



Psychological Morbidity among Psychoactive Substance Users in a Rehabilitation Centre in Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. Authors DMU, LR and OJ contributed to the conceptualization and final writing of the article. Authors DMU, OL, OA and KF were involved in data collection, data analysis and final write up. All authors read and approved the final manuscript.

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ABSTRACT

Aim: The aim of this study was to determine the prevalence and correlates of anxiety and depression among psychoactive substance users in a rehabilitation centre.

Place and Duration of Study: The study was carried out in a rehabilitation centre in Lagos state, Nigeria.

Methodology: All the inhabitants of the centre who agreed to participate in the study were included in the study. However, individuals who had stayed at the centre for less than a week were excluded from the study because the effect of use or withdrawal effects of some of the drugs may mimic depressive or anxiety symptoms. The 9-item Patient Health Questionnaire (PHQ-9) and the Mini International Neuropsychiatric Interview (M.I.N.I.) (anxiety modules) were used to assess for depression and anxiety disorder respectively.

Results: A total of seventy six people participated in this study. Their ages ranged from 17 to 52 years (mean= 25.9 years SD= 8.4). A high number of the subjects were males (72.4%), single (78.7%) and unemployed (64.5%). Almost all the subjects (92.1%) were introduced to the use of

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psychoactive substances by friends/peers. Only 4 (5.3%) subjects reported injection drug use (IDU). 53.9% of the subjects had an anxiety disorder. While 68.4% had depression. The factors associated with having anxiety disorder were female sex, older age, being divorced/separated/widowed, unemployment, multiple substance use, long duration of use of alcohol, cocaine and heroin.

Factors associated with depression included; young age of onset of substance use, female sex, being separated or divorced or widowed, unemployment, long duration/ frequency of use of substances and multiple substance use.

Conclusion: This study has shown that there is a high rate of anxiety and depression among psychoactive substance users.

Keywords: Depression; anxiety disorder; cannabis; morbidity.

1. INTRODUCTION

Substance abuse was historically thought to be a symptom of personality disorder but with the advent of Multiaxial DSM III, substance use disorders (SUD) were defined as a clinical syndrome and separated from personality disorders [1]. A number of studies conducted in the past decade in this environment have established that substance abuse and dependence (SAD) are relatively common [2,3]. Psychiatric comorbidity among substance users has been a topic of considerable interest and it has been widely recognized that anxiety and depression commonly co-exist with psychoactive substance abuse among adolescents and adults of both sexes [4,5].

Depression is one of the most common psychiatric disorder found among psychoactive substance users [6]. Conway et al. reported a prevalence of 29.9% for anxiety and 40.9% for depression [7]. Much higher prevalent rates of 36% and 48% for anxiety and depression respectively were reported among inhalant users [8]. In a study among a group of substance abuse patients, Adamson reported a prevalence of 34% for major depressive disorders and 31% for social phobia among other psychiatric conditions [9]. On the other hand a high prevalence of substance abuse has been reported among patients diagnosed with mental disorders. Griesler et al. found that 79% of youths diagnosed with a lifetime depression had at least one lifetime nicotine dependence, while, 72.5% of youths diagnosed with a lifetime anxiety disorder had at least one lifetime nicotine dependence [10].

Despite this significant level of prevalence of anxiety and depression among substance users, the identification of a reliable and valid diagnosis of psychiatric co-morbidity among psychoactive

substance users is problematic. This is probably because the effects of the various substances can mimic symptoms of many other mental disorders. Thus, it may be difficult to differentiate psychiatric symptoms due to effects of substance use from those presenting as a result of an independent psychiatric disorder [11]. In addition, substance use disorders may change the clinical presentation of some psychiatric disorders [11].

The co-existence of psychiatric disorders and substance abuse has been interpreted as a means of self medicating symptoms of anxiety or depression [12,13]. Another theory proposed for the causal relationship is that substance abuse is a precipitating factor if not a causal factor for mental illnesses [12].

