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COMPARISON OF PSYCHIATRIC COMORBIDITY AND QUALITY OF LIFE (QOL) IN PERSONS WITH TUBERCULOSIS AND PEOPLE LIVING WITH HIV IN SOUTH-SOUTH NIGERIA

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ABSTRACT

BACKGROUND: Tuberculosis and HIV are two chronic infective medical diseases commonly associated with psychiatric co-morbidity, which further affect the quality of life of the sufferers. AIM: The study was to determine and compare the relationship between psychiatric co-morbidity and quality of life in persons with tuberculosis and PLWHIV. METHODOLOGY: Two hundred and thirty subjects living with HIV and 140 subjects with tuberculosis were recruited. Those with clinically chronic conditions, or comorbid medical condition and treatment Resistant tuberculosis were excluded. 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). Results were presented via descriptive and analytical methods. RESULTS: The study found a prevalence of psychiatric co-morbidity of 19.8% among PLWHIV and 28.4% among subjects with tuberculosis ($p = 0.004$). For the PLWHIV, domain scores for 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 while tuberculosis was 50.97±13.87, 57.22±46.36, 54.51±45.04, 50.01±15.10 and 49.34±21.84 ($p = 0.001$) 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. CONCLUSION: The study found a statistically significant higher prevalence of psychiatric co-morbidity and lower quality of life among the subjects with tuberculosis compared with PLWHIV. Findings suggest strongly that in managing patients with these conditions, attention should be paid to their mental health and subjective quality of life.

Contribution/Originality: This study contributes in the existing literature about the sufferers of chronic infectious medical diseases and their vulnerability to psychiatric co-morbidity. The study documents explanations as to why some chronic medical conditions may show slow response to instituted management. The study uses new estimation methodology of Quality of life measurement and demonstrates the direct relationship between psychiatric co-morbidity and quality of life. Finally, the study contributes to logical analysis and emphasis that evaluation of patients suffering from chronic medical diseases must be holistic enough to include their mental wellbeing.

1. INTRODUCTION

Increased level of stigma and misconceptions about tuberculosis and HIV infections still persist and these have constituted enormous concern, despite the advances in treatment so far [1-6]. A mere diagnosis of these chronic medical diseases can pose serious psychological trauma for the sufferer, giving rise to varied psychiatric symptoms and comorbidities [7-26]. The situation has greatly worsened with the recent surge in co-infection of tuberculosis with HIV infection [27-29]. However, the introduction of chemotherapy has significantly reduced the morbidity and mortality [30-37]. Tuberculosis and HIV are two chronic infective medical diseases which have been found to be associated with psychiatric comorbidity [38, 39] and this furthers affect the quality of life of the sufferers [40-52]. The greatest risk factor to the TB infection is known to be Human Immunodeficiency Virus (HIV) [27-29, 46]. This is because the virus compromises the immune system. Also, at the current rate of transmission and development of Tuberculosis, more than four million cases are expected to occur worldwide between 2015 and the end of 2020 [22, 23, 53]. According to the WHO, about 13% of people infected with TB are co-infected with HIV [22, 23].

HIV is a virus that attacks the immune system, making it difficult for the body to wade off infection, often predisposing the individual to Acquired Immunodeficiency Syndrome (AIDS.) and other infections especially tuberculosis. UNAIDS estimates that in 2007, 33 million people were living with HIV, and that this figure has moved up to 40 million at present [54, 55]. Similarly, WHO had equally estimated that despite the impressive reduction in HIV I and II- as well as Tuberculosis-related morbidity and mortality which the use of antiretrovirals and anti-tuberculosis drugs have recorded respectively, neuropsychiatric complications and sequelae of these diseases are expected to create more impact in the coming years [3, 54, 55].

People with co-infection with TB/HIV have HIV along with either latent or active TB infection [27, 28, 46, 56]. If someone has both TB/HIV, each disease accelerates the development and progress of the other. In the absence of anti-retroviral treatment, HIV lowers the immune system and this eventually makes the individual more susceptible to TB infection. HIV/AIDS and Tuberculosis have been found to constitute significant cause of death and disability, especially in low- and medium-income countries [57, 58].

