Patterns of Substance Use Disorders and Associated Co-occurring Psychiatric Morbidity among Patients Seen at the Psychiatric Unit of a Tertiary Health Center

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Original Article

Abstract

Background: Understanding the pattern of co-occurring mental illness in patients with substance use disorders (SUDs) is essential in improving the prevention and treatment of substance use-related problems. This study examined the pattern of SUDs, the associated co-occurring psychiatric morbidities, and associated factors among patients with SUDs managed at a tertiary health center.

Methods: The records of patients who presented with SUDs between 2010 and 2019 were examined. Socio-demographics of interest were extracted from case files. Substance use diagnoses, as well as associated co-occurring mental illness, were extracted and entered into SPSS software. Bivariate analyses including the risk of developing co-occurring mental disorder were calculated.

Findings: For most patients, the initiation of substance use was before the age of 21 years, while the onset of SUDs was between 21-30 years. Cannabis use disorders (CUDs), alcohol use disorders (AUDs), and nicotine use disorders (NUDs) were the commonest SUDs. Compared with those with CUDs, non-users of cannabis were significantly less likely to develop co-occurring mental illness [odds ratio (OR) = 0.25, 95% confidence interval (CI) =0.13-0.42, P = 0.001]. Those with tramadol use disorders (OR = 2.13, 95% CI = 1.03-4.41, P = 0.040) and those without pentazocine use disorders (P = 0.003) were more likely to have a comorbid mental illness. Patients with AUDs (P = 0.001), CUDs (P = 0.001), NUDs (P = 0.001), and tramadol use disorders (P = 0.045) were significantly more likely to be multiple substance users.

Conclusion: Results suggest an association between SUDs and co-occurring mental illness, though differences in these associations were noticed across the categories of substances. This emphasizes a holistic approach to prevention and care of patients presenting with SUDs.

Keywords: Dual diagnosis; Mental disorders; Substance-related disorders; Substance dependence

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Introduction

Alcohol and other substance use continue to impact negatively on the productivity, health, economy, and social aspects of our societies.[1] There is a growing challenge of the burdens of substance use disorders (SUDs) and mental illnesses in general, posed for health systems in both developed and developing countries. It is a major contributor to disability-adjusted life years (DALYs), years of life lost (YLLs) due to premature mortality, as well as years lived with disability (YLDs).[2] Apart from the direct burden of substance use, it exerts a negative effect on other health outcomes, and along with other mental illnesses constitutes the leading cause of YLDs worldwide.[1] Across the countries of the world, SUDs account for about 20 million DALYs and 8.6 million YLLs,[2,3] and remain a continuous health crisis.[4]

Globally, of all SUDs, alcohol use disorders (AUDs) present with the greatest burden with 100.4 million estimated cases in 2016 followed by opioid dependence with an estimated 26.8 million cases and cannabis dependence with an estimated 22.1 million cases.[1] In Nigeria, on the other hand, similar high burden had been reported from national surveys and specific population-based studies.[5-8] According to Adamson et al. (2015), alcohol had the highest prevalence, while cannabis was the commonest illicit drug used. Among persons with mental illness, on the other hand, alcohol was the commonest substance ever used followed by tobacco and cannabis in that order.[9] However, harmful tobacco use was reported in about 45% and about a third with harmful alcohol and cannabis use in the preceding 3 months.[9]

There is continuous evidence suggesting that people with SUDs also experience other psychiatric disorders.[10] This is often bi-directional, with many people with other psychiatric diagnoses presenting with SUDs.[11] Studies have shown that about half of people with mental illness often experience substance-related disorders at some points in the course of the illness, and vice versa.[11] Several reasons have been attributed to the co-occurrence of SUDs and other psychiatric conditions. Firstly, both disorders are associated with common risk factors, and secondly, substance use may alter brain structure, thus increasing the risk of developing mental illness.[11]

The prevalence of mental disorders among those with substance use is higher than the general population, and the burden of disease due to SUDs varies significantly across different psychiatric settings and often co-occurs with other psychiatric diagnoses.[10] The co-occurrence impacts negatively the course and the outcome of both diseases. This calls for the need for a comprehensive approach in the evaluation and management of both conditions. In this study, we examined the pattern of SUDs, the associated psychiatric comorbidities, and factors associated with them among patients with SUDs managed at the Ekiti State University Teaching Hospital in Ado-Ekiti, Nigeria.

