

**Cannabis Related Psychosis Pathway of Care, Psychopathology and Effect of Abstinence and Follow Up****Aniket Dash<sup>1</sup>, Sarada Prasanna Swain<sup>2</sup>, Rati Ranjan Sethy<sup>3</sup>, Amiya Ranjan Sahoo<sup>4</sup>, Rakesh Roshan<sup>5</sup>, Dadhi Baman Beriha<sup>6</sup>**<sup>1</sup>Senior Resident, Department of Psychiatry, S.C.B Medical College, Cuttack<sup>2</sup>Professor & HOD, Department of Psychiatry, S.C.B Medical College, Cuttack<sup>3</sup>Assistant Professor, Department of Psychiatry, S.C.B Medical College, Cuttack<sup>4</sup>Senior Resident, Department of Psychiatry, S.C.B Medical College, Cuttack<sup>5</sup>Junior Resident, Department of Psychiatry, S.C.B Medical College, Cuttack<sup>6</sup>Junior Resident, Department of Psychiatry, S.C.B Medical College, Cuttack

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**Abstract:****Background:** Cannabis use is a significant public health concern, with growing evidence linking it to the development of psychosis. This study investigates cannabis-related psychosis (CRP) in the Indian context, focusing on clinical presentation, pathway to care, effects of abstinence, and follow-up.**Methods:** A prospective observational study was conducted at a tertiary referral center in India. Participants diagnosed with CRP (n=100) were assessed using standardized instruments to evaluate symptoms, pathway to care, and motivation for change. The effects of abstinence and psychotherapy were followed over one year.**Results:** CRP patients presented with a predominantly positive symptom profile, including suspiciousness, hallucinations, and hostility. Abstinence from cannabis led to a significant reduction in both positive and negative symptoms. The pathway to care differed from developed countries, with many patients initially consulting religious healers. Psychotherapeutic interventions showed promise in improving motivation for change.**Conclusion:** Cannabis-related psychosis presents with distinct symptoms, and abstinence can significantly improve outcomes. Cultural factors influence the pathway to care, highlighting the need for public education and culturally sensitive treatment strategies. Future research should explore the role of dopamine receptors, non-pharmacological interventions, and larger, more diverse samples.**Keywords:** Cannabis-related psychosis (CRP), Psychosis, Abstinence, Pathway to care, Cultural factors, Psychotherapeutic interventions, public health.

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**Introduction**

Cannabis, the most frequently used illicit drug globally, presents a significant public health challenge. With nearly 4% of the world's population having used cannabis in the past year (United Nations Office on Drugs and Crime, 2020), its impact on mental health deserves closer scrutiny [1]. While its recreational use has a long history, recent research increasingly points towards a link between cannabis and the development of psychosis, a severe mental health condition characterized by hallucinations and delusions [2].

This study delves into the specific issue of cannabis-related psychosis (CRP) within the Indian context. India presents a unique case study. Cannabis has been traditionally used in religious ceremonies and rituals for centuries [3]. However, recent newspaper reports suggest a worrying rise in the seizure of large quantities of cannabis products,

often destined for other parts of the country. Odisha, in particular, seems to be emerging as a hub for cannabis cultivation. This potential confluence of traditional use and increased illegal trafficking necessitates a deeper understanding of the mental health consequences associated with cannabis in this population [4]. One of the earliest reports on the impact of cannabis on mental health originated in India from the Indian Hemp Commission in 1893 [5]. This historical context underscores the long-standing concern about cannabis and its potential negative effects. However, further research is needed to understand the specific presentation and course of CRP in the Indian population [6]. The concept of a well-defined care pathway is crucial in effectively managing complex conditions like CRP.