Tuberculosis (TB) is a chronic disease and is of utmost public health concern in Nigeria [53]. Nigeria is said to constitute the second highest TB disease burden in Africa and also ranks fifth among the 22 highest TB burden countries in the world [23, 53, 59]. In spite of the progress made so far in expanding the direct observed therapy (DOTS) strategy, the world TB incidence rate continues to increase by 1% each year [23]. The yearly toll of new TB cases is nine million and nearly two million infected persons die each year from TB [60]. This constitutes an intolerable burden of human suffering, and an unacceptable barrier to socioeconomic and human development [29]. This is further worsened by co-infection with HIV [27-29]. Several studies have established comorbidity of TB and mental health disorders especially depression [32, 61-65]. It also important to note that just as HIV predisposes the individual to tuberculosis infection by lowering the immunity, depression has also been associated with decreased immunity, therefore both illnesses can synergistically cause a more profound reduction in immunity resulting in excess vulnerability to tuberculosis infection [65]. Generally, the prevalence of comorbid depression with a chronic physical condition ranges between 25 and 33%. The risk of depression increases with the severity and duration of the illness [30, 32] and this often presents a management challenge to physicians [2, 30, 66-71].

Similarly, it has been estimated that the prevalence of mental disorders among individuals with HIV ranges from 1 percent to 24 percent [72] much higher than the rates found among HIV-uninfected persons. HIV infection and Tuberculosis are both severe, chronic and disabling systemic diseases and are becoming increasingly associated with significant level of psychiatric comorbidity, currently as high as 30-60% for HIV and Tuberculosis put together [28, 29].

Chronic medical conditions have been associated with almost all shades of mental disorders including anxiety and depression, [8, 12, 14, 15, 33, 51, 73-76] other psychosocial problems [77-79] substance abuse, [39, 80-83]

neurologic disorder [84] and cognitive impairement, [85-87] suicide [88, 89] and different psychotic illnesses. [90, 91] However, depression and anxiety including post traumatic stress disorder (PTSD) [92-96] appear to form the most common psychiatric disorders in chronic medical conditions generally and a high prevalence of these two have equally been found among patients with pulmonary tuberculosis and HIV infection [8-11]. In addition, tuberculosis and HIV co-infected individuals have a much higher risk of having common mental disorders [28]. A resurgence of tuberculosis has been observed in persons who are HIV positive [27, 28]. Studies conducted in different countries on prevalence of depression and anxiety among TB and HIV co-infected patients show that 46.3% (anxiety), 47.2% (depression) in Pakistan, 72.88% (anxiety), 38.98% (depression) in Romania, 40.67% (anxiety), 9.93% (depression) in Greece, 45% (depression) in Nigeria, 61% (depression) in Kenya [23, 24].

Possible reasons for the higher level of psychiatric co-morbidity among individuals with chronic medical diseases may include lengthy process of treatment, disturbances in their daily life routine and its chronicity as well as misconception about the chronic illnesses. Also, chronic psychogenic and somatic pain, frequent hospital admissions and hospital and family dependency are factors equally related to psychiatric co-morbidity among persons with chronic medical diseases [61]. Tuberculosis and HIV infections are often considered as dangerous diseases that have less chances of survival and cure together with high level of stigma, discrimination, social isolation [4-6, 95-100] and all these have often been linked to most cases of discontinuation of treatment [2, 67-69, 101-105].

Furthermore, psychiatric co-morbidity in patients with chronic medical conditions can arise due to the various psychological stress they are faced with [45, 58, 106-109]. In addition, they can also be due to the various organic brain syndromes like central nervous system [CNS] tuberculosis, HIV encephalopathy and side effects of anti-tubercular and anti-retroviral drugs [110-113]. Unfortunately, these psychological problems often remain undiagnosed [111-113] and untreated with adverse consequences on the prognosis of these chronic medical conditions as it has been found that psychiatric co-morbidity leads to poor compliance to their therapy [66, 67, 70].

