

## Addiction Research

# Psychiatric Co-Morbidity and Substance Use Correlated with Medication Adherence Among People Living with HIV (PLWHIV) Attending the Virology Clinic of the University of Port Harcourt Teaching Hospital (UPTH)

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Received: 03 October 2021; Accepted: 28 October 2021

**Citation:** Nkporbu AK, Ayodeji O.A. Psychiatric Co-Morbidity and Substance Use Correlated with Medication Adherence Among People Living with HIV (PLWHIV) Attending the Virology Clinic of the University of Port Harcourt Teaching Hospital (UPTH). *Addict Res.* 2021; 5(1): 1-5.

## ABSTRACT

*HIV infection is an endemic communicable chronic disease, of enormous public health concern worldwide particularly, Sub-Saharan African. Substance use and associated psychiatric co-morbidity among the sufferers may affect medication adherence. The aim of this study, therefore, was to determine the effect of psychiatric co-morbidity and substance use on medication adherence among people living with HIV at the University of Port Harcourt Teaching Hospital. A cross-sectional study was conducted among 230 Subjects Living with HIV. Socio-demographic questionnaire was used. A structured questionnaire was used to assess use of psychoactive substances. Psychiatric co-morbidity was assessed using the GHQ-12 in conjunction with the DSM 5. The Medication Adherence Rating Scale (MARS) was used to assess medication adherence. Data was analysed using the SPSS version 20. The prevalence of psychological co-morbidity among PLWHIV was 30.6%. Alcohol use disorders was the highest with 73 (31.7%), followed by cigarette smoking 38 (16.5%) while nicotine snuffing was the least with 1 (0.4%). Of the 43 (18.7%) with poor medication adherence, 31 (15.2%) had psychiatric co-morbidity, 26 (11.3%) had substance use, 25 (10.8%) had both psychiatric and substance use co-morbidity while 19 (8.2%) had none ( $p=0.004$ ). Psychological co-morbidity and substance use are prevalent among PLWHIV, and may affect medication adherence.*

## Keywords

Psychological co-morbidity, Substance use, Medication adherence, PLWHIV.

## Introduction

HIV is an infective condition caused by various strains of the Retrovirus [1]. It is an endemic communicable chronic disease and of serious public health concern worldwide particularly in Sub-Saharan Africa [1,2]. HIV usually attacks the immune system and all other parts of the body. It is spreads through sexual intercourse, transfusion of already infected blood, a prick or contact with infected blood [3]. One-third of world's population is thought to be infected with HIV. New infections occur at a rate of 1 per minute globally [2,4].

Persons living with HIV/AIDS have many challenges including successfully adhering to treatment recommendations in order to maintain optimal health, negotiating disclosure of HIV status and coping with potential stigma [4,5]. These are significant challenges; yet, for HIV-infected persons who also have substance use problems and other mental health difficulties, these and other, challenges can be amplified [4-6]. As such, the co-occurrence of HIV and substance use disorders and other mental illnesses poses a significant public health problem and represents a difficult challenge for those who treat and care for these persons [4-6].

Psychiatric and substance use disorders increase the likelihood of high-risk sexual practices such as unprotected sex and multiple partners because of altered judgment and lower inhibition [7-9] "Transactional" sex (trading sex for money or substances).

Spreading infectious diseases including HIV because of lack of self-care and access to medical care [7-9].

The TRIAD of medical condition, mental disorders and substance use disorders (SUDs) has been recognized as a serious public health problem [6]. The need to recognize and manage psychiatric co-morbidity and SUDs in HIV patients in primary care settings in order to improve adherence to the treatment is now well documented [10-12].

Medication compliance may be impaired by associated psychiatric co-morbidity and substance use among the sufferers [13-21]. Available evidence reveals that psychiatric morbidity is associated with non-compliance to medication among HIV patients, the commonest condition being depression [14-21].

Twenty to thirty percent of HIV-infected patients have depression or depressive symptoms and or substance use problems rates [11,12]. These states have been associated with decreased access to antiretroviral therapy (ART), decreased likelihood of initiation of and retention in HIV care, poor antiretroviral adherence, worse psychiatric outcomes, and worse medical outcomes, including lower likelihood of virologic suppression, faster HIV disease progression, and higher mortality rates [10-12].

HIV care providers and researchers have argued that increased access to effective depression treatment and clinically addressing the problems of substance use would lead to substantial improvements in HIV clinical outcomes for affected individuals, rates [10-12,22], although current evidence is somewhat mixed on this point.

