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Adolescent Substance Abuse leading to Psychotic Symptoms: A Clinical Case Report with focus on Theoretical perspectives and 4ps

Anum Gull[a], Naveed Bilal[b], Dr. Neelam Ehsan[c], Haieqa Zahid[d], Sumbel Malik[e]*

[a]Shifa Tameer e Millat University, Park Road, Islamabad, Pakistan
[b]Special Education Department, Psychologist

ABSTRACT :

We studied a client Mr. N.A., a 15.5-year-old male, who was presented with a range of symptoms including auditory hallucinations, paranoid and persecutory delusions, insomnia, aggression, poor appetite, decreased self-care, self-talk, absconding behaviors, odd conduct, and substance abuse. These symptoms align with the DSM-5-TR criteria for Cannabis-Induced Psychotic Disorder, characterized by prominent delusions and hallucinations developing during or shortly after substance intoxication or withdrawal. The etiology of his condition appears multifactorial, encompassing genetic predisposition, environmental stressors, and substance use. A notable familial history of psychiatric disorders, including similar behaviors in his older brother, grandmother, and paternal uncle, suggests a hereditary component. Environmental stressors, particularly familial discord and paternal abuse, likely exacerbated his psychological vulnerability. Chronic exposure to domestic conflict and physical abuse can precipitate maladaptive coping mechanisms, such as substance use, which in turn may trigger or intensify psychotic episodes. The client's cannabis use is particularly pertinent, as cannabis has been implicated in the onset of psychosis, especially among adolescents with a genetic predisposition. Psychological testing was done which supported the diagnostic criteria of a client. The study further suggests that CBT for psychosis and CBT for substance use therapy is a useful therapeutic tool for individuals who have suffered cannabis induced psychosis at an early age.

Keywords: Cannabis, psychosis, adolescence, psychosocial factors, genetic predisposition

Introduction

Cannabis use is widespread among adolescents and young adults. Adolescent substance use poses a significant problem at both the individual and societal levels. Cannabis is the second most commonly used substances among adolescents (Hahn, Corcoran, & Danielson, 2025). Longitudinal researches indicated that among all drugs cannabis is one of the most measuring adolescent drug use indicate that cannabis continues to be the most commonly used illicit drug among adolescents (Johnston et al., 2022), whereas findings of cannabis use reported by World Health Organization was reported by 6% of 15-year-olds globally, with higher lifetime prevalence rates (Charrier et al., 2024). Report by The United Nations Office on Drugs and Crime (UNODC, 2024) indicated cannabis use among 15 to 16 years old was higher globally as compared to other adults. Despite risks associated with use during a critical neurodevelopmental period Cannabis contains multiple active compounds, the most prominent being cannabidiol (CBD) and delta-9-tetrahydrocannabinol (THC). THC is primarily responsible for the drug's psychoactive effects due to its interaction with the endocannabinoid system (Chadwick, Miller, & Hurd, 2013). Notably, adolescents are increasingly viewing cannabis as less harmful compared to other substances, reflecting a growing perception of reduced risk. Research has been found correlation between cannabis use and hey have been found to relate to cannabis use (Anderson et al., 2015) and to negative consequences (Blevins et al., 2016). These negative impact includes changes in brain structure and function, cognitions (Mashhoon et al., 2019). Research evidences further indicated decline in psychosocial functioning, such as reduced quality of life, poor interpersonal relationships, decreased academic performance and problems related to unemployment (Castellanos-Ryan et al., 2022); mental and physical health related problems (Hall & Degenhardt, 2014) and conduct disorder (Schlossarek et al., 2016). Furthermore, cannabis use during adolescence has been associated with a rise in psychiatric emergency department visits and an increased likelihood of developing psychosis, with some studies suggesting it could double the risk for psychotic disorders such as schizophrenia (Jin et al., 2025)