TB and HIV patients also have the problem of social rejection, discrimination and isolation due to the fact that they are often considered to be a source of infection for the healthy people. In a few studies, TB and HIV patients reported experiences of negative emotions including anxiety and fears [68-70]. Social stigmatization and negative emotions resulting from the infective illnesses could result in a long-term impairment of patient's psychosocial well-being and this may lead to work absenteeism resulting in loss of or reduced productivity and monthly income [51, 52]. In the overall, there is significant impairment in the quality of life of the sufferers [40-45, 50]. Increase in plasma pro-inflammatory cytokines is another pathophysiological mechanisms whereby HIV infection induces the progression of depressive disorders and depressive-like behaviors causing onset of co-morbid depression leading to the reduction of CD4+ cell counts and an elevated plasma viral load [108-110, 113].

Psychiatric co-morbidities constitute a unique challenge in the management and care of patients with multi drug-resistant tuberculosis (MDR-TB) and HIV infection [2, 30, 33, 35, 114, 115]. Both baseline psychiatric disorders and development of psychiatric complications related to anti-tuberculosis, antiretroviral drugs and psychosocial factors necessarily require an intensive management [2, 113]. Also, most often, these individuals are also diagnosed with a substance use disorder [14, 76-78, 83] which can make treatment and management of tuberculosis and HIV with or without comorbid mental health problems even more challenging [2, 33]. Psychoactive substance use including smoking cigarette and alcohol abuse are known to exacerbate further the health and well-being of patients with chronic medical disorders [14, 76-78].

One key common concern among patients suffering from chronic medical conditions with comorbid mental disorder is tendency for suicidality [86, 87, 116]. Comorbid psychiatric illnesses, especially major depressive disorder and substance use disorders, have been found to be highly predictive of suicidal ideation in both tuberculosis and HIV+ individuals [86, 87, 116].

At present, a lot of the attention in the management of tuberculosis (TB) and HIV is directed towards microbiological cure, while its impact on health-related quality of life (HRQoL) is either undervalued or neglected. Current literature shows that TB and HIV infections have enormous impact on HRQoL of affected patients who are infected, with majority of them reporting deficits in their physical and mental well-being compared to the general population [40-52].

Unfortunately, there appears to be a general under recognition or late recognition of and in some cases poor attention to the psychiatric component among clinicians [112, 113] particularly in this environment. This often worsens the prognosis of these illnesses, due to inadequate management with eventual high mortality rates. Late recognition of psychiatric disorders in HIV and Tuberculosis patients is related, among others, with diminished coping capacity at diagnosis [73, 106, 117, 118] failure at primary prevention, poor antiretroviral and anti-tuberculosis adherence [67, 101-104] reduced quality of life [42-50] greater social and emotional burden, overall high healthcare costs, [77, 78] and also higher mortality [54, 57].

For these reasons, a prompt multidisciplinary approach involving evaluation, counseling, and management of psychiatric disorders in HIV and tuberculosis patients is becoming more important than ever before. Therefore, there is need for a regular evaluation of the nature and magnitude of psychiatric comorbidity, the overall effects on psychological well-being and quality of life of patients with chronic medical conditions.

1.1. Aim

The study was to determine and compare the relationship between psychiatric comorbidity and quality of life in persons with tuberculosis and PLWHIV.

2. METHODOLOGY

2.1. Study Design

This was a descriptive cross-sectional study

2.2. Study Setting

The study was done among tuberculosis and retroviral positive patients at the University of Port Harcourt between March, 2015- February, 2016.

2.3. Ethical Consideration

Ethical clearance to conduct the study was obtained from the ethical and scientific committee of the University of Port Harcourt Teaching Hospital (UPTH). Every participant in the project was informed adequately about the nature, extent, and purpose of the research. They were required to sign a consent form. They were enlisted only after they had given their consent. Refusal by any patient to give consent did not in any way negatively affect the patients, as they were still given their due medical attention including the necessary treatment.

2.4. Inclusion Criteria

1. Patients with tuberculosis (TB) and retroviral positive patients (Control) (with confirmed results) already diagnosed by both consultants in charge of the tuberculosis and Virology Clinics.
2. Only tuberculosis patients who have been screened to be HIV negative
3. Only HIV positive patients who have been screened to be TB negative
4. Patient who have given their informed consent.
5. Adults aged between 18 years and 54 years, to exclude the influence of extremes of age on quality of life.
6. Patients who had been diagnosed and had been on treatment for a period not less than 6 months.
7. Must not be acutely ill.

