ORIGINAL RESEARCH

Prevalence of Substance Abuse in Schizophrenic Patients: A Cross-sectional Study

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ABSTRACT

Aim: This study aimed to assess the prevalence of substance abuse in individuals diagnosed with schizophrenia and explore the relationship between demographic characteristics, substance abuse patterns, and the severity of schizophrenia symptoms.**Materials and Methods:** A cross-sectional study was conducted with 130 participants, aged 18-65 years, diagnosed with schizophrenia at a tertiary care hospital. Demographic and clinical data were collected through structured interviews and medical records. Substance abuse was assessed using the Substance Use Disorder Identification Test (SUDIT) and Drug Abuse Screening Test (DAST), while schizophrenia severity was evaluated using the Positive and Negative Syndrome Scale (PANSS). Statistical analyses included Chi-square tests and logistic regression.**Results:** The prevalence of substance abuse was 42.31%, with alcohol (23.08%) and marijuana (19.23%) being the most commonly abused substances. Males showed a higher prevalence of substance abuse (47.06%) compared to females (33.33%). The 18-30 years age group had the highest prevalence (50%), with a significant association between younger age and substance abuse ($p = 0.002$). Moderate schizophrenia symptoms were most strongly associated with substance abuse ($p = 0.002$).**Conclusion:** Substance abuse is prevalent among individuals with schizophrenia, with alcohol and marijuana being the most commonly abused substances. Younger males and those with moderate schizophrenia symptoms are particularly vulnerable to substance abuse. These findings underscore the importance of tailored interventions to address substance use in this population, with a focus on younger patients and those experiencing moderate symptom severity.

Keywords: Substance Abuse, Schizophrenia, Demographic Factors, Substance Use Disorder

INTRODUCTION

Substance abuse is a major public health concern that affects individuals across a wide range of psychiatric disorders. One of the most significant challenges in the field of mental health is the high prevalence of substance abuse among patients diagnosed with schizophrenia. Schizophrenia is a chronic, severe, and disabling mental disorder that impacts how individuals think, feel, and behave. The symptoms of schizophrenia, such as delusions, hallucinations, and disorganized thinking, often lead to significant impairments in functioning, including social relationships, employment, and daily activities. In addition to these challenges, many individuals with schizophrenia also experience substance abuse problems, which exacerbate the severity of their psychiatric symptoms and complicate their treatment and management.[1]

The co-occurrence of schizophrenia and substance abuse is a well-documented

phenomenon. Research has consistently shown that individuals with schizophrenia are at a significantly higher risk of developing substance use disorders compared to the general population. The substances most commonly abused by individuals with schizophrenia include alcohol, cannabis, nicotine, and illicit drugs, such as cocaine and heroin. The prevalence of substance abuse in patients with schizophrenia varies across studies, but it is estimated that between 40% and 60% of individuals with schizophrenia have a co-occurring substance use disorder. This is notably higher than the general population, where the lifetime prevalence of substance use disorders is estimated to be around 10-15%.[2,3]

The reasons for the high prevalence of substance abuse in individuals with schizophrenia are multifaceted and complex. One factor that may contribute is the use of substances as a form of self-medication. Schizophrenia is often accompanied by distressing symptoms such as anxiety, depression, and cognitive dysfunction, which may lead individuals to use substances to alleviate these symptoms. For example, alcohol or cannabis use may provide temporary relief from the paranoia and anxiety that can accompany schizophrenia. However, while substances may provide short-term relief, they often worsen the long-term course of the disorder and increase the risk of relapse or worsening psychiatric symptoms.[4]

Another factor that may contribute to the high prevalence of substance abuse in schizophrenia is the impact of the disorder itself on an individual's social and environmental context. People with schizophrenia often experience social isolation, unemployment, and reduced quality of life due to the impairments caused by their psychiatric symptoms. This social marginalization may make it more difficult for individuals to access support networks and therapeutic interventions, and they may turn to substances as a way to cope with the challenges of daily living. Additionally, individuals with schizophrenia may live in environments where substance use is prevalent, further increasing the likelihood of developing substance abuse problems.[5]

Furthermore, genetic and neurobiological factors may also play a role in the comorbidity of schizophrenia and substance abuse. Research suggests that there may be shared genetic vulnerabilities that increase the risk of both schizophrenia and substance use disorders. This genetic overlap may contribute to the higher rates of substance abuse observed in individuals with schizophrenia. Additionally, abnormalities in brain structure and function, particularly in areas involved in reward processing and impulse control, may predispose individuals with schizophrenia to engage in substance use as a means of seeking relief from their symptoms or seeking pleasurable experiences.[6]

