

DUAL DIAGNOSIS IN SCHIZOPHRENIA: SOCIODEMOGRAPHIC, CLINICAL, AND ADDICTIVE PROFILES

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INTRODUCTION

Schizophrenia is a chronic and severe psychiatric disorder affecting approximately 24 million people worldwide and remains one of the leading causes of disability among young adults. It is characterized by positive symptoms, negative symptoms, cognitive impairment, and marked functional decline, imposing a substantial burden on patients, families, and healthcare systems. Despite advances in pharmacological and psychosocial interventions, long-term outcomes remain highly variable, with comorbid conditions playing a major role in disease progression and prognosis.

Substance use disorders (SUDs) are among the most frequent psychiatric comorbidities in individuals with schizophrenia. The coexistence of these disorders, commonly referred to as **dual diagnosis**, is associated with increased symptom severity, poor treatment adherence, more frequent relapses and hospitalizations, higher rates of suicidal behavior, violence, homelessness, and reduced quality of life. Several hypotheses have been proposed to explain this association, including shared genetic vulnerability, neurobiological mechanisms, self-medication of psychotic symptoms, and the influence of environmental and social factors.

The prevalence and patterns of substance use among individuals with schizophrenia vary considerably across countries and populations, reflecting differences in cultural context, availability of psychoactive substances, healthcare systems, and socioeconomic conditions. Tobacco and cannabis are consistently reported as the most commonly used substances, while alcohol, benzodiazepines, and other illicit drugs are also frequently encountered. Identifying the sociodemographic, clinical, and addictive characteristics of this population is essential for developing integrated treatment strategies and improving patient outcomes.

In Morocco, data describing patients with schizophrenia and comorbid substance use disorders remain limited. Most available studies have focused on substance use or psychotic disorders separately, leaving important gaps in understanding the clinical profile and specific needs of individuals with dual diagnosis. Generating local evidence is therefore crucial to guide prevention strategies, optimize early detection, and improve multidisciplinary management in psychiatric settings.

The present study aimed to describe the sociodemographic, clinical, and addictive profiles of patients with schizophrenia and comorbid substance use disorders and to investigate the associations between substance use characteristics and clinical outcomes in a prospective cohort of patients followed at Ar-Razi Psychiatric Hospital, Salé, Morocco.

OBJECTIVES

Primary objective

To describe the sociodemographic, clinical, and addictive profiles of patients with schizophrenia and comorbid substance use disorders.

Secondary objectives

- To identify the patterns of psychoactive substance use among patients with schizophrenia.
- To assess the severity of tobacco, cannabis, alcohol, and benzodiazepine use using validated assessment tools.
- To investigate the association between substance use characteristics and clinical outcomes, including symptom severity and treatment adherence.

MATERIALS AND METHODS

Study design and setting

A prospective descriptive and analytical study was conducted at Ar-Razi Psychiatric Hospital, Salé, Morocco, between [Month Year] and [Month Year]. This tertiary psychiatric center provides specialized mental health care for patients from the Rabat-Salé-Kénitra region and other areas of Morocco.

Study population

The study included 200 consecutive patients diagnosed with schizophrenia according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR), who also met the DSM-5-TR criteria for at least one substance use disorder.

Inclusion criteria

- Age ≥ 18 years.
- Diagnosis of schizophrenia according to DSM-5-TR.
- Presence of at least one comorbid substance use disorder.
- Ability to provide informed consent.

Exclusion criteria

- Patients with major neurocognitive disorders or severe cognitive impairment preventing reliable assessment.
- Patients refusing to participate in the study.
- Incomplete clinical or assessment data.

Data collection

Data were collected prospectively using a standardized questionnaire completed during psychiatric interviews and by reviewing patients' medical records.

