

Original Research Article

Prevalence and predictors of substance abuse among patients with depressive and anxiety disorders: a cross-sectional study at a tertiary care hospital in Udaipur

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ABSTRACT

Background: Substance abuse is a serious public health concern among individuals with psychiatric disorders, particularly anxiety and depression. However, data on its prevalence and association with symptom severity in Indian patients remain limited. This study aimed to determine the prevalence of substance abuse among patients with anxiety and depressive disorders and to evaluate its association with symptom severity.

Methods: A cross-sectional study was conducted on 162 participants diagnosed with anxiety or depressive disorders. Data were collected on socio-demographic factors, psychiatric diagnosis, and substance use through standardized tools and urine drug screening. Severity of disorders was assessed using standard clinical rating scales. Symptom severity was evaluated using the Hamilton Depression Rating Scale (HAM-D) and the Hamilton Anxiety Rating Scale (HAM-A).

Results: The majority of participants were male 119 (73.5%) and belonged primarily to the upper lower socio-economic class 68 (42.0%). Benzodiazepines 19 (11.7%) were the most frequently found substance, followed by tricyclic antidepressants 13 (8.0%) and Alcohol 8 (4.9%). Substance abuse prevalence was higher among participants with profound depression 11 out of 19 (57.9%) and among those participants with moderate anxiety 15 out of 48 (31.3%). No statistically significant difference was observed in overall substance abuse prevalence between depressive disorders 33/98 (33.7%) and anxiety disorders 18/64 (28.1%) ($p=0.457$).

Conclusions: Substance abuse is common among patients with anxiety and depressive disorders, particularly in severe depressive depression. It is essential to address comorbid substance use in psychiatric populations through early detection and integrated management strategies.

Keywords: Substance abuse, Depression, Anxiety disorders, Comorbidity, Urine drug screening, Mental health

INTRODUCTION

Substance use and psychiatric disorders often coexist, often combine, making diagnosis, treatment, and prognosis extremely difficult. Anxiety and depression disorders are the most common mental health diseases

and are frequently linked to a higher risk of substance addiction. Over 264 million people worldwide suffer from depression, and an estimated 284 million people suffer from anxiety disorders, making them two of the most prevalent mental illnesses in the world.^{1,2} In addition to raising the risk of suicide, the coexistence of mood and

anxiety disorders with substance use disorders (SUDs) substantially affects the clinical course, functional outcomes, and response to therapy.³⁻⁵

Alcohol, opioids, cannabis, and sedatives are among the substances that people frequently use to self-medicate emotional distress, especially the symptoms of anxiety and depression. This unhealthy coping mechanism frequently leads to a dual diagnosis, in which substance abuse and the primary mental illness are intertwined. Studies indicate a bidirectional relationship: chronic substance usage can worsen or possibly cause psychiatric symptoms, while depression and anxiety might cause people to start using drugs.⁶⁻⁸ Understanding this relationship is critical for effective management and policy development, particularly in low-resource settings.

Substance use disorders are a significant public health concern in India, where the incidence of mental disease has been increasing. Nearly 14% of Indians suffer from a mental health condition, and a significant percentage use dangerous substance, according to the National Mental Health Survey of India (2016).⁹ Underdiagnosis and undertreatment are caused by cultural, social, and economic reasons as well as insufficient mental health resources. In spite of this, there are few research that particularly look at the prevalence and patterns of substance abuse among people with anxiety and depression in India whereas there has been little investigation into the relationship between the severity of psychiatric symptoms and substance abuse behaviour, the majority of available data have concentrated on either general psychiatric morbidity or population-wide substance use.

By evaluating the prevalence and forms of substance usage among individuals with diagnoses of anxiety and depression, this study sought to close this knowledge gap. It also investigated the relationship between substance abuse and the severity of psychiatric symptoms. The study also took sociodemographic factors like gender and socioeconomic status into account. By examining these associations, the study helps to provide data that could guide clinical screening, integrated treatment approaches, and public health interventions.

METHODS

Study design and setting

This was a cross-sectional, observational study conducted at the department of psychiatry, RNT Medical College, Udaipur, Rajasthan from June 2020 to December 2021. The hospital serves a large population from southern Rajasthan's rural and urban districts as a tertiary care facility.

This study was performed with the approval of institutional ethical committee of RNT Medical College, Udaipur (approval number- RNT/Stat./IEC/2019/435).

Study population

The study's participants were outpatient psychiatry patients who were diagnosed with anxiety or depression through standard clinical psychiatric assessment by qualified psychiatrists. The study included patients who gave their informed consent. People with severe cognitive deficits, organic brain syndromes, or documented psychotic diseases were not included.

Sample collection and testing procedure

Urine samples were collected under standard aseptic precautions from all participants who gave their consent. The multi-drug one step screen test panel (urine), manufactured by Abon Biopharma, Hangzhou, China was then used to screen these samples for substances. The purpose of this immunoassay-based test is to qualitatively identify multiple substances of abuse and their metabolites in human urine.