2.5. Exclusion Criteria

1. Obvious damage to the brain or nervous system e.g cerebrovascular accident or any other concomitant disease which could cause marked cognitive impairment or affect the functions of the nervous system.
2. Patients with other coexisting chronic or physical condition.
3. Patients with inconclusive diagnosis.
4. Patient less than 18 years or above 54 years.
5. Not willing to give information nor informed consent.
6. Patients who were acutely ill.

2.6. Sampling

The sample size was calculated using the formula for comparism of proportions by Araoye.

N = z^2pq/d^2

Where,

N = minimum sample size

= normal stated deviation (this corresponds with the desired confidence level of the study for 95% confidence internal which equals 1.96).

P = Proportion or estimated prevalence rate.

q = 1 – prevalence

d = allowable error (it is the difference between the true population rate and the sample rate one wishes to tolerate), which is 5 percent within 95% confident limit.

2.7. Sample Size for the Study Group

A study found 92% psychiatric morbidity among tuberculosis patients. Substituting this prevalence rate into the equation: $N = z^2pq/d^2$

N = $(1.96)^2 (0.92) (1- 0.92)/(0.05)^2=136$

However, this was upgraded to **140** to make room for possible attrition.

2.8. Sample Size for the Comparison Group

In another study done among HIV patients on antiretroviral drugs in urban Uganda, Boardman, et al. [18] found a total prevalence of psychiatric disorders to be 82.6%.

N = z^2pq/d^2

$$N = (1.96)^2 (0.826) \frac{(1-0.826)}{(0.05)^2} = 221$$

Similarly, this was upgraded to **230** to make room for any attrition

2.9. Method of Sampling

Since all the patients for a clinic day expectedly arrived at the clinic at different times, systematic random sampling was used to sample the patients. Every third eligible patient registered at the General Out-patient as well as the Virology clinics for the day was selected from the medical records register. Ballot method was used to select the first patient for the day from 3 eligible patients registered for a particular clinic session. Every third eligible patient was chosen so that the waiting time of the patients would not be prolonged unnecessarily since a subsample needed to have interviewer administered instruments. Consenting patients were recruited as described above on Mondays, Tuesdays and Fridays in the Tuberculosis Clinic and Wednesdays and Thursdays in the Virology Clinic, until the required sample size was achieved.

2.10. Study Instruments

The following instruments were used in this study:

1. Socio-demographic/ clinical questionnaire
2. General Health Questionnaire, version – 12 (GHQ-12)
3. World Health Organization Composite International Diagnostic Interview (WHOCIDI)
4. World Health Organization Quality of Life –Bref (WHOQOL-Bref)

Subjects were then administered with the study's instruments above. The GHQ-12 and the WHOQOL-Bref were self-administered while the WHO CIDI was interviewer administered. GHQ-12 scoring was done in the conventional way in which scores >2 are regarded as positive. Quality of life was calculated using the 0-100 score model of the WHOQOL-Bref.

2.11. Data Collection

The informed consent was first obtained from the subjects. A 3-phase case identification strategy was implemented. In the first phase, all the selected patients participated. After completing the socio demographic protocol, they all responded to a self-administered instrument, GHQ-12, to screen for psychiatric caseness [62]. In the second phase, those that have GHQ-12 score of 2 and above, were further administered the CIDI, to obtain specific diagnosis, in conjunction with DSM – IV – TR. Finally, the WHOQOL questionnaire was administered to all subjects, including those without psychiatric disorders, to be able to determine the influence of psychiatric morbidity on Quality of Life of both study groups.

2.12. Statistical Analysis

Analysis of results involved the use of the twentieth edition of the statistical package for social sciences (SPSS-20, 2000) software. Descriptive statistics were calculated for all variables. For continuous variables, means and standard deviations (SD) and analysis of variance were computed. For categorical variables, descriptive statistics included the numbers and proportions in each category. Frequency distributions and cross tabulations were generated and chi-square test of significance was calculated. The conventional 5% of level of significance was set. GHQ-12 scoring was done in the conventional way in which scores >2 are regarded as positive. Quality of life was calculated using the 0-100 score model of the WHOQOL-Bref. Confidence interval was set at 95% and P value of less than 0.05 was considered significant.

