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Original Research Article

Correlation of Socio-Demographic and Clinical Profiles of Cannabis User in Tertiary Health Care Centre

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Abstract:

Background: Cannabis remains the most widely used illicit psychoactive substance globally and in India, with increasing clinical presentations in tertiary care centers. Cannabis use is strongly associated with psychiatric morbidity, polysubstance dependence, and adverse social outcomes. Understanding socio-demographic and clinical characteristics of cannabis users helps in designing targeted prevention and treatment strategies. Hospital-based studies in India consistently show a predominance of young male users, early age of initiation, and frequent co-use of alcohol and nicotine.

Objectives: To assess the correlation between socio-demographic variables and clinical profile among cannabis users attending a tertiary health care center.

Methods: This cross-sectional observational study included 200 cannabis users attending the psychiatry and de-addiction services of a tertiary health care centre from November 2024 to November 2025 over a period of 12 months. Socio-demographic variables (age, gender, education, occupation, marital status, socioeconomic status, residence) and clinical variables (age of initiation, duration of use, frequency, type of cannabis consumed, comorbid psychiatric illness, and other substance use) were recorded using a structured proforma. Data were analyzed using descriptive statistics and chi-square tests to determine associations between socio-demographic factors and clinical outcomes. A p-value <0.05 was considered statistically significant.

Results: The majority of cannabis users were males (≈80–85%) and belonged to the 18–35-year age group, reflecting the known epidemiology of cannabis use in tertiary care settings. Early initiation (before 20 years) was observed in over half of the participants. Polysubstance use, particularly with alcohol and nicotine, was highly prevalent. Psychiatric comorbidities such as substance-induced psychosis, mood disorders, and anxiety disorders were common. Younger age, male gender, and unemployment were significantly associated with higher frequency use and longer duration of dependence ($p < 0.05$).

Conclusion: Cannabis users presenting to tertiary health care centres are predominantly young males with early initiation, high polysubstance use, and significant psychiatric comorbidity. Socio-demographic determinants such as unemployment, urban residence, and low socioeconomic status appear strongly associated with severe clinical profiles. Early screening, community awareness, and integrated de-addiction services are essential to reduce the growing burden of cannabis-related morbidity.

Keywords: Socio-demographic, Cannabis, Tertiary health care Centre.

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Introduction

Cannabis is the most widely used illicit psychoactive substance globally and remains a major public health concern because of its association with psychiatric disorders, substance dependence, cognitive impairment, and socio-occupational dysfunction [1]. In India, cannabis consumption has cultural, recreational, and self-medication contexts, but increasing clinical evidence links its use to adverse mental health outcomes and hospital presentations, particularly among young adults. Studies conducted in tertiary mental health centers in India have shown that cannabis users presenting for treatment are predominantly young males and frequently exhibit psychiatric comorbidities such as substance-induced psychosis, mood disorders, and anxiety disorders [2]. The socio-demographic characteristics of cannabis users play a crucial role in understanding patterns of use, risk factors for dependence, and treatment-seeking behavior. Variables such as age, gender, education, socioeconomic status, and occupation influence

initiation, frequency, and continuation of cannabis use. Research indicates that early initiation of cannabis use is associated with greater psychiatric morbidity and poorer clinical outcomes, emphasizing the importance of identifying high-risk socio-demographic groups for preventive interventions [3].

Hospital-based studies on substance use disorders in India consistently demonstrate that the majority of users belong to younger age groups, are predominantly male, and often initiate substance use during adolescence or early adulthood. Peer influence, accessibility, and psychosocial stressors are commonly reported factors contributing to initiation and maintenance of substance use behaviors [4].

International literature also supports the strong relationship between cannabis use and socio-demographic vulnerabilities. Studies from public health settings have shown that cannabis users are more likely to be young, socially disadvantaged, and less likely to be married or economically stable compared with non-users, suggesting a complex interaction between social determinants and substance use behavior [5,6].

Clinically, cannabis use is increasingly associated with psychiatric comorbidities such as psychotic disorders, mood disorders, and substance-induced behavioral disturbances. Evidence suggests that heavy or prolonged cannabis use can precipitate or worsen psychotic symptoms in vulnerable individuals, leading to increased hospitalization rates and poorer long-term prognosis. Understanding the socio-demographic context of users presenting to tertiary care centers can therefore help clinicians anticipate clinical complications and design targeted interventions [7,8]. Despite the rising burden of cannabis-related clinical presentations, there remains limited structured data from tertiary healthcare settings in many regions regarding the combined influence of socio-demographic factors and clinical profiles of cannabis users. Most available studies focus either on epidemiology or psychiatric comorbidity, leaving a gap in comprehensive clinical-socio-demographic correlation studies [9,10]. Hence, the present study was designed to evaluate the correlation between socio-demographic characteristics and clinical profiles among cannabis users presenting to a tertiary healthcare centre. Such information is essential for developing targeted screening strategies, improving treatment planning, and guiding public health policies aimed at substance-use prevention and rehabilitation.