The consequences of the Co-morbidity of substance abuse and anxiety and depression are serious and diverse as they have been associated with increased psychiatric admissions, poorer long and short term outcomes of treatment, increased risk of in-patient admissions and psychotic relapse, substantial functional impairment, younger age of onset of psychosis, a higher number of homicides and poor compliance with medications [5,14,15]. The aim of this study was to determine the prevalence and correlates of anxiety and depression among psychoactive substance users in a rehabilitation centre in Lagos state, Nigeria.

2. MATERIALS AND METHODS

The study was carried out in a rehabilitation centre in Lagos, Nigeria. The centre is mainly funded by the relatives of the patients with some assistance from non-governmental organisations and religious bodies. The centre caters for individuals using various psychoactive substances including alcohol, cocaine, heroin and cannabis. Rehabilitation at the centre is not

structured. It is mainly run by ex-drug addicts with no input from medical personnel. New patients at the centre are initially restrained physically using chains and ropes to prevent them from absconding from the centre during the initial phase of detoxification. The drug users are counselled by the veterans in the centre and also by people from the various religious bodies who visit the centre periodically.

Only verbal consent was obtained from the substance users as they were reluctant to sign an informed consent due to fear of prosecution by law enforcement agencies. They were assured of the confidentiality and anonymity of any information they provided. The subjects bore no financial cost at any stage of the study. All the subjects who participated in the study were educated on substance use and its adverse effects. They were also given handbills containing some necessary information on the dangers of substance use and centres where treatment can be obtained. Substance users identified to have psychiatric morbidity were advised on how to seek proper medical treatment.

2.1 Sampling

Inclusion:

All the inhabitants of the centre who agreed to participate in the study were included in the study.

Exclusion:

1. Individuals who had stayed at the centre for less than a week were excluded from the study because the effect of use or withdrawal effects of some of the drugs may mimic depressive or anxiety symptoms.
2. Individuals with severe medical conditions who could not be interviewed.

A total of 76 subjects were therefore interviewed for the study.

2.2 Instruments

A socio-demographic questionnaire was used to collect the socio-demographic characteristics of the subjects such as age, level of educational, marital status and employment status. A substance use questionnaire which contained information on onset of drug use, mode of use, types of substances used, and frequency of use, sources of income as well as various effects on

family, work and social functioning was also administered on the subjects.

Depression was assessed using the 9-item Patient Health Questionnaire (PHQ-9). The PHQ-9 is a strong tool for diagnosing depression as well as selecting and monitoring treatment. The PHQ-9 has good sensitivity (88%) and specificity (88%). The PHQ-9 offers concurrent validity with measures of functional impairment, high internal consistency and test-retest reliability, simplicity, and face validity; in addition, severity scores may be used to track change over time [16]. The proposed optimal cut-off score for minor depressive disorder is 5.

Anxiety disorder was assessed using the anxiety modules of the Mini International Neuropsychiatric Interview (M.I.N.I.). This instrument was designed as a brief structured interview for the major Axis I psychiatric disorders in DSM-IV and ICD-10. The MINI has acceptably high validation and reliability scores and can be administered in a much shorter period of time (mean 18.7 minutes) than CIDI and SCID [17]. MINI has been used in this environment by various researchers [18].

2.3 Data Analysis

The data collected was subjected to statistical analysis using the Statistical Package for Social Sciences (SPSS) version 21 [19]. Frequency, percentages, mean and standard deviation were calculated as appropriate. Chi-square was used to test for association between the dependent and independent variables. A 95% level of confidence was used in statistical interpretations, thus p values less than 0.05 were interpreted as showing significant association between the variables.

3. RESULTS AND DISCUSSION

A total of seventy six people using various psychoactive drugs participated in this study. The age of the subjects ranged from 17 years to 52 years (mean= 25.9 years SD= 8.4). Majority of the subjects were in the 20-49 years age group (85.6%). A high number of the subjects were males (72.4%), single (78.7%) and unemployed (64.5%). The age of onset of substance use among the subjects ranged from 11-32 years with a mean age of 17.34 (SD= 5.1). About three-quarters of the subjects (73.3%) started the use of substances before the age of 20 years while (26.7%) started after 20 years of age.