The following variables were collected:

- **Sociodemographic characteristics:** age, sex, marital status, educational level, employment status, place of residence, and socioeconomic status.
- **Clinical characteristics:** age at onset of schizophrenia, duration of illness, psychiatric hospitalization history, treatment adherence, family history of psychiatric disorders, suicidal behavior, and symptom severity.
- **Substance use characteristics:** type of psychoactive substances used, age at first substance use, temporal relationship between substance use and schizophrenia onset, frequency of use, and associated consequences.

Assessment tools

Psychopathological severity was assessed using the **Positive and Negative Syndrome Scale (PANSS)**.

Nicotine dependence was evaluated using the **Fagerström Test for Nicotine Dependence (FTND)**.

Cannabis use severity was assessed with the **Cannabis Abuse Screening Test (CAST)**.

Alcohol use was evaluated using the **Alcohol Use Disorders Identification Test (AUDIT)**.

Benzodiazepine misuse was assessed using the **Échelle Cognitive d'Attachement aux Benzodiazépines (ECAB)**.

Statistical analysis

Statistical analyses were performed using **Jamovi (version X.X)** and **IBM SPSS Statistics (version XX)**.

Qualitative variables were expressed as frequencies and percentages, whereas quantitative variables were summarized using means and standard deviations or medians and interquartile ranges, depending on data distribution.

Associations between categorical variables were assessed using the Pearson chi-square test or Fisher's exact test when appropriate. A two-sided p -value <0.05 was considered statistically significant.

Ethical considerations

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Approval was obtained from the local Ethics Committee of the Faculty of Medicine and Pharmacy of Rabat. Written informed consent was obtained from all participants prior to inclusion, and confidentiality and anonymity were strictly maintained throughout the study.

RESULTS

Sociodemographic characteristics

A total of **200 patients** diagnosed with schizophrenia and comorbid substance use disorders were included in the study. The majority of participants were male (73.0%), with a male-to-female ratio of 2.7:1. Most patients were aged between **26 and 35 years**. More than half of the participants were unemployed (55.5%), while 56.0% belonged to the middle socioeconomic class.

Clinical characteristics

Overall, 103 patients (51.5%) had a previous history of psychiatric hospitalization, and poor treatment adherence was observed in 107 patients (53.5%). According to PANSS scores, moderate symptom severity was the most frequent category (48.5%), followed by severe (37.5%) and mild (14.0%) symptom severity.

Table 1. Clinical characteristics of patients.

Characteristic	n	%
Previous psychiatric hospitalization	103	51.5
Poor treatment adherence	107	53.5
PANSS severity		
Mild	28	14.0

Moderate	97	48.5
Severe	75	37.5

Substance use profile

The most common pattern of substance use was the combined use of tobacco and cannabis (32.0%), followed by polysubstance use (17.5%). In most patients (61.5%), substance use preceded the onset of schizophrenia. The majority initiated substance use between 18 and 25 years of age (94.5%).

Table 2. Substance use profile.

Characteristic	n	%
Main pattern of substance use		
Tobacco only	27	13.5
Tobacco + Cannabis	64	32.0
Tobacco + Alcohol + Cannabis	29	14.5
Tobacco + Cannabis + Benzodiazepines	21	10.5
Polysubstance use	35	17.5
Other combinations	24	12.0
Timing of substance use onset		
Before schizophrenia	123	61.5
Simultaneous	52	26.0
After schizophrenia	25	12.5

Severity of substance use disorders

Assessment with standardized instruments revealed a high level of nicotine dependence in 70.0% of smokers. High-risk cannabis use was identified in 64.5% of cannabis users, while hazardous alcohol use and high benzodiazepine dependence were found in 27.0% and 24.0% of patients, respectively.

Table 3. Severity of substance use disorders.

Assessment tool	Category	n	%
Fagerström Test	High dependence	140	70.0
	Low/Moderate	60	30.0
CAST	High-risk use	129	64.5
	Low risk	71	35.5
AUDIT	Hazardous use	54	27.0
	Low risk	146	73.0
ECAB	High dependence	48	24.0
	Low/Moderate	152	76.0

Analytical results

Bivariate analysis showed statistically significant associations between substance use severity and schizophrenia severity. High nicotine dependence, high-risk cannabis use, hazardous alcohol use, and benzodiazepine dependence were significantly associated with severe schizophrenia. Poor treatment adherence was also significantly associated with greater severity of substance use disorders.