Methods

Design and setting: In this retrospective study, we identified patients who primarily presented with or had SUDs as the major presentation to the Department of Psychiatry of the Ekiti State University Teaching Hospital. The Ekiti State University Teaching Hospital, established in 2008, served as a secondary health facility prior to 2008 when there was no psychiatrist in the mental health unit of the hospital. In addition to other specialties of medicine, the Ekiti State University Teaching Hospital has a department of psychiatry with psychiatrists, clinical psychologists, and psychiatric nurses. Aside serving people from within Ekiti State, the hospital also attends to people from neighboring states.

Participants: Participants in the study were patients seen between October 2010 and September 2019 who presented with SUDs with or without other psychiatric disorders. Patients were evaluated and reviewed by a consultant psychiatrist or a senior resident and the diagnosis was made using the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) criteria. Those with specific harmful substance use or dependence were further classified as having SUDs for that specific substance.

Data collection: Data on socio-demographic characteristics such as age, level of education, gender, duration of substance use before presentation, primary SUD, and associated psychiatric diagnoses were retrieved from the case files by one of the researchers. The retrieved data were entered into SPSS software (version 21, IBM Corporation, Armonk, NY, USA).

Data collected were coded and analyzed using the SPSS. Data were presented using descriptive

statistics such as frequency tables, figures, mean, and standard deviation (SD), and inferential statistics were calculated using bivariate analyses, chi-square test, including odds ratio (OR). A P-value ≤ 0.05 was adjudged to be significant.

Ethical considerations: Permission to carry out the study was obtained from departmental head and confidentiality of all information obtained from the case files was ensured.

Results

Socio-demographic characteristics: Of the total number of 2643 cases reviewed, 215 presented with SUDs. Their ages ranged from 15 to 50 years, with a mean and SD of 28.70 ± 8.40 years, while the age of onset of substance use ranged between 10 and 50 years with a mean and SD of 28.70 ± 22.25 years. Majority of cases were men (n = 207, 96.3%), between the age of 22 and 30 years (55.8%) at the time of presentation, less or equal to 21 years (55.1%) at the age of onset, and single (80.5%) at the time of presentation.

Pattern of substance use: Cannabis use disorders (CUDs) were the commonest SUDs with 44 (20.5%) harmful users and 119 (55.3%) dependent users. This was followed by alcohol with 101 (47.0%) harmful users and 50 (23.3%) with alcohol dependence and nicotine with 72 (33.5%) harmful users and 23 (10.7%) dependent users. The majority of cases reviewed (n = 149, 69.3%) were poly-drug users. Patterns of other SUDs were highlighted in table 1.

Relation between socio-demographic characteristics and comorbid mental illness: Table 2 shows the relationship between socio-demographics and the presence of comorbid mental illness. Male cases (P = 0.001) and those who were single, divorced, or separated (P = 0.001) were significantly more likely to have a comorbid mental illness. Age at presentation or onset, level of education, religion, and family type were not associated with comorbid mental illness (P > 0.050).

Pattern of comorbidities: Majority of the patients (n = 145, 67.4%) reviewed had other mental illnesses besides SUDs. Of which, the majority had schizophrenia/schizophrenic-like psychosis. This was followed by bipolar affective disorders. Others are as shown in figure 1.

Relationship between substance use variables and the presence of co-occurring mental illness: The relationship between substance use variables and the presence of psychiatric comorbidity is as

shown in table 3.

Table 1. Pattern of substance use

Substances	n (%)
Alcohol	
Harmful use	101 (47.0)
Dependence	50 (23.3)
Cigarette	
Harmful use	72 (33.5)
Dependence	23 (10.7)
Tramadol	
Harmful use	21 (9.8)
Dependence	15 (7.0)
Cannabis	
Harmful use	44 (20.5)
Dependence	119 (55.3)
Codeine	
Harmful use	13 (6.0)
Rohypnol (flunitrazepam)	
None	209 (97.2)
Harmful use	6 (2.8)
Pentazocine	
Dependence	5 (2.3)
Cocaine	
Dependence	2 (0.9)
Extent of substance use	
Mono-drug use	66 (30.7)
Poly-drug use	149 (69.3)

Patients who were non-users of cannabis were less likely to have co-occurring mental illness compared with those who had CUDs (harmful users or dependent on cannabis) [OR = 0.25, 95% confidence interval (CI) = 0.13-0.42, P = 0.001].
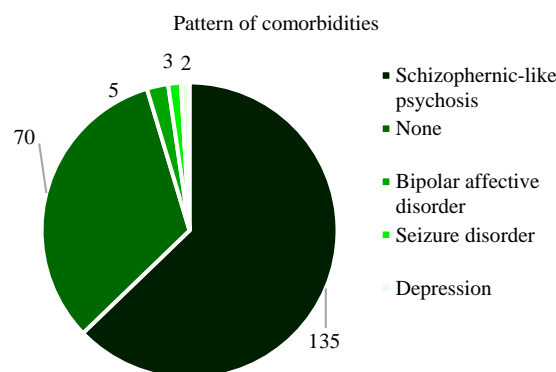

Figure 1. Pattern of psychiatric comorbidities

Likewise, harmful/dependent users of tramadol (OR = 2.13, 95% CI = 1.03-4.41, P = 0.040) and non-users of pentazocine (P = 0.003) were more likely to have co-occurring mental illness compared with their counterparts.