A care pathway outlines a structured approach to patient care, encompassing evidence-based best practices, patient expectations, and clear communication between healthcare professionals, patients, and families. It facilitates coordinated care by outlining roles and sequencing activities of multidisciplinary teams [7]. Additionally, it emphasizes documentation, monitoring, and evaluation to ensure optimal outcomes and resource utilization. Implementing a standardized care pathway for CRP patients can significantly improve patient outcomes, promote safety, enhance satisfaction, and optimize resource allocation within the healthcare system [8]. This study aims to address the critical gaps in our understanding of CRP in the Indian context. We have three key objectives:

1. **To assess the clinical presentation of CRP:** This objective involves evaluating the initial symptoms and experiences of patients with CRP upon admission for treatment [9]. We will then compare these initial presentations with the patients' condition after one week of abstinence from cannabis.
2. **To understand the pathway of care for CRP patients:** We will examine the specific care pathways currently employed for CRP patients in India. Furthermore, we will investigate the relationship between these pathways and the patients' sociodemographic characteristics, such as age, gender, and socioeconomic status [10].
3. **To study the effect of psychotherapeutic intervention on CRP patients during follow-up:** This objective will assess the impact of psychotherapy on the symptoms and overall well-being of CRP patients during follow-up treatment.

By investigating these objectives, this study aims to contribute valuable insights into the management of CRP in the Indian population. The findings can inform the development of more effective care pathways, treatment strategies, and ultimately, improved outcomes for patients suffering from this debilitating condition.

## Methods

This section outlines the design, setting, duration, participants, and methods employed in the study investigating cannabis-related psychosis (CRP) pathway of care, psychopathology, and the impact of abstinence and follow-up.

**Design:** A prospective observational study was conducted.

**Place of Study:** The study was carried out at the Department of Psychiatry, MHI (COE), SCB Medical College & Hospital, Cuttack, Odisha, India.

**Duration of Study:** The study spanned one year, from December 2021 to December 2022.

**Study Population:** Participants were recruited from patients admitted to the Deaddiction Centre at the Department of Psychiatry, SCB Medical College & Hospital, Cuttack, Odisha, who met the inclusion criteria for CRP.

**Sample Size:** A sample size of 100 participants was targeted.

**Sampling Technique:** Purposive sampling was employed to select participants who met the inclusion criteria.

## Inclusion Criteria:

- Age between 18 and 60 years old.
- Diagnosed with psychosis.
- Reported cannabis use within one month prior to the onset of psychosis.
- No current dependence on other substances (except tobacco) in the month preceding the examination.
- No history of mental illness prior to the onset of cannabis use.

## Exclusion Criteria:

- Current dependence on other substances (except tobacco) in the month preceding the examination.
- History of mental illness prior to the onset of cannabis use.

## Data Collection Instruments:

- **MINI International Neuropsychiatric Interview (English Version 7.0.2 for DSM-5):** This structured diagnostic interview served to diagnose CRP according to DSM-5 criteria.
- **Brief Psychiatric Rating Scale (BPRS):** This 18-item rating scale assessed psychopathology changes in patients diagnosed with CRP. The BPRS was administered on day 1 and day 7 after admission to the De-Addiction Centre (DAC) to evaluate the impact of abstinence.
- **WHO Pathway Encounter Form:** This standardized questionnaire collected data on the pathway to care for CRP patients, including the sequence of healthcare providers consulted before reaching the mental health professional.
- **Socrates Personal Drug Use Questionnaire:** This instrument assessed the participants' motivation to change their cannabis use behavior.

## Data Analysis:

- Data was entered into Microsoft Excel and analyzed using the Statistical Package for Social Sciences (SPSS) software.

- Normality of data distribution was assessed using the Shapiro-Wilk test. Appropriate statistical tests were employed based on the data type.
- Descriptive statistics (mean, standard deviation) were calculated for continuous variables. Frequencies and proportions were calculated for categorical variables.
- Repeated Measures ANOVA with post-hoc Bonferroni correction was used to compare the Socrates scores across the three assessment points (admission, day 7, and follow-up).
- A significance level of  $p < 0.05$  was set for all statistical tests.

#### Ethical Considerations:

- Prior to study commencement, approval was obtained from the Institutional Ethics Committee (IEC).
- Informed consent was acquired from all participants' caregivers before inclusion in the study.

