and Physician with Concurrent Adverse Event Reports Via the Physician. *Drug inf. J.* 1994; 28: 89-14.
- [57] Lenderking WR, Gelber RD, Cotton DL, et al. Evaluation of the Quality of Life Associated with Zidovudine Treatment in Asymptomatic Human Immunodeficiency Virus Infection. *N Engl. J. Med.* 1994; 330: 738-43.
- [58] Nebhinanl N, Mattoo S, Wanchu A. Psychiatric morbidity in HIV-positive subjects: a study from India. *The Psychosom Res.* 2011; 70: 449-54.
- [59] Olusina AK, OhaeriJU, Subjective quality of life of recently discharged Nigerian Psychiatric patients. *Soc Psychiatry Epidemiol* 2003; 38 (12): 707-4.
- [60] Concepts of Health-Related Quality of Life. In: Patrick D. L, Erickson P. *Health Status and Health Policy: Quality of Life in Health Care Evaluation and Resource Allocation.* New York: Oxford University Press, 1993; 76-112.
- [61] Testa MA, LenderkingWR. Interpreting pharmacoeconomic and quality-of –life clinical trial data for use in therapeutics. *Pharmacoeconomics.* 1992; 2: 107-17.
- [62] Olisah VO, Biayewu O, Sheikh TL. Depression Underdiagnosis and the effects on quality of life in outpatients with HIV at a Nigerian University Teaching Hospital. *African Journal of AIDS Research*, Volume 10, Number 3, 2011; pp 247-254 (8).
- [63] Wells K, Golding J, Burman M. Psychiatric disordersIn a sample of the general population with and without chronic medical conditions. *Am J Psychiatry.* 1988; 145: 976-81
- [64] Evans D, Charney D. Mood disorders and medical illness a major public health problem. *Blot Psychiatry.* 2003; 64: 177-80.
- [65] Sweet MD, & Denison JA. Reducing HIV incidence in developing countries with structural and environmental interventions *AIDS.* 1995; 9: S251-S2577.
- [66] Hiyasu Z, Kabir M, Abubarkar IS, Babashani M, ZubairZA. Compliance to antiretroviral therapy among AIDSs patients in Aminu Kano Teaching Hospital, Kano, Nigeria. *Nigerian J. Med.,* 2005; 14: 290-295.
- [67] Catalan J. HIV-1 associated psychotic disorders. *ClinNeuropharmacoh.* 1999; 15 (Suppt 1) 368-9.
- [68] Peyrot M, Rubin RR. Levels and risks of depression and anxiety symptomatology among diabetic adults. *Diabetes Care* 1997; 20: 585–90.
- [69] Mawar N, Kohli R, Joglekar N, Bagul R. Children and Young People in Context of HIV/AIDS: Listen, Learn and Live! World AIDS Day Campaign with Children and Young People. *ICMR Bull* 1999; 29: 125-35.
- [70] Schoepf BG. 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; 1995.
- [71] Kalichman SC, Ramachandran B, &Catz, S. Adherence to combination antiretroviral therapies in HIV seropositive men and women of low health literacy: *Journal of General Internal Medicine,* 1999; 14267-273.
- [72] Crosby G, Stall R, Paul J, Barrett D. Substances use and HIV risk profile of gay/bisexual males who drop substance abuse treatment *AIDS Educ Prev.* 2000; 12: 38-48.
- [73] Morrison MF, Prtitto JM, Ten Hanc T, Grttes DR, Chiappini MS, Weber AL, et al. Depressive and anxiety disorders in women with HIV infection. *Am J Psychiatry.*
- [74] Chandra PS, Ravi V, Desai A. Anxiety and depression among HIV-infected heterosexuals- A report from India. *J Psychosom Res* 1998; 45: 401-9.
- [75] Nor K, Tlou S, Norr J. The Threat of AIDS for Women in Developing Countries. In: Cohen F, Durham JD, Editors *Women Children and HIV,* New York; Springer Publishing Co; 1993; p. 263.
- [76] Demi A, Bakeman R, Richard S, Linda M, Brenda S. Suicidal thoughts of women with HIV infection: effect of stressors and moderating effects of family cohesion. *J FamPsychol* 1998; 12: 344-53.
- [77] Atkinson J, Grant I, Natural history of neuropsychiatric manifestations of HIV disease. *Psych Clin North America.* 1994; 17: 17-33.
- [78] Perry S, Jacobsberg L, Fishman B. Suicidal ideation and HIV testing. *JAMA.* 1990; 263: 679-682.
- [79] Haller D. Miles D. Suicidal ideation among psychiatric patients with HIV psychiatric morbidity and quality of life. *AIDS Behav.* 2003; 7: 101. 8.
- [80] Gala C, Pergami A, Catalan J, et al. Risk of deliberate self-harm and factors associated with suicidal behaviour among asymptomatic Individuals with HIV Infection, *ActaPsychiatrScand,* 1992; 86: 70-5,
- [81] Jacob KS, John JK, VerghesEA, John TJ. The fear of AIDS: Psychiatric symptom or syndrome? *AIDS Care* 1989; 1: 13-6.