Table 2. Socio-demographic characteristics and comorbid mental illness

Variables	Presence of comorbidity [n (%)]	Absence of comorbidity [n (%)]	P
Age group at presentation (year)			0.116
21 and below	22 (59.5)	15 (40.5)	
22-30	88 (73.3)	32 (26.7)	
31 and above	35 (60.3)	23 (39.7)	
Age at onset (year)			0.549
≤ 21	82 (69.5)	36 (30.5)	
22 and above	63 (65.6)	33 (34.5)	
Marital status at presentation			0.011
Single	124 (71.7)	49 (28.3)	
Married	14 (43.8)	18 (56.3)	
Separated/divorced	7 (70.0)	3 (30.0)	
Gender			0.016
Women	2 (25.0)	6 (75.0)	
Men	143 (69.1)	64 (30.9)	
Level of education			0.091
Secondary and below	68 (75.6)	22 (24.4)	
Tertiary	73 (61.3)	46 (38.7)	
Religion			0.210
Christianity	129 (65.8)	67 (34.2)	
Islam	15 (88.3)	3 (16.7)	
Family type			0.432
Monogamous	100 (66.2)	51 (33.8)	
Polygamous	27 (73.0)	10 (27.0)	
Parental status			0.066
Both parents alive	89 (63.6)	51 (36.4)	
Both parents late/one late	49 (76.6)	15 (23.4)	

Relationship between substance use variables and multiple substance use: Patients with AUDs (OR = 24.32, 95% CI = 8.39-70.40, P= 0.001), CUDs (OR = 3.67, 95% CI = 0.09-7.00, P = 0.001), nicotine use disorders (NUDs) (OR = 24.32, 95% CI = 8.39-70.40, P = 0.001), tramadol use disorders (OR = 2.01, 95% CI = 0.94-4.30, P = 0.045), and codeine use disorders (P = 0.011) were significantly more likely to be multiple substance users. Patients with pentazocine use disorder, on the other hand, were more likely to be a mono-drug user (OR = 0.11, 95% CI = 0.10-0.96, P = 0.032). Relationship between other substance use variables and history of multiple substance use is as shown in table 3.

Discussion

About 10 percent of patients managed in this psychiatric unit during the period under review presented primarily with SUDs. They were predominantly young adults at the time of presentation, with nearly three-quarters presenting before the age of 30. Besides, over half of this population had onset of substance use before the age of 21, suggesting the onset of use during a critical stage of development, when the brain has not assumed full maturation. Studies have identified substance use as a problem of young adults with the onset of use more often in adolescence.[4,12-14] Individuals with early age of onset of substance use had been reported to have a higher risk of psychosocial issues, psychiatric disorders, peer relationship, work adjustment, and risky sexual behaviour.[14-16] Early onset of substance use is associated with continued drug use, poly-drug use, and SUDs later in adulthood; this is in addition to other adverse psychosocial outcomes,[14,16-18] including increased risk of incarceration for substance-related offenses.[18,19]

In contrast to what usually is obtained from epidemiological studies or the general population where alcohol was the commonest substance usually reported, cannabis use was the commonest SUD with over three-quarters of cases reviewed presenting with CUDs.

This might not be unconnected with the fact that early initiation and continuous use of cannabis in adolescents increase psychosocial impairment and problematic cannabis use, and also increase vulnerability to developing psychotic disorders.[20-24]

Table 3. Relationship between substance use variables, presence of co-occurring mental illness, and multiple substance use