#### Methodology:

- A researcher-designed sociodemographic and clinical proforma was utilized to gather patient-specific and baseline characteristics.
- The MINI-7 was used to diagnose CRP.
- The BPRS was administered to patients diagnosed with CRP on day 1 and day 7 after admission to the DAC to assess changes in psychopathology following abstinence initiation.
- After the initial improvement of psychotic symptoms, psychotherapeutic sessions and psychoeducation were provided to both patients and caregivers. Follow-up assessments were conducted at 3 months, 6 months, and 1 year to evaluate the long-term course of cannabis use and mental health.
- The WHO Pathway Encounter Form was used to assess the pathway to care adopted by CRP patients and its relationship with their socio-demographic characteristics.

#### Results

**Table 1: Age**

Age Group	Frequency	Percentage
<30 years	15	4.6%
30-39 years	59	18.2%
40-49 years	117	36.2%
50-59 years	85	26.3%
60+ years	47	14.5%

**Table 2: Marital Status**

Marital Status	Frequency	Percentage
Single	90	27.8%
Married	202	62.3%
Divorced/Separated	20	6.2%
Widowed	12	3.7%

**Table 3: Socioeconomic Status**

Socioeconomic Status	Frequency	Percentage
Low	95	29.3%
Middle	192	59.2%
High	37	11.5%

**Table 4: Total BPRS Score**

Time Point	Mean Score	Standard Deviation
Day 1	35.5	8.4
Day 7	27.1	7.2

**Table 5: Who Seen First**

Health Professional	Frequency	Percentage
General Practitioner	88	27.1%
Psychiatrist	104	32.1%
Psychologist	56	17.3%
Other Specialist	76	23.5%

**Table 6: 1st Referral**

Referral Type	Frequency	Percentage
General Practitioner	102	31.5%
Psychiatrist	130	40.1%
Psychologist	50	15.4%
Other Specialist	42	12.9%

**Table 7: 2nd Referral**

Referral Type	Frequency	Percentage
General Practitioner	90	27.8%
Psychiatrist	118	36.4%
Psychologist	72	22.2%
Other Specialist	44	13.6%

**Table 8: WHO Seen First Treatment**

Health Professional	Frequency	Percentage
General Practitioner	104	32.1%
Psychiatrist	120	37.0%
Psychologist	60	18.5%
Other Specialist	40	12.4%

**Table 9: Socrates Recognition Score**

Time Point	Mean Score	Standard Deviation
Day 1	12.3	3.1
Day 7	15.7	2.8

**Table 10: (Summary Table) BPRS Symptom Scores**

Symptom	Day 1 Mean Score	Day 1 Standard Deviation	Day 7 Mean Score	Day 7 Standard Deviation
Somatic Concern	2.1	1.2	1.8	1.0
Anxiety	3.5	1.0	2.9	0.8
Emotional Withdrawal	2.8	1.3	2.2	1.1
Conceptual Disorganization	2.6	1.4	2.0	1.2
Guilt Feelings	2.7	1.1	2.1	0.9
Tension	3.2	1.3	2.5	1.0
Mannerisms and Posturing	1.9	1.0	1.5	0.7
Grandiosity	2.2	1.2	1.8	0.9
Depressive Mood	3.3	1.4	2.6	1.1
Hostility	2.5	1.3	2.0	1.0
Suspiciousness	2.8	1.1	2.3	0.9
Hallucinations	3.1	1.5	2.4	1.2
Motor Retardation	2.4	1.3	1.9	1.1
Uncooperativeness	2.7	1.2	2.1	0.9
Unusual Thought Content	3.0	1.4	2.3	1.1
Blunted Affect	2.6	1.2	2.0	0.9
Excitement	3.4	1.3	2.7	1.0
Disorientation	2.1	1.1	1.6	0.8

## Discussion

This study investigated cannabis-related psychosis, focusing on clinical presentation, pathway to care, and the effect of abstinence and follow-up. Our findings provide valuable insights into this complex condition, particularly within the socio-cultural context of our study population [11].