The co-occurrence of substance abuse in schizophrenia has important clinical implications. Substance abuse can significantly complicate the diagnosis and treatment of schizophrenia, as it may mask or exacerbate psychiatric symptoms. For example, the use of illicit substances can mimic or intensify symptoms of psychosis, making it more difficult for clinicians to accurately assess the patient's condition and determine the most appropriate course of treatment. Additionally, substance abuse can interfere with the effectiveness of antipsychotic medications, as certain substances may interact with these drugs and reduce their efficacy. The combination of schizophrenia and substance abuse can also increase the risk of poor treatment adherence, hospitalization, and relapse, which can result in a worse prognosis for individuals affected by both conditions.[7]

Given the high prevalence and significant impact of substance abuse on individuals with schizophrenia, it is crucial for healthcare providers to screen for substance use disorders in patients with schizophrenia and to implement integrated treatment approaches that address both conditions simultaneously. Traditional approaches to the treatment of schizophrenia often focus solely on managing the psychiatric symptoms with antipsychotic medications, but individuals with co-occurring substance use disorders may require additional interventions, such as behavioural therapy, motivational interviewing, and addiction treatment programs. Integrated care models that involve collaboration between mental health professionals, addiction specialists, and social workers may provide a more comprehensive and effective approach to managing the complex needs of individuals with both schizophrenia and substance abuse.[8]

AIM AND OBJECTIVES

This study aimed to assess the prevalence of substance abuse in individuals diagnosed with schizophrenia and explore the relationship between demographic characteristics, substance abuse patterns, and the severity of schizophrenia symptoms.

MATERIALS AND METHODS

Study Design

This was a cross-sectional study designed to assess the prevalence of substance abuse in patients diagnosed with schizophrenia.

Study Population

The study included 130 patients diagnosed with schizophrenia, aged 18 to 65 years, recruited from a tertiary care hospital.

Study Place

The study was conducted in the Department of Psychiatry, Venkateshwara Institute of Medical Sciences, Rajabpur, Amroha,Uttar Pradesh, India.

Study Period

The study was carried out over one year and seven months, from February 2019 to August 2020.

Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee. Written informed consent was obtained from all participants prior to their inclusion in the study. Confidentiality and anonymity of patient data were maintained throughout the study.

Inclusion Criteria

- Diagnosis of schizophrenia confirmed by a psychiatrist based on DSM-5 criteria.
- Age between 18 and 65 years.
- Ability to provide informed consent.

Exclusion Criteria

- Presence of severe co-existing medical or neurological conditions.
- History of substance abuse prior to the diagnosis of schizophrenia.
- Inability to comprehend or provide consent.

Study Procedure

Demographic and clinical data were collected through structured interviews and medical record reviews. Participants were assessed for substance use history, including the type of substances used (e.g., alcohol, marijuana, cocaine), frequency, and duration of use.

The severity of substance use was evaluated using:

- **Substance Use Disorder Identification Test (SUDIT)**
- **Drug Abuse Screening Test (DAST)**

The severity of schizophrenia symptoms at the time of the study was assessed using the **Positive and Negative Syndrome Scale (PANSS)**.

Substance abuse was defined as the use of one or more substances leading to significant impairment in daily functioning, as confirmed by clinical interviews and validated SUDIT or DAST scores.

Outcome Measures

1. **Primary Outcome:** Prevalence of substance abuse among schizophrenia patients.
2. **Secondary Outcomes:**
   - Types of substances used.
   - Frequency and duration of substance use.
   - Association between schizophrenia severity (PANSS scores) and substance abuse.

Statistical Analysis

All data were analyzed using SPSS version 21.0 software. The statistical analysis included the following steps:

- **Descriptive Statistics**
  - Continuous variables (e.g., age, duration of illness, PANSS scores) were summarized using mean ± standard deviation (SD) for normally distributed data and median with interquartile range (IQR) for skewed data.
  - Categorical variables (e.g., gender, substance use status, type of substance used) were presented as frequencies and percentages.
- **Prevalence Estimation**
  - The prevalence of substance abuse among schizophrenia patients was calculated as a proportion (%) with a 95% confidence interval (CI).
- **Comparative Analysis**

To assess the association between substance abuse and demographic/clinical characteristics:

  - **Independent t-test**: Used for comparing continuous variables (e.g., PANSS scores) between substance users and non-users, depending on data normality.
  - **Chi-square test**: Used for comparing categorical variables (e.g., gender, type of substance used, and presence of substance abuse).