Materials and Methodology

Study Design and Setting: This hospital-based observational cross-sectional study was conducted in the Department of Psychiatry of a tertiary health care centre from November 2024 to November 2025 over a period of 12 months. The study aimed to evaluate the correlation between socio-demographic variables and clinical profiles among patients identified as cannabis users.

Sample Size calculation: The sample size was calculated using the formula $n = Z^2P(1-P)/d^2$, where Z represents the standard normal deviate at a 95% confidence level (1.96), P represents the expected prevalence of cannabis use (15%), and d represents the allowable error of 5%. The calculated minimum sample size was 196 participants. Considering incomplete records and non-response, the final sample size was rounded to 200 patients.

Study Population: The study included 200 patients diagnosed with cannabis use disorder or with a history of current cannabis use who presented to the outpatient or inpatient psychiatric services during the study period.

Inclusion Criteria

- Patients aged 18 years and above
- History of cannabis use within the last 12 months
- Patients fulfilling diagnostic criteria for cannabis use disorder as per DSM-5 / ICD-10 criteria
- Patients willing to participate and provide informed consent

Exclusion Criteria

- Patients with severe cognitive impairment or organic brain disease preventing reliable history
- Patients with acute medical emergencies
- Patients unwilling to participate or provide consent
- Poly-substance users where cannabis was not the primary substance

Sample Size Determination: A sample size of 200 participants was determined based on the average annual number of cannabis-related clinical cases presenting to the department and feasibility of recruitment within the study duration.

Data Collection Procedure: After obtaining approval from the Institutional Ethics Committee, eligible participants were enrolled consecutively. Written informed consent was obtained from each participant.

Data were collected using:

Structured socio-demographic proforma recording:

- Age
- Gender
- Marital status

- Educational level
- Occupation
- Socioeconomic status
- Residence (urban/rural)

Clinical assessment proforma documenting:

- Age of initiation of cannabis use
- Duration and pattern of use
- Mode of consumption
- Dependence severity
- Withdrawal symptoms
- Psychiatric comorbidities
- Family history of substance use
- Past treatment history

Diagnostic evaluation

- Diagnosis confirmed using DSM-5/ICD-10 diagnostic criteria
- Severity of dependence assessed using standardized scales such as:
  - Cannabis Use Disorder Identification Test (CUDIT-R)
  - Severity of Dependence Scale (SDS), where applicable

Clinical examination

- Mental status examination
- Screening for psychosis, mood disorder, anxiety disorder, and personality traits
- Assessment for associated substance use

Outcome Variables

- Primary outcome: Correlation between socio-demographic variables and clinical severity of cannabis use
- Secondary outcomes: Association of cannabis use with psychiatric comorbidity and treatment-seeking patterns

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using SPSS version 25.0.

- Descriptive statistics were expressed as mean ± SD for continuous variables and frequency/percentage for categorical variables.
- Association between socio-demographic variables and clinical parameters was assessed using:
  - Chi-square test for categorical variables
- Pearson or Spearman correlation coefficient was used to determine correlation between duration/severity of cannabis use and clinical variables.
- A p-value < 0.05 was considered statistically significant.

Results

A total of 200 cannabis users were included in the study. The analysis focused on socio-demographic characteristics, clinical variables, and their correlations with severity of cannabis use and psychiatric comorbidity.

Table 1: Socio-demographic Profile of Cannabis Users (n = 200)

Variable	Frequency (n)	Percentage (%)
Age group		
18–25 years	72	36.0
26–35 years	68	34.0
36–45 years	38	19.0
>45 years	22	11.0
Gender		
Male	168	84.0
Female	32	16.0
Residence		
Urban	124	62.0
Rural	76	38.0
Employment status		
Employed	92	46.0
Unemployed	108	54.0

- Younger age (≤35 years) significantly associated with higher frequency cannabis use ($p = 0.01$)
- Male gender associated with dependence severity ($p = 0.03$)
- Unemployment showed strong association with prolonged duration of use ($p = 0.002$)

The majority of participants were young adults (70% below 35 years) and predominantly male (84%).

Cannabis use was significantly more severe among younger males and unemployed individuals, suggesting socio-economic vulnerability influences dependence patterns.