Variables	Presence of comorbidity	Absence of comorbidity	Statistics	Mono-drug use	Poly-drug use	Statistics
Cannabis			P = 0.001			P = 0.001
None	23 (43.4)	30 (56.6)	OR (CI): 0.25	28 (52.8)	25 (47.2)	OR (CI): 3.67
Dependence/harmful use	122 (75.3)	40 (24.7)	(0.13-0.42)	38 (23.5)	124 (76.5)	(0.91-7.00)
Alcohol			P = 0.629			P = 0.001
None	44 (69.8)	19 (30.2)	OR (CI): 1.17	44 (69.5)	19 (30.2)	OR (CI): 13.68
Dependence/harmful use	101 (66.4)	51 (33.6)	(0.62-2.21)	22 (14.5)	130 (85.5)	(6.75-27.63)
Cigarette			P = 0.390			P = 0.001
None	78 (65.5)	42 (35.0)	OR (CI): 0.77	62 (51.7)	58 (48.3)	OR (CI): 4.32
Dependence/harmful use	67 (70.5)	28 (29.5)	(0.44-1.39)	4 (4.2)	91 (95.8)	(8.39-70.40)
Tramadol			P = 0.040			P = 0.045
None	126 (70.4)	53 (29.6)	OR (CI): 2.13	60 (33.5)	119 (66.5)	OR (CI): 2.01
Dependence/harmful use	19 (52.8)	17 (47.2)	(1.03-4.41)	6 (16.7)	30 (83.3)	(0.94-4.30)
Codeine			P = 0.634			
None	137 (67.8)	65 (32.2)	OR (CI): 1.32	66 (37.7)	136 (67.3)	P = 0.011
Dependence/harmful use	8 (61.5)	5 (38.5)	(0.42-4.18)	0 (0)	13 (100)	
Rohypnol			P = 0.394			
None	142 (67.9)	67 (32.1)	OR (CI): 2.12	66 (31.6)	143 (68.4)	P = 0.181
Dependence/harmful use	3 (50.0)	3 (50.0)	(0.42-10.78)	0 (0)	6 (100)	
Pentazocine						P = 0.032
None	145 (69.0)	65 (31.0)	P = 0.003	62 (29.5)	148 (70.5)	OR (CI): 0.11
Dependence	0 (0)	5 (100)		4 (80.0)	1 (20.0)	(0.10-0.96)
Benzodiazepine						
None	145 (67.8)	69 (32.2)	P = 0.326	66 (30.8)	148 (69.2)	P > 0.999
Dependence	0 (0)	1 (100)		0 (0)	1 (100)	
Cocaine						
None	145 (68.1)	68 (31.9)	P = 0.105	66 (31.0)	147 (69.0)	P > 0.999
Dependence	0 (0)	2 (100)		0 (0)	2 (100)	

Data are presented n (%)
OR: Odds ratio; CI: Confidence interval

Early initiation of cannabis use has been reported as a risk factor for developing psychosis.[24,25] This may explain the relatively high proportions of patients who had CUDs compared with AUDs or other SUDs presenting for care in the hospital. The psychosocial sequelae or the psychotic symptoms may have necessitated more people with CUDs to present in the hospital relative to other substance users. Besides, it also increases the use of other substances[26] and this might explain the significant association between cannabis use and poly-drug use, thus increasing the likelihood of psychosocial consequences.

Unlike patients with pentazocine use disorder, patients with CUD, NUD, and AUD were more likely to use one or more additional substances. Oftentimes, pentazocine is usually initiated by healthcare practitioners, either in managing their patients or in managing themselves.[27-29] Alcohol, on the other hand, is usually referred to as the gateway drug, with which most drugs of abuse are usually experimented;[4,30,31] however, the probability of cannabis serving as the gateway to other licit and illicit drugs has been proposed.[26] Most persons who abuse nicotine or cannabis are more likely to abuse alcohol too. This might explain the strong association between alcohol, cannabis, nicotine, and poly-drug use. History of poly-drug use, on the other hand, has been reported to be associated with increased substance use-associated deaths.[32] Pentazocine, on the other hand, is a substance of circumstances, usually initiated or abused by health workers; hence, most patients abusing pentazocine are mono-drug users relative to other substance users. Although pentazocine was not significantly associated with other psychiatric disorders in this study, study has shown association between other opiate use disorders and psychiatric disorders.[10]

This study revealed that about two-thirds of those with SUDs had other psychiatric comorbidity. This corroborates earlier studies.[23-25,33-35] There are several possible reasons for this observation. First, common predispositions such as genetic and

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environmental factors can contribute to the development of both SUDs and other mental ill-health.[36,37] Moreover, other mental disorders can result from substance use and SUDs following alteration in brain structure and function by these agents;[10,38,39] and people living with mental illness may use these substances as a form of self-medication.[40-42]

Conclusion

There is a high rate of co-occurrence of other psychiatric disorders among patients presenting SUDs in a clinical setting. Most of these patients, usually single young adult men, presented with poly-drug use that may compound the treatment of either the SUDs or the associated psychiatric morbidities. CUDs were the commonest SUD seen among this population. This might not be unconnected with a higher incidence of psychotic symptoms and psychosocial problems associated with cannabis use and CUDs, thus necessitating urgent care. Similar to patients with AUDs, those with CUDs were also more likely to be poly-drug users, thus complicating the management of cases. Evaluation and management of patients presenting with SUDs need to incorporate prevention, assessment, and treatment of other mental disorders.