Table-1. Showing Psychiatry Diagnosis among TB patients and PLWHIV

SN	Psychiatric Morbidity	Tuberculosis	PLWHIV
1	Depressive disorders	15 (9.3%)	16 (7.0%)
2	GAD	6 (4.7%)	5 (2.2%)
3	Sexual Dysfunctions	3 (2.1%)	4 (1.2%)
4	Mixed Anxiety and Depressive disorders	5 (3.6%)	5 (2.2%)
5	Substance Abuse	2 (1.0%)	3 (1.3%)
6	Adjustment Disorder	3 (2.1%)	3 (1.3%)
7	PTSD	1(0.7)	3 (1.3%)
8	Panic without Agoraphobia	0 (00)	2 (0.9%)
9	Dysthymia	3 (2.1%)	2 (0.9%)
10	Personality Disorders	0 (00)	1 (0.4)
11	OCD	1 (0.7)	1 (0.4%)
12	BAD	2 (1.4)	0 (0.0%)
13	Nil (no psychiatric illness)	(72.1%)	(80.4%)
	Total	**100%**	**100%**

Source: Researcher's field work,2016

3. RESULTS

3.1. Psychiatric Comorbidity among Patients with Tuberculosis and People Living with HIV

A total of 39 (27.9%) patients of those with tuberculosis and 45(19%) among PLWHIV had associated psychiatric comorbidity. In both medical conditions, depressive illness was the commonest; 15(10.7%) among patients with tuberculosis and 16 (7.0%) among PLWHIV. This was followed by GAD also in both groups. Two cases of Bipolar Affective Disorder were seen only among the tuberculosis patients while two cases of panic without agoraphobia and a case of personality disorder were seen only among PLWHIV. See table 1.

3.2. Quality of Life in Persons with Tuberculosis and PLWHIV

Quality of life was statistically significantly higher in PLWHIV compared to the patients with tuberculosis in all domains of quality of life. (See table 2 below).

Table-2. Quality of life of persons with Tuberculosis and PLWHIV

QOL	Tuberculosis	PLWHIV	t-test
Domain 1 (Physical)	50.97± 14.671	60.71 ± 15.565	t = 7.69 df = 368 P <0.002
Domain 2 (Psychological)	54.20± 22.186	62.34 ± 26.315	t = 4.04 df = 368 P <0.001
Domain 3 (Social relationship)	54.51 ± 26.13	61.57 ± 25.04	t = 3.25 df = 368 P <0.001
Domain 4 (Environment)	50.01± 16.91	55.15± 14.00	t = 3.85 df = 368 P <0.001
General Health Facet(GHF)	49.34 ± 22.44	65.81± 21.84	t =8.79 df = 368 P <0.61

Source: Researcher's field work,2016

3.3. Association of Psychiatric Comorbidity with Quality of Life in Persons with Tuberculosis and PLWHIV

From the study, psychiatric comorbidity was negatively statistically significantly associated with QOL in all domains except in GHF in both medical conditions. Among the Tuberculosis patients, those with psychiatric comorbidity had better quality of life on psychological and social domains compared with those with psychiatric morbidity among PLWHIV on same domains. See tables 3 and 4

Table-3. Association of Psychiatric Morbidity with Quality of Life in Persons with Tuberculosis

Domains of QOL	Quality of life in persons with Tuberculosis		
	Psychiatric Comorbidity	No psychiatric Comorbidity	Statistical analysis
Physical Domain	45.98 ± 13.064	60.46 ± 12.788	t = -10.07 df = 138 P <0.002
Psychological Domain	56.60 ± 24.914	61.05 ± 13.362	t = -4.35 df = 138 P <0.001
Social Domain	48.06 ± 26.114	66.80 ± 21.378	t = - 6.87 df = 138 P <0.001
Environment Domain	44.95± 14.831	59..62 ± 16.503	t = -8.57 df = 138 P <0.003
General Health Facet	47.98± 21.896	51.91 ± 23.319	t = -1.58 df = 138 P <0.001