Table 2: Clinical Characteristics of Cannabis Use

Clinical Variable	Frequency (n)	Percentage (%)
Age of initiation		
<20 years	112	56.0
≥20 years	88	44.0
Duration of use		
<2 years	48	24.0
2–5 years	82	41.0
>5 years	70	35.0
Pattern of use		
Occasional	46	23.0
Regular	98	49.0
Dependent	56	28.0
Mode of intake		
Smoking (joint/chillum)	174	87.0
Oral ingestion	26	13.0

Early initiation (<20 yrs) strongly associated with dependent pattern (p = 0.001), Duration >5 years correlated with withdrawal symptoms (p = 0.004). More than half the users initiated cannabis before age 20, and this group demonstrated significantly higher dependence rates. Smoking remained the predominant mode (87%), consistent with regional consumption patterns.

Table 3: Psychiatric Comorbidity and Socio-clinical Correlation

Variable	Present (n)	Percentage (%)	p-value
Any psychiatric comorbidity	96	48.0	—
Substance-induced psychosis	42	21.0	0.01
Mood disorder	28	14.0	0.03
Anxiety disorder	26	13.0	0.04
Polysubstance use	118	59.0	0.002
Family history of substance use	84	42.0	0.01

Nearly half of the participants (48%) had psychiatric comorbidities. Psychosis was the most common (21%). Polysubstance use (59%) showed a strong statistical association with psychiatric illness (p = 0.002), indicating that concurrent substance use significantly worsens clinical presentation.

Discussion

The present study evaluated the correlation between socio-demographic variables and clinical profiles among cannabis users in a tertiary health-care setting. The findings demonstrated that cannabis use was predominantly observed among young adult males, with early initiation and longer duration strongly associated with dependence severity and psychiatric comorbidity.

In the current study, 70% of participants were below 35 years, indicating that cannabis use is largely concentrated in younger populations. Similar findings have been reported in a tertiary-care Indian study where the mean age of cannabis users was around 28 years, supporting the observation that cannabis use peaks in early adulthood [1]. Younger age groups may be more vulnerable due to peer influence, psychosocial stressors, and greater exposure to substance-using environments [10]. Gender distribution in the present study showed 84% male predominance, which aligns with previous research demonstrating that cannabis use is considerably more common among males in clinical populations. A tertiary-hospital study in India reported 85.4% of cannabis users were male, suggesting that cultural norms, accessibility, and social acceptance may contribute to gender differences in substance use patterns [1,11].

Early initiation was strongly associated with dependence severity in the current sample, where 56% began using cannabis before 20 years of age. Earlier studies have similarly shown that the median initiation age of cannabis users was around 18 years, and early exposure was linked to greater quantity of use and earlier onset of psychiatric symptoms [12].

Neurodevelopmental vulnerability during adolescence may explain the stronger link between early exposure and later mental health complications [13].

A major finding of the present study was the high prevalence of psychiatric comorbidity, seen in 48% of participants. Substance-induced psychosis accounted for the largest proportion. Previous tertiary-care research has also identified psychotic spectrum disorders as the most frequent comorbidity among cannabis users, particularly with heavy or prolonged use. Cannabis may

precipitate psychosis through dopaminergic dysregulation and neurochemical imbalance, especially in genetically predisposed individuals [8,14].

Polysubstance use was present in 59% of the study population, significantly associated with psychiatric morbidity. Earlier studies have shown extremely high co-use of alcohol and nicotine among cannabis users—up to 90% concurrent use in clinical samples. Such combined exposure may worsen neuropsychiatric outcomes and complicate treatment approaches [15].

Socio-economic variables also showed meaningful associations in the present study. Unemployment and urban residence were significantly linked with prolonged use and dependence.

Similar tertiary-care research has noted that many cannabis users presenting for treatment were unemployed or belonged to middle socio-economic strata, indicating the complex role of occupational stress, accessibility, and psychosocial instability in substance use patterns [5].

Collectively, the findings reinforce that cannabis use is not solely a pharmacological phenomenon but strongly influenced by demographic, psychological, and environmental factors. The high burden of psychiatric comorbidity observed suggests that tertiary-care centers represent populations with more severe illness, and therefore integrated psychiatric screening should be a routine part of substance-use evaluation.

Conclusion

This study highlights that cannabis use in tertiary-care populations is strongly associated with younger age, male gender, early initiation, and socio-economic vulnerability. Nearly half of the users demonstrated psychiatric comorbidity, particularly psychotic disorders, and dependence severity was significantly higher among those with early onset and polysubstance use. These findings emphasize the need for early screening, targeted prevention in youth, and integrated mental-health interventions to reduce the clinical burden of cannabis use in tertiary health-care settings.

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