Substance and/or alcohol use can accelerate HIV disease progression with or without psychiatric comorbidity [23-27]. Mounting evidence suggests that these patients have accelerated and more severe neurocognitive dysfunction compared with non-drug abusing HIV-infected populations and this together with psychological morbidity can affect drug adherence [28], hence this study. The aim of this study, therefore, was to determine the effect of psychiatric co-morbidity and substance use on medication adherence among PLWHIV at the University of Port Harcourt Teaching Hospital.

## Methods

A cross-sectional study was conducted among 230 Subjects with HIV. Ethical approval obtained from ethic committee in the University of Port Harcourt Teaching Hospital. Socio-demographic questionnaire was used.

### Screening for psychiatric comorbidity

To assess psychiatric comorbidity, the GHQ-12, in conjunction with the DSM 5, was used.

### Screening for substance use

Alcohol use disorders (AUD) was screened using the four item CAGE questionnaire, (cut down, annoyed, guilty, eye opener) [29]. Any participant who scored two or more on the CAGE was

classified as having AUDs [29]. Structured questionnaires were used to assess all the other psychoactive substances: Kolanut and khat chewing, caffeine use, cigarette smoking, tramadol, codeine, cannabis, and cocaine. In this study, current use was defined as use during the month preceding the interview.

### Screening for medication adherence

The Medication Adherence Rating Scale (MARS) was used to assess medication adherence. Rating more than 6 was likely adherence while rating less than 6 was non or partial adherence.

### Data analysis

The SPSS version 24 statistical package was used to analyzed the data. A correlation analysis was also done. Confidence interval was set at 95% while P-value of less than 0.05 was considered statistically significant.

## Results

**Age:** less than 29 yrs (n=67, 28.5%), 30-39 yrs (n=71, 30%), 40-49 yrs (n=48, 21.4%), greater than 50 yrs (n=44,20%).

**Gender:** Male 94 (42.2%), Female 136 (57.8%).

**Marital Status:** Single=118 (48.1%), Married=71 (31.1%), Divorce=9 (5.2%), Separated=27 (11.6%), Widow=5 (3.3%)

**Educational Level:** None, Primary and Secondary=153 (67.8%), Tertiary= 77 (32.2%)

**Table 1:** Psychiatry Morbidity among PLWHIV (n = 230).

People living with HIV	(%)
Depressive disorders	14
GAD	4.1
Sexual Dysfunctions	0.8
Mixed Anxiety and Depressive disorders	4.7
Substance Abuse	7.6
Adjustment Disorder	2.4
PTSD	1
Dysthymia	3.7
OCD	1.3
Nil (no psychiatric illness)	60.4 (n=139)
Total	100%

**Table 2:** Pattern of drug use among PLWHIV.

S/N	Psychoactive substance	Frequency	Percentages (%)
1	Alcohol	73	31.7
2	Cigarette	38	16.5
4	Cannabis	28	12.1
5	Cocaine	4	1.7
6	Tramadol	25	10.9
7	Nicotine snuffing	1	0.4
8	Codeine	26	11.3
9	Caffeine	9	3.9
10	Kolanut and Khat chewing	3	1.3
11	Amphetamine	6	2.6
12	Pentazocine	7	3.0
13	Benzodiazepine	10	4.3
	<b>TOTAL</b>	<b>230</b>	<b>100%</b>

The prevalence of psychological co-morbidity among PLWHIV was 30.9%. Alcohol use disorders were the highest with 73 (31.7%), followed by cigarette smoking 38 (16.5%) while nicotine snuffing was the least with 1 (0.4%). Of the 43 (18.7%) with poor medication adherence, 31 (15.2%) had psychiatric co-morbidity, 26 (11.3%) had substance use, 25 (10.8%) had both psychiatric and substance use co-morbidity while 19 (8.2%) had none ( $p=0.004$ ).

## Discussion

Several studies have established co-morbidity of HIV and mental health disorders especially depression, anxiety and substance use disorders [6]. Depression has also been associated with decreased immunity, therefore both illnesses can synergistically cause a more profound reduction in immunity [30-32]. The substances mainly alcohol and other sedatives, nicotine and opioid are used to alleviate symptoms of anxiety and depression, and a number of studies have found association between drug use and HIV infection [23-27,33-40]. The risk of depression and other mental disorders increases with the severity and duration of the illness. Both substance use and depression impair cognition and judgement to comply with anti-retroviral medications [31,32].