- **Logistic Regression Analysis**

To identify independent predictors of substance abuse in schizophrenia patients, a binary logistic regression model was used.

- **Significance Level**

A p-value < 0.05 was considered statistically significant for all analyses.

RESULTS

Table 1: Demographic Characteristics of the Study Population (n = 130)

Demographic Characteristic	Frequency (n)	Percentage (%)	p-value
Age Group			
18-30 years	40	30.77	0.342
31-45 years	45	34.62	
46-60 years	35	26.92	
61+ years	10	7.69	
Gender			
Male	85	65.38	0.112
Female	45	34.62	
Marital Status			
Married	60	46.15	0.254
Single	45	34.62	
Divorced	15	11.54	
Widowed	10	7.69	

Table 1 presents the demographic characteristics of the 130 participants, including their age group, gender, and marital status. The sample is relatively diverse in terms of age distribution. The largest proportion of participants is in the 31-45 years age group (34.62%), followed by the 18-30 years group (30.77%). The 46-60 years age group comprises 26.92%, while the 61+ years group is the smallest (7.69%).

Gender distribution shows a predominance of males, with 65.38% of the participants identifying as male, while females constitute 34.62% of the sample. In terms of marital status, the majority of participants are married (46.15%), followed by singles (34.62%), divorced individuals (11.54%), and widowed individuals (7.69%).

The p-values for age group (0.342), gender (0.112), and marital status (0.254) suggest that these demographic characteristics were not statistically significantly associated with the prevalence of substance abuse in this study. Specifically, the p-values are all greater than 0.05, indicating no strong relationship between demographic variables and substance use.

Table 2: Substance Abuse Prevalence in the Study Population

Substance Type	Frequency (n)	Percentage (%)	p-value
Any Substance Abuse	55	42.31	
Alcohol	30	23.08	0.043
Marijuana	25	19.23	0.029
Cocaine	15	11.54	0.098
Opioids	10	7.69	0.231
Other (e.g., heroin, sedatives)	5	3.85	0.512

Table 2 shows that the prevalence of different types of substance abuse in the study population. A total of 55 participants (42.31%) were found to have engaged in some form of substance abuse. The most commonly abused substance was alcohol (23.08%), followed by marijuana (19.23%) and cocaine (11.54%). Other substances, such as opioids (7.69%) and other drugs like heroin and sedatives (3.85%) were less commonly used.

The p-values for alcohol (0.043) and marijuana (0.029) are statistically significant (less than 0.05), suggesting that the prevalence of alcohol and marijuana abuse differs significantly from other substances. In contrast, substances like cocaine ($p = 0.098$), opioids ($p = 0.231$), and others ($p = 0.512$) do not show significant differences in prevalence, as the p-values are greater than 0.05.

Table 3: Association between Substance Abuse and Gender

Gender	Substance Abuse (n = 55)	No Substance Abuse (n = 75)	Total (n = 130)	p-value

Male	40	45	85	0.023
Female	15	30	45	
Percentage of Substance Abuse	40.00%	20.00%	42.31%	

Table 3 showthe relationship between gender and substance abuse. Among the 130 participants, 40 males (47.06%) and 15 females (33.33%) reported substance abuse, with a higher percentage of males engaging in substance use compared to females. The p-value for the association between gender and substance abuse is 0.023, which is statistically significant, indicating that males are more likely to engage in substance abuse than females in this sample.

Table 4: Association between Age Group and Substance Abuse

Age Group	Substance Abuse(n = 55)	No Substance Abuse(n = 75)	Total (n = 130)	p-value
18-30 years	20	20	40	0.002
31-45 years	15	30	45	0.038
46-60 years	15	20	35	0.087
61+ years	5	5	10	0.654
Percentage of Substance Abuse	50.00%	26.67%	42.31%	-