- [82] Herek GM, Capittanio JP. Public reactions to AIDS in the United States: A second decade of stigma. *Am J Public Health* 1993; 83: 574-7.
- [83] Maman S. Mbwambo 1K, Hogan NM, Kilozo JP, Campbell JC, Weiss E, et al. HIV- positive women report more lifetime partner violence: Findings from a voluntary counseling and testing clinic in Dar-es-Salaam, Tanzania. *Am J Public Health* 2002; 92: 133 1-7.
- [84] Chander G, Josephs J, Fleismann J, et al. Alcohol use among HIV- Infected Persons in care: results of a multisite survey. *HIV Med.* 2009; 9: 196-202.
- [85] Green J, Saveanu R, Bornstein B. The effect of previous alcohol abuse on cognitive function in HIV Infection. *Am J Psychiatry.* 2004; 161: 249-54.
- [86] Bing E, Burman M, Longshore D, et al. Psychiatric disorders and drug use among HIV-infected adults in the United States, *Arch Gen psychiatry* 2001; 58: 721- 8.

- [87] Reine G, Lancon C, Di Tucci S, Sapin C, Auquier P. Depression and subjective quality of life in chronic phase schizophrenic patients. *ActaPsychiatrScand* 2003; 108: 297-303.
- [88] Perkins DO, Stein RA, Golden RN, Murphy C, Naftolowiz D, Evans DL. Mood disorders in HIV Infection. Prevalence and risk factors in a non epicenter of the AIDS epidemic. *Am J Psychiatry* 1994; 15: 233-6.
- [89] The World Bank (2008) 'Nigeria receives US million additional funding for HIV/AIDS project program'.
- [90] National Agency for the Control of AIDS (NACA) (2009, December) 'National HIV/AIDS strategic framework (NSF) 2010-15'.
- [91] Cooper RS, Rotimi C. Establishing the epidemiologic basis for prevention of cardiovascular diseases in Africa. *Ethn Dis*. 1993; 3: 513-522.
- [92] Larsson D, Lager I, Nilsson PM. Socio-economic characteristics and quality of life in diabetes mellitus / relation to metabolic control. *Scand J Public Health* 1999; 27: 101/5.
- [93] Lyketsos CG, Hanson AL, Fishman M, Rosenblatt A, McHugh PR, Treisman GJ. Manic syndrome early and late in the course of HIV. *Am J Psychiatry* 1993; 150: 326-7.
- [94] Kelly J, Murphy D, Bahr G, et al. Factors associated with severity of depression and high risk sexual behavior among persons diagnosed with HIV infection. *Health Psychol*. 1993; 12: 215-19.
- [95] Gureje O, Uwakwe R, Oladeji, B, Makanjuola, V. O. and Esan O. Depression in Adult Nigerians. Result from the Nigerian Survey of mental health and wellbeing. *Journal of Affective Disorders*. Doi 10.1016/j.jas.2009; 04.030.
- [96] Koete MW, Van den Brink, W. and Ormei J. Chronic Psychiatric. Complaints and the General Health Questionnaire. *Br. J. Psychiat*. 1989; 155, 186-190.
- [97] Adamson TA, and Sijuwola, OA. Ilewo-Orile. Nigerian Epidemiological Study: Psychiatric morbidity in a rural community using the 12-item GHQ, *Nigerian Journal of Psychiatry*. 2001; Vol. 1, No5: 315-321.
- [98] Gureje O, and Obikoya B. The GHQ – 12, as a screening tool in a primary care setting. *Social Psychiatry and Psychiatric Epidemiology*. 1990; 25: 276-280.
- [99] Stewart AL, Greenfield S, Hays RD, Wells K, Rogers WH, Berry SD, et al. Functional status and well-being of patients with chronic conditions. Results from the Medical Outcomes Study. *Jama* 1989; 262: 907-913.
- [100] Gaede P, Beck M, Vedel P, Pedersen O. Limited impact of lifestyle education in patients with Type 2 diabetes mellitus and microalbuminuria: Results from a randomized intervention study. *Diabet Med* 2001; 18: 104/8.
- [101] Nkporbu A. K, Ugbomah L, Stanley P. C. Pattern and Prevalence of Psychiatric Consultations in Other Non-Psychiatric In-patient Facilities in the University of Port Harcourt Teaching Hospital: A 5-YEAR REVIEW. *The Nigerian Health Journal*. 2014; 14; 1, 13-20.
- [102] Bowling A. What things are important in peoples life? A survey of the public's judgements to inform scales of Health related QOL. *Soc. Sci. Med*. 1995; 41: 1447-62.
- [103] Bowling A. Quality of life in Social Science and Medicine. *Soc. Sci. Med*. 1995; 41: 1337-1338.
- [104] World Health Organisation. WHO constitution: the first chapter. Electronic citation WorldWideWeb200: <http://www.idb.org/iphw/whoconst.htm> Cited on 13/5/2009.
- [105] Okunoye O. C., Asekomeh G. E., Iyagba M. A., Owuchekwa A. C. Quality of life of people living with HIV/AIDS in Port Harcourt. *The Nig Health J*. 2014; 14: 8-12.