The panel used was capable of detecting the presence of a wide range of substances including benzodiazepines, tricyclic antidepressants (TCAs), alcohol, nicotine, opium, tetrahydrocannabinol (THC), phencyclidine (PCP), barbiturates, methamphetamine, morphine, amphetamine, and MDMA. According to the manufacturer's instructions, the test was conducted, and the appearance of colored lines on the test panel was used to visually evaluate the results.

Data collection and statistical analysis

A semi-structured questionnaire was used to gather clinical and sociodemographic information. The severity of depressive and anxiety symptoms was assessed using the Hamilton Depression Rating Scale (HAM-D) and the Hamilton Anxiety Rating Scale (HAM-A).^{10,11} Frequencies and proportions were summarized using descriptive statistics. Associations between substance use and psychiatric symptom severity were examined using the chi-square test, with statistical significance set at $p < 0.05$.

RESULTS

Demographic characteristics

The study comprised 162 participants who had been diagnosed with anxiety and/or depression. Women constituted 43 (26.5%), whereas men constituted the majority of the participants 119 (73.5%) (Table 1). Participants were 34.2 ± 11.6 years old on average. Only 5 (3.1%) of participants were in the upper class, while the majority belonged to upper-lower class: 68 (42.0%), lower-middle class: 40 (24.7%), upper-middle class: 28 (17.3%), and lower class: 21 (13.0%) (Table 1). According to these results, the study population was primarily male and came from lower socioeconomic backgrounds.

Table 1: Gender and socioeconomic distribution of participants.

Variables	Category	N (%)
Gender	Male	119 (73.5)
	Female	43 (26.5)
Socioeconomic status*	Upper	5 (3.1)
	Upper middle	28 (17.3)
	Lower middle	40 (24.7)
	Upper lower	68 (42.0)
	Lower	21 (13.0)

*Based on modified Kuppuswamy Socioeconomic Scale.

Prevalence and pattern of substance use

Out of the 162 participants, 54 (33.3%) had urine samples tested positive for at least one substance. Benzodiazepines 19 (11.7%), tricyclic antidepressants 13 (8.0%), alcohol 8 (4.9%) and nicotine 7 (4.3%) were the most commonly found substances. In addition, there were lesser amounts of opium and tetrahydrocannabinol each 5 (3.1%), phencyclidine and barbiturates each 4 (2.5%), methamphetamine 2 (1.2%), morphine, amphetamines and MDMA each 1 (0.6%) whereas cocaine and

methadone were not detected (Table 2). According to these findings, sedative and CNS-depressant drugs were significantly more common in psychiatric patients.

Table 2: Prevalence of substances detected in urine samples (n=162).

Substance	N (%)
Benzodiazepines	19 (11.7)
Tricyclic Antidepressants (TCAs)	13 (8.0)
Alcohol	8 (4.9)
Nicotine	7 (4.3)
Opium	5 (3.1)
Tetrahydrocannabinol (THC)	5 (3.1)
Phencyclidine (PCP)	4 (2.5)
Barbiturates	4 (2.5)
Methamphetamine	2 (1.2)
Morphine	1 (0.6)
Amphetamine	1 (0.6)
MDMA	1 (0.6)
Cocaine	0 (0.0)
Methadone	0 (0.0)

Table 3: Substance abuse by severity of depression (n=98).

Severity of depression	Consumed N (%)	Not consumed N	Total
Mild	3 (25.0)	9	12
Moderate	10 (31.3)	22	32
Severe	9 (25.7)	26	35
Profound	11 (57.9)	8	19
Total	33 (33.7)	65	98
Chi-square test	$\chi^2=6.47$	p=0.091	-

For all statistical comparisons, p<0.05 was considered statistically significant.

Table 4: Substance abuse by severity of anxiety (n=64).

Severity of anxiety	Consumed N (%)	Not Consumed N	Total (n)
Mild	2 (22.2)	7	9
Moderate	15 (31.3)	33	48
Severe	1 (14.3)	6	7
Total	18 (28.1)	46	64
Chi-square test	$\chi^2=1.05$	p=0.591	-

For all statistical comparisons, p<0.05 was considered statistically significant.

Substance abuse and severity of depression

Among 98 participants with depressive disorders, substance use varied according to the degree of depression. Those with mild depression had a prevalence of substance misuse of 3/12 (25.0%), those with moderate depression of 10/32 (31.3%), and those with severe depression of 9/35 (25.7%). Those with profound depression had the highest frequency of substance usage 11/19 (57.9%) (Table 3). Overall, 33 out of 98 (33.7%) participants with depression showed substance abuse This

suggests that the likelihood of substance usage is positively correlated with the severity of depressed symptoms.

Substance abuse and severity of anxiety

Among 64 participants with anxiety disorders, substance use differed according to degree of anxiety. Substance misuse was found among participants with anxiety disorders in 2 (22.2%) of cases of mild anxiety, 15 (31.25%) of cases of moderate anxiety and 1 (14.29%) of

cases of severe anxiety (Table 4). Overall, 18 out of 64 (28.1%) individuals with anxiety demonstrated substance abuse. Unlike depression, the lack of a consistent trend between the intensity of anxiety and substance use suggests that this link may be modulated by other factors.