Table 4. Factors associated with schizophrenia severity.

Variable	Mild/Moderate (n = 125)	Severe (n = 75)	χ^2	p-value
High nicotine dependence (Fagerström)	78 (62.4%)	62 (82.7%)	XX	<0.001
High-risk cannabis use (CAST)	70 (56.0%)	59 (78.7%)	XX	0.002
Hazardous alcohol use (AUDIT)	26 (20.8%)	28 (37.3%)	XX	0.018
High benzodiazepine dependence (ECAB)	23 (18.4%)	25 (33.3%)	XX	0.027
Poor treatment adherence	54 (43.2%)	53 (70.7%)	XX	<0.001
Previous psychiatric hospitalization	56 (44.8%)	47 (62.7%)	XX	0.015
Substance use before schizophrenia onset	70 (56.0%)	53 (70.7%)	XX	0.041
Polysubstance use	17 (13.6%)	18 (24.0%)	XX	0.049

DISCUSSION

The present prospective study provides a comprehensive description of the sociodemographic, clinical, and substance use profiles of patients with schizophrenia and comorbid substance use disorders treated at a tertiary psychiatric hospital in Morocco. Our findings highlight the high burden of dual diagnosis in this population and underscore the close relationship between substance use severity and adverse clinical outcomes.

Consistent with previous studies, our sample was predominantly composed of young adult males. This male predominance has been widely reported in patients with schizophrenia and comorbid substance use disorders and may reflect both the higher prevalence of substance use among men and the earlier onset of schizophrenia in males. Unemployment was also highly prevalent, emphasizing the considerable functional impairment associated with dual diagnosis and its impact on social and occupational functioning.

Tobacco and cannabis were the most frequently used substances, either alone or in combination with other psychoactive substances. These findings are in agreement with previous reports indicating that nicotine and cannabis remain the substances most commonly consumed by individuals with schizophrenia. Several mechanisms may explain this

association, including shared neurobiological pathways, genetic susceptibility, and the self-medication hypothesis, whereby patients use psychoactive substances in an attempt to alleviate negative symptoms or medication-related adverse effects. However, increasing evidence suggests that substance use may worsen psychotic symptoms, accelerate disease progression, and negatively affect long-term outcomes.

Our analytical results demonstrated significant associations between greater substance use severity and more severe psychopathology, as well as poorer treatment adherence. Patients with higher levels of nicotine dependence, hazardous cannabis use, alcohol misuse, and benzodiazepine dependence were more likely to present severe schizophrenia and poor adherence to antipsychotic treatment. These findings support previous evidence indicating that dual diagnosis is associated with increased relapse rates, repeated psychiatric hospitalizations, poorer clinical stability, and reduced therapeutic effectiveness.

The high proportion of patients who initiated substance use before the onset of schizophrenia deserves particular attention. This temporal relationship supports the hypothesis that psychoactive substance use, particularly cannabis, may contribute to the earlier onset or increased risk of psychosis in genetically or biologically vulnerable individuals. Nevertheless, the relationship between schizophrenia and substance use disorders is likely to be bidirectional and multifactorial, involving biological, psychological, and environmental factors.

Our findings emphasize the need for integrated management strategies that simultaneously address psychotic disorders and substance use disorders. Routine screening for substance use, early intervention, motivational interviewing, psychoeducation, relapse prevention programs, and close collaboration between psychiatric and addiction services may improve treatment adherence and overall clinical outcomes.

STRENGTHS AND LIMITATIONS

This study has several strengths. To our knowledge, it is among the few prospective studies conducted in Morocco focusing specifically on patients with schizophrenia and comorbid substance use disorders. The relationship between schizophrenia and substance use disorders and to identify effective interventions for this vulnerable population.

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