Almost all the subjects (92.1%) were introduced to the use of psychoactive substances by friends/peers, while 5.2% were introduced to it by either their spouses or family members. Only 4 (5.3%) subjects reported injection drug use (IDU). Most of the participants (85.5%) reported loss of job due to substance use, while about two third of them reported loss of property and a disruption of family as a result of drug use. A high percentage of the respondents had resorted to stealing and extortion/begging to sustain their drug use while about a third of all the female respondents engaged in prostitution [Table 1].

A total of 41 subjects (53.9%) were found to have one form of anxiety or the other. The most prevalent anxiety disorder was social phobia (36.8%), then generalised anxiety disorder (13.2%), panic with agoraphobia (2.6%) while agoraphobia was diagnosed in 1.3% of them. A prevalence rate of 68.4% was reported for depression.

The sociodemographic factors that were significantly associated with having an anxiety disorder were female sex, age greater than forty years, being divorced/ separated/widowed and unemployment. While clinical factors that were significantly associated with anxiety disorder were multiple substance use, long duration of use of alcohol, cocaine and heroin [Table 2].

The sociodemographic factors associated with depression included, young age of onset of substance use, female sex, being separated or divorced or widowed and being unemployed. Other factors that were significantly associated with depression were long duration of use of alcohol, cocaine, heroin and tobacco. Others included multiple substance use, increased frequency of use of cannabis, alcohol, cocaine and heroin [Table 2].

This study found that the subjects with substance use were mainly males aged 20-39 years. This finding is similar to that of other researchers in this environment and internationally, who reported that youth especially males predominate in the substance use scene [2,5]. Most of the subjects in this study were found to have started taking substances before twenty years of age, with the youngest age of onset found to be 11years. Many studies in Nigeria had reported similar findings [20,21]. The early age of onset of substance use found in this study may be partly due to the fact that teenagers are easily influenced by their peers; as such they want to

copy what they see others do [22]. Some other risk factors found to be associated with younger age of substance use include parental deprivations (separation, divorce), rapid urbanization (breakdown of family social support) exposure to high risk jobs (working in breweries, tobacco companies, bar attendants etc), substance availability and societal norms [22].

Most of the subjects in this study were not married and were unemployed. Substance users may also have family problems such as separation or divorce and as such remain unmarried. The fact that most of the subjects in this study were in the younger age group, may also explain why most of the subjects were not married. The high rate of unemployment may be due to the high rate of job loss due to poor performance, behavioural problems and frequent absences from work among substance users. Also, some of the subjects may have had difficulties getting jobs due to mental instability and as such remained unemployed.

Only a minority of subjects in this study completed secondary school education despite an observation that all the subjects claimed to have started formal education during childhood period. Many of these subjects dropped out of school at various levels of education. This is not uncommon among substance users who spend a lot of time procuring, using and recovering from the effects of the substances at the expense of their studies. This may consequently lead to declining academic performance and finally expulsion from school. Also individuals with substance use have a high rate of antisocial personality disorder of which truancy is a common feature. In addition, some of the subjects may be having undetected psychiatric disorders such as anxiety and depression making it difficult to continue with their studies.

The most common substances used by subjects in this study were alcohol, tobacco and cannabis in decreasing order. These observations are supported by several studies from Nigeria which reported that these substances are widely used in this environment [2,21]. In a similar community-based study in Nigeria, using the World Health Organization Composite International Diagnostic Interview (CIDI) Version 3, Gureje et al. reported that alcohol was the most frequently used substance with 58% report of lifetime use, tobacco 17%, while cannabis had 3% rate [23]. Alcohol and tobacco were particularly more common probably due to their