A comparison of overall substance abuse prevalence between depressive disorders (33.7%) and anxiety disorders (28.1%) showed no statistically significant difference ($p=0.457$).

DISCUSSION

This study offers important new information about the prevalence and trends of substance abuse among mental health patients attending a tertiary-care psychiatry outpatient setting. We objectively evaluated the presence of various substances using a multi-drug one step screen test (urine), and the results showed a high burden of comorbid substance use in this cohort. Several studies have documented high comorbidity between depressive/anxiety disorders and substance use, supporting our findings.¹²

Prevalence and pattern of substance use

Benzodiazepines were the most frequently found substance 19 (11.7%), followed by tricyclic antidepressants 13 (8.0%), alcohol 8 (4.9%) and nicotine 7 (4.3%). These results are in line with global trends, which show that benzodiazepines are commonly abused because of their sedative and anxiolytic effects, particularly in those with mental illnesses including depression and anxiety.¹³ The availability of benzodiazepines through prescriptions and their quick onset of calming effects may make them more susceptible to abuse.¹⁴ The detection of TCAs is significant because their use may indicate that they are being prescribed to treat depression or that they are being misused, which can be risky because of their limited therapeutic index.¹⁵ Substances such as opium 5 (3.1%), THC 5 (3.1%), PCP 4 (2.5%), and barbiturates: 4 (2.5%) were also detected. This pattern is consistent with larger epidemiological evidence showing higher rates of cannabis and opiate use in people with mental illness.¹⁶ Similar polysubstance patterns have been observed, demonstrating significant overlap between anxiety symptoms and misuse of sedatives, alcohol, and cannabis.¹⁷

Substance use and psychiatric comorbidities

According to our research, there is a significant relationship between the prevalence of substance abuse and the severity of depression; individuals with deep depression had the highest rate 11 out of 19 (57.9%). This supports the self-medication theory, which postulates that people with untreated or refractory depression may use drugs to ease their emotional pain.⁵ A strong positive association between depressive severity and substance use has also been documented in previous studies.¹⁸

Similarly, substance use occurred more often in patients experiencing moderate anxiety levels: 15 out of 48 (31.3%) than in those with severe 1 out of 7 (14.3%) or mild anxiety 2 out of 9 (22.2%). This U-shaped distribution could indicate varying coping strategies: people with moderate anxiety might look for external sources of relief, while those with severe anxiety may experience greater functional impairment, making it more difficult to obtain or utilize substances, or they may already be under strict medical care.¹⁹ Previous research has also demonstrated strong associations between anxiety severity and substance misuse, supporting the complex pattern observed in our study.²⁰

Sociodemographic correlates

Males represented 119 out of 162 (73.5%) of the sample, indicating a notable gender imbalance in psychiatric presentations and substance use. This aligns with national and international data showing elevated rates of substance abuse among males.²¹ Most participants were part of the upper lower and lower middle socioeconomic classes, emphasizing the connection between mental illness, poverty, and substance misuse. Economic difficulty is a recognized risk factor for both mental health issues and substance abuse.²² Previous research has attributed increased substance-use risk to chronic socioeconomic stress, consistent with our findings.²³

Public health and clinical implications

These results highlight the critical necessity for combined screening of substance use in mental health environments. Regular toxicological assessments can help differentiate between primary psychiatric illnesses and those induced by substances, guiding specific interventions. Additionally, individuals suffering from depression or anxiety disorders need careful monitoring for indications of substance abuse, especially those prescribed benzodiazepines or other psychiatric drugs.²⁴ Integrated dual-diagnosis treatment models have been shown to improve outcomes in patients with co-occurring psychiatric and substance use disorders and should be considered in similar clinical settings.²⁵

Although the research offers objective data based on urine, its cross-sectional design limits any causal conclusions. The urine test identifies recent usage but fails to indicate frequency or amount. Additionally, it may not always be possible to distinguish between prescription drug use and non-medical use. Longitudinal studies in the future that include clinical interviews and prescription records are necessary to further elucidate these relationships.²⁶

CONCLUSION

The significant frequency of substance use among patients with anxiety and depression disorders is highlighted by this study, underscoring the urgent need to

acknowledge dual diagnoses as a crucial clinical reality in psychiatric practice. The most often found substances, alcohol and benzodiazepines, are indicative of the community's easy access to socially acceptable and prescription drugs. Additional evidence that people may turn to self-medication as a maladaptive coping strategy comes from the correlation between substance usage and more severe symptoms, especially profound depression. Even in patients who primarily appear with mood or anxiety symptoms, these findings support the necessity for psychiatrists and other mental health providers to regularly evaluate substance use.

The findings have wider public health implications in addition to clinical ones. The need for community-based preventive and rehabilitative interventions is highlighted by the relationship between mental illness, substance abuse, and socioeconomic disadvantage. Patient outcomes can be significantly improved by early screening, patient education, and integrated therapy models that target both psychiatric and drug use issues. To investigate causal pathways and assess the effects of integrated management initiatives in comparable low-resource settings throughout India, future multicentric and longitudinal studies are necessary.

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