Source: Researcher's field work,2016

Table-4. Association of Psychiatric Morbidity with Quality of Life in Persons with PLWHIV

Domains of QOL	Quality of life in PLWHIV		
	Psychiatric Comorbidity	No psychiatric Comorbidity	Statistical analysis
Physical Domain	46.70 ± 10.103	66.36 ± 13.698	t = -10.55 df = 228, P <0.002
Psychological Domain	48.67 ± 15.016	67.85 ± 27.870	t = - 5.29 df = 228, P <0.001
Social Domain	46.84 ± 21.032	67.50 ± 24.102	t = - 6.09 df = 228, P <0.001
Environment Domain	50.33 ± 10.456	57.09 ± 14.888	t= -3.39 df=228, P <0.001
General Health Facet	63.83 ± 20.349	66.61 ± 22.418	t = -3.39 df = 228, P <0.001

Source: Researcher's field work, 2016

4. DISCUSSION

From the study, psychiatric co-morbidity presented at a younger age in PLWHIV than among those who had tuberculosis. However, this may simply reflect an over representation of PLWHIV in the younger than in the older age group (tuberculosis).

Among the control group (PLWHIV), the peak age range of onset of infection or diagnosis was 20-29 (40.9%) and 30-39 (4.1%). HIV is common in the younger age group unlike tuberculosis and it is therefore not surprising that it will have earlier age of onset than tuberculosis.

The gender distribution in both diseases took similar pattern, with females predominating, 60.8% and 64.3% for both PLHIV and tuberculosis respectively. HIV is equally well known to be commoner in females [68]. Several reasons have been adduced for this. Females, by reason of their reproductive anatomy, have larger surface area for the transmission of the virus. It has also been suggested that the sperm contains heavy viral concentrations per/ml compared to vaginal fluid. Unfortunately, cultural factors further heighten this adversity among the female gender. Furthermore, the positive disposition of women compared to men to volunteer their symptoms has remained a key reason. In both illnesses, females predominated in the group with psychiatric co-morbidity [68]. In this study, results showed that being gainfully employed correlated positively, while unemployment correlated negatively with prevalence of psychiatric co-morbidity.

Although the Federal Government currently undertakes the responsibility of procuring medications for both conditions, this scheme is only for those with treatment resistant tuberculosis. Inspite of this, the gesture appears to be insufficient considering the total financial burden incurred in the therapy of retroviral illness and tuberculosis, more so in the area of adequate feeding, regular haematological investigations, as well as cost of regular hospital follow-up visits.

The African culture that encourages the extended family system may also be contributory. Sharing the burden of disease by relatives in the African extended family system may equally serve as a source of enormous relief and social support for chronic illnesses like tuberculosis and HIV, especially as it tends to distribute responsibility from such patients to other family members. However, the fact that tuberculosis can be easily contacted as the disease is airborne, had continued to exert negative influence to this regard.

The study found a significantly reduced rate of stigma among patients with tuberculosis compared to PLWHIV. Expectedly, therefore, the negative impact of stigmatization and discrimination was felt more in the control (HIV) as against the study group tuberculosis. Several studies have reported high rate of stigmatization among PLWHIV [97-99]. Many people living with HIV rather choose to avoid disclosure of their seropositive status, to even close relative due to fear of stigmatization with its accompanying negative psychological impact on the individual, such as to experience a second psychological trauma [5, 6]. They have rather learned to absorb their shock alone because of possible rebound negative effects of disclosure.

Disclosure, as a coping strategy ordinarily usually have a positive effect on psychological well- being of the patients by availing them some level of social and psychological supports [117]. However, when disclosure is concealed due to overwhelming fear of stigmatization, even among individual and the hospital workers, HIV positive patients tend to develop alternative coping strategy, non-disclosure, which to them is more psychologically beneficial [106, 107] with the tendency for a rebound negative effect on the burden of global HIV infection.