Limitations: Like other retrospective studies, the study possesses some limitations. The information available for analysis was limited to those available in the case files, thus limiting the ability to explore other confounding factors that may be associated with co-occurrence of other mental disorders. Some data of interest were not readily available in the case files, thus limiting the data available for analyses. It is also difficult to establish a cause-effect relationship using retrospective study; however, this study provided insightful data in guiding the development of future prospective or case-control studies.

Conflict of Interests

The Authors have no conflict of interest.

Acknowledgements

Authors' Contribution

Involved in conceptualization/design of the work, data analyses and interpretation, writing original draft, and supervision of the work: AO; involved in data curation, critical revision, and editing of the original draft: LOO; involved in data extraction and entry, data analyses, and visualization: BFK; involved in reviewing and editing of the manuscript: MUD.

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الگوهای همبودی اختلال سوء مصرف مواد و بیماری‌های روانی در بین بیماران مراجعه‌کننده به بخش روان‌پزشکی یک مرکز مراقبت‌های عالی

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مقاله پژوهشی

چکیده

مقدمه: مصرف قلیان، یکی از عوامل اصلی خطر التهاب و بیماری‌های قلبی- عروقی می‌باشد. هدف از انجام پژوهش حاضر، بررسی تأثیر دو ماه تمرین هوازی بر نیم‌رخ متابولیک و سطح پروتئین واکنشگر C (C-reactive protein یا CRP) در زنان مصرف‌کننده قلیان بود.

روش‌ها: در این مطالعه نیمه تجربی با طرح پیش‌آزمون- پس‌آزمون ، ۲۲ زن مصرف‌کننده قلیان (حداقل دو بار در هفته) که از نظر سن (۳/۸۱ ± ۲۷/۸۲ سال) و شاخص توده بدنی (۵/۹۲ ± ۲۶/۶۶ کیلوگرم بر مترمربع) همسان بودند، انتخاب شدند و به طور تصادفی به دو گروه تمرین هوازی + کشیدن قلیان (۱۱ نفر) و کشیدن قلیان (۱۱ نفر) قرار گرفتند. همچنین، یک گروه شاهد همسان از زنان غیر سیگاری (۱۰ نفر با میانگین سنی ۲/۷۱ ± ۲۷/۱۱ سال و میانگین شاخص توده بدنی ۲/۳۹ ± ۲۶/۲۰ کیلوگرم بر مترمربع) به منظور مقایسه در سطح پایه انتخاب شدند. برنامه تمرین هوازی سه روز در هفته، ۵۰-۳۵ دقیقه در روز و به مدت ۸ هفته انجام شد. از گروه شاهد درخواست شد که به زندگی عادی خود ادامه دهند. سطح سرمی CRP و عوامل خطر متابولیکی قبل و پس از مداخله اندازه‌گیری گردید. داده‌ها با استفاده از آزمون Paired t مورد تجزیه و تحلیل قرار گرفت.

یافته‌ها: در سطح پایه، شرکت‌کنندگان غیر سیگاری از نظر سطح CRP (۰/۰۰۱ = P) و درصد اشباع اکسیژن (۰/۰۲۰ = P) به طور معنی‌داری نسبت به زنان مصرف‌کننده قلیان از وضعیت بهتری برخوردار بودند. پس از ۸ هفته تمرین هوازی، هیچ تغییر معنی‌داری در نیم‌رخ لیپیدی زنان مصرف‌کننده قلیان مشاهده نشد (۰/۰۵۰ < P)، اما وزن بدن (۰/۰۴۰ = P)، آمادگی هوازی (۰/۰۱۰ = P) و سطح CRP (۰/۰۴۰ = P) در پاسخ به ورزش هوازی به طور معنی‌داری بهبود یافت.

نتیجه‌گیری: یک دوره برنامه ورزشی هوازی، آمادگی هوازی زنان مصرف‌کننده قلیان را بهبود می‌بخشد. این بهبودی بدون تغییر معنی‌دار در نیم‌رخ چربی پلاسما و با کاهش سطح سرمی CRP همراه بود.

واژگان کلیدی: تمرین؛ التهاب؛ قلیان کشیدن؛ زنان

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