Table 1. Sociodemographic and clinical factors of subjects

Variable	Frequency	Percentage (%)
Sex		
Male	55	72.4%
Female	21	27.6%
Age		
<29	26	34.2%
30-49	42	55.3%
>50	8	10.5%
Marital status		
Single	35	46.0%
Married	16	21.1%
Divorced/separated/widowed	25	32.9%
Employment		
Employed	27	35.5%
Unemployed	49	64.5%
Substances used		
Opiates	44	57.9%
Cocaine	46	60.5%
Alcohol	65	85.5%
Tobacco	71	93.4%
Cannabis	60	78.9%
Hallucinogen	3	3.9%
Sedatives	2	2.6%
First drug used		
Opiates	4	5.3%
Cocaine	1	1.3%
Alcohol	9	18.4%
Tobacco	50	65.8%
Cannabis	11	14.5%
Hallucinogen	1	1.3%
Who introduced them to substance use		
Family member	2	2.6%
Peer group/friends	70	92.1%
Spouse	2	2.6%
nobody	2	2.6%
Number of drugs used		
≤3	41	53.9%
≥4	35	46.1%
Routes of drug use		
Smoking /inhalation	76	100%
Sniffing	18	23.7%
Parenteral	4	5.3%
Oral	71	93.4%
Adverse effects		
Loss of job	65	85.5%
Loss of property	48	63.2%
Disruption of family	46	60.5%
Domestic/road traffic accidents	24	31.6%
Source of money		
Begging/extortion	57	75%
Stealing	60	78.9%
Selling property	37	40.8%
Prostitution	8	10.5%

social acceptability, availability and absence of strict enforcement on age limit of purchase and use. The eye-catching and tempting advertisements in the print and electronic media may also make the younger ones who belong to the most vulnerable group to want to experiment with these substances.

Cannabis was the most common illicit substance used by the subjects. This is consistent with reports from, the United Nations Office on Drugs and Crime (UNODC) in its World Drug Report of 2018 which reported that cannabis was the most widely used illicit substance in Nigeria [24]. The possible reasons why cannabis was used more by these subjects compared to other substances like cocaine is the availability and cost of cannabis compared to the cost of other illicit substances. Other substances like heroin are relatively more expensive, alien and can mostly be found at the drug joints since they are mostly imported into the country from South East Asian countries.

This study found that most of the subjects were introduced to substance use by their peers. Similar studies had also reported that peer

influence is the prime factor for adolescents in the initiation of substance use [2]. And some of the factors that promote substance use/abuse by adolescents are desire to experiment, personality defects, and notion of machismo (risk taking to prove oneself to friends), siblings' exposure, and unemployment [2]. Most of the subjects in this study were using multiple substances. This is not unusual among patients with substance use disorders. A lot of researches have also reported similar findings [3,7,8].

The prevalence of anxiety disorders among substance users in this study was 53.9% and the most common anxiety disorder found in this study was social phobia. This prevalence rate is a lot higher than the 6.5% rate reported by Gureje et al. among a general population in Nigeria [23]. Among similar subjects, various researchers have reported varying prevalent rates btw 31% to 52% among varying populations [8,9,25]. The differences observed in the prevalence rates of anxiety disorders in these studies may be due to variation in the methods, and type of substances used by the various subjects studied.