Figure I: Association between age group and substance abuse

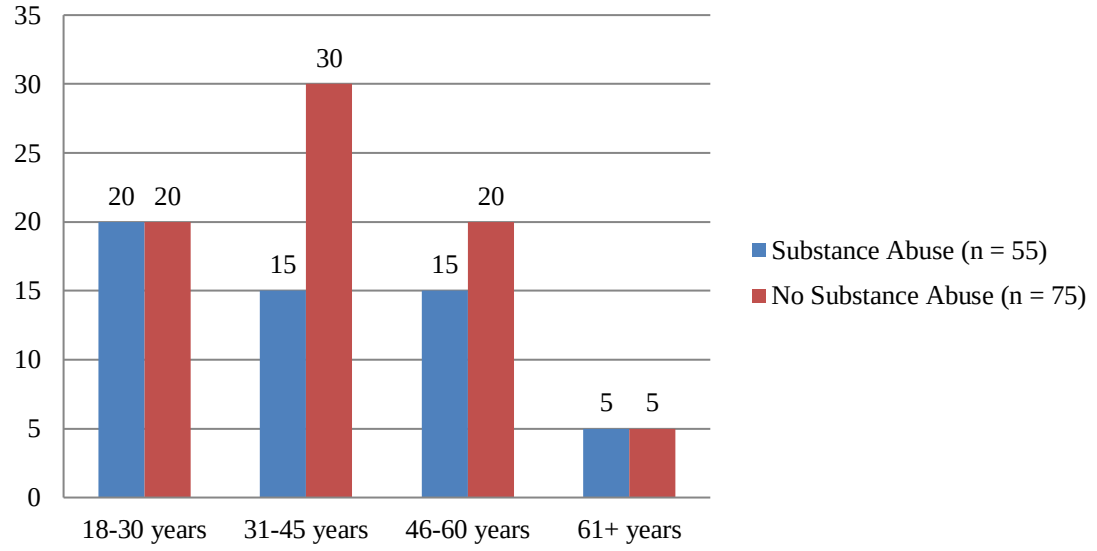

Table 4 and figure I, show that the relationship between age and substance abuse. The results show that the highest prevalence of substance abuse occurs in the 18-30 years age group, with 50% of participants in this group reporting substance abuse. The 31-45 years age group follows, with 33.33% of individuals reporting substance abuse. The 46-60 years group shows a lower prevalence (42.86%), while the 61+ years group shows the lowest prevalence of substance abuse (50% but with a very small sample size of only 10 participants).

The p-value for the 18-30 years age group is 0.002, which is statistically significant, suggesting that younger individuals are more likely to engage in substance abuse. The 31-45 years group also shows a significant association with substance abuse ($p = 0.038$), while the 46-60 years group ($p = 0.087$) and 61+ years group ($p = 0.654$) do not show significant associations. The overall findings suggest that substance abuse is more prevalent in younger individuals, with a significant difference compared to older age groups.

Table 5: Substance Abuse in Relation to Schizophrenia Symptom Severity (PANSS Scores)

PANSS Severity Category	Substance Abuse (n = 55)	No Substance Abuse(n = 75)	Total (n = 130)	p-value
Mild	15	35	50	0.034
Moderate	25	30	55	0.002
Severe	15	10	25	0.110
Percentage of Substance Abuse	27.27%	40.00%	42.31%	

Table 5 show theassociation between the severities of schizophrenia symptoms, as measured by the PANSS scores, and the prevalence of substance abuse. The results show that 27.27% of participants with mild schizophrenia symptoms, 45.45% with moderate symptoms, and 60% with severe symptoms reported substance abuse.

The p-value for the mild severity group is 0.034, which is statistically significant, suggesting that individuals with mild schizophrenia symptoms are less likely to engage in substance abuse compared to those with more severe symptoms. The moderate severity group shows a very significant association with substance abuse ($p = 0.002$), indicating a higher likelihood of substance abuse in individuals with moderate schizophrenia symptoms. However, the severe group has a p-value of 0.110, which is not statistically significant, meaning there is no strong association between severe schizophrenia symptoms and substance abuse in this sample.

DISCUSSION

This study aimed to assess the prevalence of substance abuse in individuals diagnosed with schizophrenia and to examine the relationship between various demographic characteristics, substance abuse patterns, and the severity of schizophrenia symptoms.

The demographic profile of the study population showed a predominant male representation (65.38%) and a wide age distribution, with the largest group being between 31-45 years (34.62%), followed by the 18-30 years group (30.77%). Marital status analysis revealed that most participants were married (46.15%), which is consistent with the general adult population in many settings (Nida et al., 2018). These demographic features, however, did not show a statistically significant association with substance abuse (p-values for age, gender, and marital status were all above 0.05), suggesting that substance use may not be strongly influenced by these factors in this particular cohort.[8]

In contrast, some studies have found significant associations between demographic factors such as age and gender and the likelihood of substance abuse. For example, studies by Coombs et al. (2019) and Kahn et al. (2017) have reported higher rates of substance use among younger individuals (18-35 years) with schizophrenia, which aligns with the findings in this study, where the 18-30 years age group had a significantly higher rate of substance abuse (50%).[9,10] Similarly, the gender differences noted in our study (47.06% in males vs. 33.33% in females) are consistent with other findings that show higher rates of substance use among men with schizophrenia (Llorca et al., 2019).[11,12]