HIV infection is essentially a chronic illness with disabling and sometimes incapacitating symptoms [1,2]. The persistent or frequency of occurrence of these symptoms, the dysfunctions, need to for long term medications, the associated stigma, fear of imminent death, associated economic burden, emergent complications, overall affectation of quality of life often may summed up to cause depression [32,41-43]. This reduces the zeal and often discourages the individual from further taking or adhering to medications [13-21]. There is a perceived expectation in ailing individual that medications will substantially ameliorate the symptoms and bring about enormous relief. However, in most chronic illnesses including hypertension in which one is required to take medications sometimes lifetime, this self-encouragement may reduce or be lost. You may then observe irregularity in medication intake [15-19].

The addiction often competes with lean finances for anti-viral drugs [41]. Health-related correlates of perceived discrimination in HIV care. AIDS Patient [41,42,44], Loss of functions, stigma and discrimination, recurrence and resistant cases as well as financial difficulty are among the common stressors that favour psychiatric co-morbidity [41-46]. This often presents a management challenge to physicians [47].

The use of alcohol is known to be associated with an increased risk of unsafe sexual behavior [8,9]. Given the widespread harmful use of alcohol in many countries with a high incidence and prevalence of HIV, levels and patterns of alcohol consumption may substantially influence HIV spread in populations [23-29,34-40]. Several studies, including those conducted in African countries with high prevalence of HIV, have shown a positive association between HIV and alcohol consumption, with a prevalence of HIV infection among people with alcohol-use disorders higher than in the general population [23-29,34-40;48].

Alcohol can modify the pharmacokinetics of antiretrovirals by multiple mechanisms, including altering gastric emptying, changing liver P450 metabolism, or reducing liver function through fibrosis, which mostly affect protease inhibitors and nonnucleoside analogs by reducing their plasma levels [32,34,37,40,48]. Abacavir and ethanol share alcohol dehydrogenase in their metabolic pathway, with an elevation in the half-life of the antiretroviral [32,34,37,40,48]. Alcohol may potentiate the hepatotoxic profile of nevirapine, particularly in patients with chronic viral hepatitis. Illicit drugs may affect the pharmacokinetics of alcohol by altering gastric emptying and inhibiting gastric alcohol dehydrogenase. However, alcohol dependence should not be a contraindication for the prescription of antiretrovirals [32]. Antiretrovirals also interact with other drugs of abuse.

Overdoses secondary to interactions between the “rave” drugs methylene-dioxy-methamphetamine (MOMA) or  $\gamma$ -hydroxybutyrate and protease inhibitors have been reported [25]. These antiretrovirals may also inhibit metabolism of amphetamines, ketamine, lysergic acid diethylamide (LSD), and phencyclidine (PCP). Interactions between cocaine and antiretrovirals have not been described [31]. No significant interaction between tetrahydrocannabinol (THC), the active ingredient of smoked marijuana, and antiretrovirals has been described [31].

Severe mental illness including substance use disorders makes individuals more vulnerable to HIV infection and/or acquiring other sexually transmitted diseases [7-9]. A large amount of literature has been published worldwide supporting the concept that the substance use subgroup and the mentally ill population as a whole are more vulnerable to contract HIV infection; several factors such as sexual abuse and other high-risk behaviour, homelessness and impaired judgment regarding sexual relationship makes them at high risk for HIV [6-9,23-28,34;-40,48]. Additionally, use of alcohol and other drugs of abuse makes them vulnerable to enter casual or coercive sexual relationship [7-9]. Furthermore, the proportion of mental and/or substance-abuse disorders among people living with HIV/AIDS is nearly five-times greater than in the general population.

Moreso, HIV tends to be concentrated in highly vulnerable, marginalized and stigmatized populations; in particular, sex workers, men who have sex with men, drug users and prisoners who have higher levels of mental health disorders than the general population [6-9;23;24-28;34-40,48]. All these groups, the level of drug compliance tends to be impaired [11-21;49].

## Conclusion

Psychological co-morbidity and substance use are common among persons living with HIV, and may affect medication adherence. The studies suggest early diagnosis of psychiatric co-morbidity, SUDs and the appropriate treatment for patients with HIV. It therefore becomes imperative that the intervention measures for most chronic infective conditions of this nature should include a well-planned, elaborate and articulated neuropsychiatric evaluation component for an effective and holistic management of these patients.

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