Table 2. Factors associated with Psychiatric morbidity

Variable	Anxiety disorder		Depression	
	Test	P value	Test	P value
Female sex	Chi ² = 8.548	P = .04	Chi ² = 6.553	P = .02
Age	Chi ² = 4.01	P = .04*	Chi ² = 19.479	P = .03
Education	Chi ² = 8.465	P = .13	Chi ² = 10.092	P = .06
Marital status	Chi ² = 10.137	P < .05*	Chi ² = 35.164	P < .05*
Employment status	Chi ² = 1.522	P = .22	Chi ² = 7.966	P < .05*
Duration of drug use				
Opium	Chi ² = 0.865	P = .35	Chi ² = 0.468	P = .49
Heroin	Chi ² = 12.202	P < .05*	Chi ² = 41.549	P < .05*
Cocaine	Chi ² = 14.280	P < .05*	Chi ² = 46.647	P < .05*
Alcohol	Chi ² = 26.846	P < .05*	Chi ² = 33.968	P < .05*
Tobacco	Chi ² = 11.841	P < .05*	Chi ² = 27.875	P < .05*
Cannabis	Chi ² = 10.697	P = .04*	Chi ² = 31.546	P < .05*
Number of drugs used	T-test = 3.733	P < .05*	T-test = 4.616	P < .05*
Frequency of use of drugs				
Heroin	Chi ² = 14.474	P < .05*	Chi ² = 41.582	P < .05*
Cocaine	Chi ² = 15.446	P < .05*	Chi ² = 46.693	P < .05*
Alcohol	Chi ² = 33.005	P < .05*	Chi ² = 43.398	P < .05*
Tobacco	Chi ² = 10.735	P < .05*	Chi ² = 18.207	P < .05*
Cannabis	Chi ² = 3.018	P = .69	Chi ² = 12.395	P = .02*
Adverse effects				
Job loss	Chi ² = 10.416	P < .05*	Chi ² = 38.685	P < .05*
Loss of property	Chi ² = 14.933	P < .05*	Chi ² = 28.242	P < .05*
Family disruption	Chi ² = 11.441	P < .05*	Chi ² = 11.620	P < .05*
Domestic /road accidents	Chi ² = 0.930	P = .34	Chi ² = 19.479	P = .03

This high prevalence rate of anxiety disorder among the subjects compared with the general population may be explained by the effect of different substances in the aetiology of anxiety. Nicotine for example increases the risk for developing panic attacks and panic disorder [26]. Other researchers also found that psychoactive substances may also exacerbate (concurrently) the severity of anxiety disorders [27]. Also, withdrawal effects of some of the substances such as cocaine and heroin may mimic anxiety symptoms and this may contribute to the higher prevalence rates of anxiety among people with substance use. The high rate may also be due to the possibility that these patients have been suffering from anxiety disorder all along which they have been attempting to treat with psychoactive substances [12]. This view of self medication was also supported by Kushner et al, they reported that social phobia and agoraphobia precede alcohol problems and many patients initiate alcohol use to control these disorders [13].

This study showed that anxiety disorder was more common among females. This finding is consistent with reports from other studies which reported an increase in rate of anxiety among women using psychoactive substances. Wu and Howard reported a prevalence rate of 53% for females and 30% for males for any anxiety disorder. They reported that females had higher blood alcohol levels after consuming the same quantity of alcohol as men and as such more predisposed to dependence and more alcohol related problems such as anxiety disorders [8]. Conway et al reported that the greater comorbidity between mood and anxiety disorders and substance use among women may also reflect greater deviance and psychopathology among substance-using women than men [7]. Anxiety disorder was found to be more common among subjects who were separated, divorced or widowed compared to the married subjects. This is consistent with the findings by others and may be due to the understanding and social support the married subjects receive from their spouses [28].

We observed that anxiety disorder was found to be associated with younger age of onset of substance use. This finding is consistent with studies by Hall et al. who reported that Substance use before 18 years of age is associated with an eightfold greater likelihood of developing substance dependence in adulthood and consequently psychiatric morbidity [29].

Similarly, Turner et al. reported that the risk of cannabis dependence increases with decreasing age of initiation. They also reported that cannabis dependence in young people predicts increased risks of using other illicit drugs, underperforming in school, and reporting psychiatric morbidity [6]. Subjects who had multiple substance use had higher rates of anxiety disorder compared with other subjects who used fewer substances. This was also reported by Kandel and his colleagues who examined the co-morbidity of dependence on single and multiple drugs with anxiety and depressive disorders, and found that for individuals who were dependent on multiple substances, the risk of psychiatric diagnosis was increased by many folds [30].