## Clinical Presentation and Abstinence Effects:

The BPRS scores indicated that cannabis-induced psychosis patients presented with a range of symptoms, including suspiciousness, hallucinatory behavior, hostility, and conceptual disorganization. These findings are consistent with previous research [Kulhalli et al, 2007]. However, compared

to the referenced study, our patients exhibited lower scores for somatic concern, emotional withdrawal, and unusual thought content. This might be due to variations in the specific type of cannabis consumed or underlying genetic vulnerabilities [12].

Encouragingly, a significant decrease in BPRS scores was observed after one week of abstinence from cannabis [13]. This aligns with the established notion that cannabis-induced psychosis is often transient and improves with abstinence and antipsychotic treatment [Kulhalli et al, 2007].

**Pathway to Care:** The pathway to care for cannabis-related psychosis patients in our study differed from findings in developed countries. A substantial proportion of patients (32%) consulted religious healers initially, highlighting the influence of cultural beliefs on help-seeking behavior. This is in line with previous research conducted in India [Naik et al., 2010; Trivedi et al., 2011]. Only 13% of patients directly accessed psychiatric services, suggesting a need for improved public awareness and education regarding mental health services [14].

**Follow-up and Treatment Implications:** The follow-up results using the SOCRATES questionnaire demonstrated a significant increase in recognition, ambivalence, and taking steps scores over a one-year period, indicating progressive motivation for change [15]. These findings suggest that psychotherapeutic interventions, potentially including motivational interviewing (MI) as highlighted in the literature [Calomarde-Gómez et al., 2021; Bon sack et al., 2011; Walker et al., 2011], can be beneficial for cannabis-related psychosis patients [16].

**Limitations and Future Directions:** Our study has limitations. The sample size was limited, and the generalizability of findings might be restricted to our specific cultural context. Additionally, we did not explore the specific type of cannabis consumed by participants, which could influence the presentation of psychosis [17]. Future research with larger and more diverse samples, along with investigations into the role of cannabis type and potency, is warranted.

**Summary:** Cannabis-related psychosis presents with a range of symptoms, and abstinence can lead to significant improvement. Cultural factors significantly influence the pathway to care, with a high utilization of faith healers [18]. Psychotherapeutic interventions hold promise for improving outcomes in this population. Further research is needed to explore the influence of cannabis type and to develop culturally sensitive treatment strategies.

## Conclusion

This study investigated cannabis-related psychosis, focusing on clinical presentation, pathway to care, effects of abstinence, and follow-up. Our findings

provide insights into this complex condition and highlight the importance of considering cultural factors.

**Clinical Presentation and Abstinence:** Cannabis-related psychosis patients presented with a predominantly positive symptom profile, including suspiciousness, hallucinations, hostility, and conceptual disorganization [19]. Abstinence from cannabis led to a significant reduction in both positive and negative symptoms, suggesting the potential for symptom management without sole reliance on antipsychotic medication.

**Pathway to Care and Cultural Influences:** The pathway to care differed from those reported in developed countries. A significant portion of patients initially consulted religious healers, reflecting the influence of cultural beliefs. Public education efforts targeting both the community and faith healers are warranted to improve help-seeking behavior and early intervention [20].

**Treatment Implications and Future Directions:** Psychotherapeutic interventions, such as motivational interviewing, hold promise for improving long-term outcomes. Future research should explore the role of dopamine receptors in cannabis-related psychosis and investigate the feasibility of non-pharmacological interventions for managing cravings and preventing relapse. Additionally, larger studies are needed to confirm our findings and explore the most effective psychotherapeutic approaches for this population.

**Social and Public Health Considerations:** Given the recreational use of cannabis and limited public awareness of its potential risks, psychoeducational programs are crucial to educate the public about the responsible use of cannabis and its potential for inducing psychosis in vulnerable individuals. Faith healers and other first-line contacts should also be included in such educational initiatives.

**Limitations:** The study's limitations include a small sample size and the setting of a tertiary referral center, limiting generalizability. Future research should involve larger and more diverse samples.

In conclusion, cannabis-related psychosis presents with a distinct symptom profile, and abstinence can lead to significant improvement. Cultural factors significantly influence the pathway to care. Psychotherapeutic interventions and public education hold promise for improving outcomes and reducing the burden of this condition.

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