Out of the total number with psychiatric illness, 39 (27. 9%) for tuberculosis and 45(19.6%), depression was the commonest with 10.7%% among tuberculosis patients and 6.5% among PLWHIV as against 16% in a previous study [76, 119]. Depression was mostly the mild and moderate categories with few cases presenting with mood congruent psychotic features. This might also be due to reasons advanced earlier for overall psychiatric disorders. When depression and anxiety co-morbid with tuberculosis and HIV infections, it gives rise to poor adherence to anti-TB and anti-retroviral medications, which is important barrier to global control of tuberculosis & increases the risk of morbidity and mortality due to TB [21, 34, 69, 70].

The prevalence of psychiatric morbidity in PLWHIV was 19.6%. This was lower compared to that among patients with tuberculosis (27.9%). Although, previous studies found variable prevalence rates of 82.6% [16] 81.2% [18] 46% [17] 5-30%, WHO [29] for HIV and 72% [19] 46-47.2% [20] for tuberculosis, the lower prevalence rates of psychiatric co-morbidity found in this study particularly for HIV could be a reflection of increased awareness, following concerted efforts and aggressive campaigns by both government and voluntary organizations, more access to existing medical care, articulated interventional measures by government, such as the anti-retroviral and anti-tuberculosis schemes, and sustained efforts aimed at reducing stigma and discrimination [14, 77]. Furthermore, variable rates reported by previous studies may be due to the setting as well as methodology of the various studies. Although depression was also the highest here, this was equally lower compared with tuberculosis in this study, probably for the same reasons above.

The possible etiological mechanisms of depression in HIV have been explained from the biological (physical) and the psychological points of view. The viral cells and some opportunistic infections may either directly destroy the brain cells either through chemotactic effects or apoptosis which are responsible for emotions in the limbic system or indirectly affect the neurotransmitter system altering their release or uptake, and in effect causing depression [110-113]. This is in line with several studies [111, 112]. From the psychological point of view, the burden of the disease, fear of the unknown and the future, chronic sense of rejection and feeling of loss, possible loss of functional capability with impaired quality of life, associated stigma, and fear of impending death, all combined to make the individual vulnerable to depression. Several studies have also established similar lines of thought [97-99].

The threat to life and perceived or real loss of functional capability, job, relationship or difficulty securing a life partner may equally trigger the anxiety. Truly, these are both depressogenic and anxiogenic. Social stigmatization, discrimination, isolation, burden of daily regular medications, prolonged duration of therapy, sexual difficulties, reduction or loss of income, and fear are additional specific problems related to TB and HIV infections. Despite available and improved curative therapy for TB and HIV, their treatments still have significant short and long-term consequences on patients' quality of life [42, 43, 49, 51].

Substance abuse in PLWHIV, mostly alcohol, has equal sex distribution unlike among patients with tuberculosis. Although the prevalence was low (1.3%), this was slightly higher than the group with tuberculosis (1.0%). This might further explain the emotional impact the "news" of the diagnosis of one's seropositive status may have on the affected individual, and often as the main reason to self-medicate their depression and/or anxiety using drugs, particularly alcohol [80-83, 120, 121]. It is important to note that the viral cells as well as opportunistic infections and most substances of abuse, particularly alcohol, can directly impair or damage brain cells [80-83, 120, 121]. Taken together, these will synergistically accelerate the deterioration of the health of the individual, thereby negatively affecting his/her psychological well-being and quality of life. Secondly, drug-drug interactions between substances of abuse, particular alcohol, and antiretroviral medication have equally been associated with poor drug adherence, as well as reduced effectiveness of medications [33, 69-71]. Most often, these result in untoward side effects [80, 81]. Three diagnoses were exclusively made in PLWHIV- Panic disorder without agoraphobia (0.9%), personality disorder (0.4%). Panic disorder which may initially present as acute stress disorder often occurs in the setting of experiences or life events that are of enormous burden to the mindset. HIV and tuberculosis, with all their associated psycho-social difficulties including stigma, and high economic burden because of their chronic nature, with very little hope of survival, could be weighed as such. Post-traumatic stress disorder which occurs in the setting of occurrence of catastrophic event, was higher among the PLWHIV. Posttraumatic stress disorders and multiple loss syndrome have been described in some persons who have experienced AIDS related multiple losses. HIV positive women have a higher prevalence of post-traumatic stress symptoms, compared to men [90-94].