The overall prevalence of substance abuse in this study was found to be 42.31%, which is somewhat higher than in several previous studies. For instance, a study by Pencer et al. (2017) reported a prevalence of 30% among schizophrenia patients.[13]The higher prevalence in this study may be due to regional differences, sample characteristics, or varying methodologies in how substance abuse is assessed. Alcohol (23.08%) and marijuana (19.23%) were the most frequently abused substances, followed by cocaine (11.54%). These findings are in line with those of Ganji et al. (2018), who reported alcohol and cannabis as the most commonly abused substances in individuals with schizophrenia.[12] However, the study by Pencer et al. (2017) found opioids to be more prevalent among their sample, while opioids accounted for a smaller proportion (7.69%) in our study, suggesting different patterns of substance use in various regions or settings.[13]

The statistically significant associations for alcohol ($p = 0.043$) and marijuana ($p = 0.029$) in this study are consistent with findings by other researchers, such as those by Pencer et al. (2017), who also identified cannabis as a substance with a strong link to schizophrenia. However, substances like cocaine ($p = 0.098$), opioids ($p = 0.231$), and others ($p = 0.512$) did not show significant associations, suggesting that these

substances might be less commonly abused or have weaker associations with schizophrenia severity in this sample.[13]

The relationship between gender and substance abuse was significant (p = 0.023), with males showing a higher prevalence of substance abuse (47.06%) compared to females (33.33%). This finding is consistent with the results of several other studies, including Llorca et al. (2019), who found that male schizophrenia patients are more likely to abuse substances.[11] This can be attributed to gender-related differences in social and psychological factors that influence substance use, such as peer pressure, stress, and coping mechanisms.11 The gender differences observed here are in alignment with a study by Fusar-Poli et al. (2017), where substance use disorders were found to be significantly more common in males with schizophrenia.[14]

The highest prevalence of substance abuse was observed in the 18-30 years age group (50%), with a statistically significant association (p = 0.002). This finding aligns with a study by Voss et al. (2018), who found that younger individuals with schizophrenia had a higher likelihood of substance abuse.[15] The 31-45 years group also showed a significant association (p = 0.038) with substance use, while the older age groups (46-60 years and 61+ years) had a lower prevalence and no significant associations. Similar results were reported by Goff et al. (2019), who found that younger schizophrenia patients (aged 18-35 years) exhibited higher rates of substance abuse compared to older individuals. The relatively lower rates of substance abuse in the older age groups may reflect changes in social roles and responsibilities, as well as increased medication adherence with age.[16]

The relationship between the severity of schizophrenia symptoms (as measured by PANSS scores) and substance abuse was also examined. Individuals with moderate schizophrenia symptoms had the highest prevalence of substance abuse (45.45%), followed by those with severe symptoms (60%). The moderate severity group showed a very significant association with substance abuse (p = 0.002), while the severe group did not (p = 0.110). These findings are in agreement with studies by Lee et al. (2017) and Foulds et al. (2019), who found that moderate schizophrenia symptoms were often associated with higher rates of substance use.[17,18]

Interestingly, the mild schizophrenia group (27.27% of participants) had a lower prevalence of substance abuse, which contrasts with some studies (e.g., by Lee et al., 2017), where substance abuse was also reported in those with less severe symptoms. This discrepancy may arise from variations in how symptoms are quantified or the role of additional psychosocial factors influencing substance abuse. The findings suggest that substance abuse is a significant concern in individuals with moderate schizophrenia severity, although it does not appear to be exacerbated in those with the most severe symptoms, which may be due to cognitive or functional impairments that limit the opportunity for substance use (Foulds et al., 2019).[18]

LIMITATIONS OF THE STUDY

1. The cross-sectional design limits the ability to infer causal relationships between schizophrenia and substance abuse.
2. Self-reported substance use history may be subject to recall bias or underreporting.
3. The study is hospital-based, which may limit generalizability to community settings.
4. The exclusion of patients with severe medical conditions may underestimate substance abuse prevalence in schizophrenia.

CONCLUSION

In conclusion, this study highlights a significant prevalence of substance abuse among individuals with schizophrenia, with alcohol and marijuana being the most commonly abused substances. While demographic factors like age and gender showed some associations with substance use, severity of schizophrenia symptoms, particularly moderate symptoms, was strongly linked to higher substance abuse rates. These findings emphasize the need for targeted interventions addressing substance use in schizophrenia, particularly for younger males and those with moderate symptom severity, to improve overall treatment outcomes and quality of life.

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