Long duration and more frequent use of substances were associated with anxiety disorder. Similar findings were reported in a national household survey among nicotine, alcohol and substance users. They reported that much, if not all, of the disorder is related to quantity and frequency of consumption of substances [28].

We observed a prevalence rate of 68.4% for depression among the subjects. Varying prevalent rates between 22-55% have been reported among varying populations by other researchers both in Nigeria and internationally [7-9]. The differences in the prevalence rates may be due to variations in the study design, methodology and type of substances used by the various subjects studied. For example, while some of the previous studies were conducted among specific substance users (e.g. inhalant users); the present study was conducted among a more broad-based group of individuals with substance use. The prevalence rate of depression reported in this study is however high when compared with the 3.3% reported among the general population in Nigeria by Gureje et al. [23]. The relatively high prevalence rate for depression in the present study compared with the general population has been ascribed to the strong tendency of these substances to induce dependence which consequently leads to increased risk of depression [7]. In addition to this, some of the subjects may have an underlying depression and attempt to control the symptoms by using psychoactive substances [12]. Muesser reported that substance use is a precipitating factor and not a causal factor for depression among individuals that are already predisposed to it [12]. Further explanation was given by Baigent et al. who lent support to a

more general explanatory model, referred to as "alleviation of dysphoria.". This theory holds that persons with depression are prone to dysphoric states that also make them prone to the use of psychoactive substances [31].

The factors associated with depression in this study included young age of onset of substance use, female sex, being separated or divorced or widowed, being unemployed, longer duration and frequency of substance use and suffering adverse consequences. Similar factors were reported by other authors who reported that a respondent's age, gender, marital status, housing tenure, work status, type of work (manual or non-manual) and dependence on substances, alcohol and nicotine were associated independently with having depression [6,28]. Possible reasons for the high prevalence of depression among the young subjects and those with early onset of substance use may be problems of upbringing such as having parents who use substances, academic problems due to substance use and unemployment after dropping out from school, personality problems and also effect of the substances on the developing brain [22,32].

We observed that being a female increased the risk of depression. This is consistent with the reports of other studies which indicated a higher prevalence of depression among females compared to males [8,14]. Possible explanations for this gender differences could be due to lower self esteem as well as higher levels of shame and guilt among females which predispose them to depression. In addition, females with substance use may experience more marital problems, unemployment and financial problems all of which may predispose or precipitate depression in the females. Being unemployed were found to be associated with depression in the present study. This finding is similar to other reports which assessed the risk factors for 12 month co morbidity of mood, anxiety and substance user disorder [33].

The subjects who were separated, divorced or widowed were associated more with depression compared with the married subjects. Similar findings have also been reported among non substance using general population and reasons adduced for this include the lack of durable, comforting and confiding relationship among these subjects [28,34]. Long duration and more frequent use of substances were associated with depression in this study as also reported by other

authors [28,30]. Some of these authors examined the co-morbidity of dependence on single and multiple drugs with anxiety and depressive disorders, and found that for individuals who were dependent on multiple substances, the risk of psychiatric diagnosis was increased by many folds [30]. While this study has being able to show that there is some relationship between depression/ anxiety disorder and psychoactive substance use, the pattern of the relationship is however elusive. A longitudinal study may be more helpful in establishing the relationship.

4. CONCLUSION

This study has shown that there is a high rate of anxiety and depression among psychoactive substance users. The common factors established include, young age of onset of substance use, female sex, being separated or divorced or widowed and being unemployed. Others include long duration of use and multiple substances used. In view of the available theories of the relationship between substance use and psychiatric disorders which include; People use psychoactive substances to self medicate symptoms of anxiety and depression; substance use is a precipitating factor and not a causal factor for mental illnesses; the same factor is responsible for the development of substance use and psychopathology; some other researchers believe co-morbidity is nothing but an incidental association.

CONSENT

Consent to participate in the study was duly obtained from the participants.

ETHICAL APPROVAL

Approval for the study was obtained from the Ethical Committee of the Federal Neuropsychiatric Hospital Yaba, Lagos, Nigeria.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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