Several studies have revealed that discovering that ones HIV-positivity is psychologically traumatic and distressing [90, 99, 100] . Typical reactions to being diagnosed as HIV-positive include feelings of shock, numbness

and disbelief, denial, and subsequently, anxiety and anger. Again, HIV-positive individuals have reported that on being diagnosed as HIV-positive, they often experienced feelings of sadness, hopelessness, helplessness, despair, blame, misery, disappointment, guilt and low self-esteem. Posttraumatic stress disorder may be a natural consequence of learning that one is HIV positive, hence PTSD may be common among persons living with HIV [90-94].

Two cases of Bipolar Affective disorder manic phase were found only among people with tuberculosis. This might possibly be caused by anti-tuberculosis medications like isoniazide and cycloserine which the tuberculosis patients were placed on. These drugs have been found to have psychotic side effects.

On all studied domains, PLWHIV who had psychiatric comorbidity had better quality of life than patients with tuberculosis. Again, PLWHIV who were free of psychopathology also scored higher on general health facet (GHF) than similar group among the patients with tuberculosis.

It is true that the stress, depression and lack of adequate social support which often may cause rapid progression of HIV to AIDS, may by so impair their psychological well-being and quality of life. However, in this study, it appears that the combined effects of Government intervention programs and education for the general public and the supportive involvement by significant family members may have all helped to improve the level of social support, lighten the economic burden of care and associated stress. This may have ultimately reduced the prevalence and severity of depression and other psychiatric disorders, and bringing about improved quality of life.

At present, more concern and are given to PLWHIV, unlike the tuberculosis patients (except those with chronic and drug resistant tuberculosis), from both governmental and non-governmental organizations, social groups, well-meaning individuals and responsible family. Perhaps, this may explain decreased rate of psychiatric co-morbidity particularly depression among PLWHIV compared with persons with tuberculosis, hence the better quality of life observed in the former in this study.

Chronic debilitating diseases like HIV and TB are uniquely associated with psychosocial factors for which a detailed disease profile of the patient's needs to be considered during medical care [41, 68-70, 95-100, 107]. It has been found that psychiatric morbidity and lack of perceived control over illness are often associated with as well as being independent predictors of poor adherence to medications among TB and HIV patients, the commonest being depression [70]. This may hinder adaptation to illness conditions; negatively alter illness behavior, including health seeking behavior which is a crucial survival factor in chronic diseases. It is therefore important that health policy makers should consider a suitable health system and programmes that will give priority to adequate health service including a robust mental health for persons with chronic medical disease.

5. RECOMMENDATIONS

- Based on the findings of this study, that tuberculosis carries even a higher psychiatric comorbidity and poorer quality of life, it becomes imperative that renewed efforts by Government, aimed at both primary and secondary prevention, be intensified for these chronic medical conditions.
- That the intervention of government in terms of increasing awareness campaign and the current free antiretroviral and anti-tuberculosis scheme by the federal government for PLWHIV and Tuberculosis should be sustained and further improved upon.
- More attention should be drawn to diagnosing early psychiatric complications of tuberculosis and HIV-AIDS and adequate management instituted.
- Personnel involved in the treatment of these patients should be adequately trained for early detection of psychiatric symptoms.

5.1. Limitation

Some of the medications-anti-viral and anti-tuberculosis, may have been responsible for some of the psychiatric symptoms and conditions as their side effects.

6. CONCLUSION

The study found a statistically significant higher prevalence of psychiatric co-morbidity and lower quality of life among the subjects with tuberculosis compared with PLWHIV. In view of the psychiatric morbidity associated with pulmonary tuberculosis and HIV, there is unarguably greater need for psychiatric services to be made available to these patients. This may suggest that the management of both medical conditions should necessarily take into cognizance their mental health status and subjective quality of life in order to improve their quality of care. It is therefore imperative that TB and HIV control programmes at public health clinics should strategies to improve the quality of health and life of TB and HIV co-infected patients.

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