Case Study

This case report describes the psychological and behavioral manifestations in a 15.5-year-old adolescent male (Mr. N) who began using cannabis with friends a few months before the onset of his diagnostic symptoms. The case was referred from the outpatient psychiatry department of Benazir Bhutto Hospital, Rawalpindi, where the patient presented with complaints of disturbed sleep, auditory and visual hallucinations (hearing voices, seeing ghosts), suspiciousness, paranoid beliefs that someone was trying to harm him or that police would arrest him, odd behaviors including self-talk, verbal and physical aggression, poor appetite, and disturbed sleep. The client was originally studying in a private English-medium school but was shifted to a government Urdu-medium school due to financial constraints, which caused significant stress due to the strict school environment, corporal punishment, and difficulty making new friends. Following this transition, the patient started bunking classes, associating with friends who introduced him to smoking

cigarettes and later cannabis. His substance use escalated rapidly, alongside increased irritability and aggression at home and school, culminating in physical fights and multiple episodes of running away from home to places such as Bari Imam Darbar near Bara Kaho, where he purchased and used cannabis. The family's attempts to restrain him, including chaining him at home, were unsuccessful. Despite temporary improvements with medication after hospital admission, the patient's aggression and substance use persisted. The client comes from a lower socioeconomic, nuclear family residing in Rawalpindi. His father, aged 44, owns a car workshop and is described as strict and aggressive, frequently using corporal punishment. His mother, aged 40, is a housewife who is cooperative but reportedly busy with household chores and less emotionally connected to the client. The client has three siblings with whom he reportedly has a good relationship, although family dynamics are troubled due to parental conflicts and domestic violence, which the client witnessed since childhood. There is a family history of psychiatric illness, including psychotic episodes in the eldest brother and a paternal uncle, raising concerns of genetic vulnerability. Developmentally, the client met most milestones appropriately except for delayed walking at age two. Academically, he was underperforming after transferring schools and eventually discontinued his education following his diagnosis. Psychologically, the client experienced paranoia, hallucinations, social withdrawal, poor hygiene, and self-injurious behaviors including cutting his clothes. He was initially taken to faith healers, but after a suicide attempt by jumping into a dam, his family sought medical help, leading to psychiatric diagnosis and treatment. Mental Status Examination revealed that he was of average build, dressed in untidy traditional clothing. He maintained eye contact and had clear, coherent, low-volume speech. His mood was dysthymic, both subjectively and objectively, reporting feelings of sadness. He appeared agitated, sat on the edge of the chair, frequently looked around, and continuously glanced at the door. Attention and concentration were maintained. Both short- and long-term memory were intact, except for amnesia related to his psychotic episode. Historical and current evidence indicated visual hallucinations and paranoid, persecutory delusions. The client was fully oriented to time, place, and person, with intact judgment and abstract thinking. No derealization or depersonalization was reported. Insight into his illness was partial.

Positive and Negative Symptom Scale.

The PANSS is a standardized, clinical interview that rates the presence and severity of positive and negative symptoms, as well as general psychopathology for people with schizophrenia within the past week. Of the 30 items, seven are positive symptoms, seven are negative symptoms, and 16 are general psychopathology 131 symptoms. Symptom severity for each item is rated according to which anchoring points in the 7-point scale (1 = absent; 7 = extreme). The raw score on positive scale was 25 that was within the range of moderate and on negative scale, it scored 13 which was in the range of slightly above mild ill. It indicated that the client had psychosis.

Table 1- Showing scores of patient on PANSS

Subscales	Scores	T scores
Positive	**25**	**58**
Negative	**13**	**36**
General psychopathology	**42**	**52**

The Cannabis Use Disorder Identification Test - Revised (CUDIT-R)

The Cannabis Use Disorder Identification Test - Revised (CUDIT-R) is 8 item Likert point scale, values ranges from never (0) to daily or almost daily (4). Cut-off score 8 or above is considered positive for hazardous use. 12 or above is considered positive for possible cannabis use disorder. The patient scored 15 on the scale which is indicative of cannabis use.

Table 2- Patient's score on The Cannabis Use Disorder Identification Test - Revised (CUDIT-R)

Scores	Interpretation
15	**Cannabis use**

Risk assessment

Informal risk assessment was done on multiple time in every session to assess the potential risk for suicide or homicidal attempt. Patient reported no such intend and ideation on present account. Although there is a history of suicidal attempt during psychotic episode so risk was assumed as moderate and was communicated to family as well

House Tree Person (HTP)

House-Tree-Person (HTP) drawing reveals several notable aspects that reflect his emotional distress and unstable sense of self. The house is drawn with minimal detail, with a small or poorly defined foundation, which may indicate a lack of safety and security within the family environment. This aligns with the client's history of familial conflict and abusive behavior from his father. The tree is depicted with sparse branches and an irregular trunk, suggesting hindered growth and emotional development, which may be linked to his ongoing psychological issues and substance use. The figure of the person in the drawing is smaller in proportion to the house and tree, positioned at a distance from the other elements, possibly symbolizing feelings of isolation, alienation, and low self-worth. This could reflect the client's emotional neglect, particularly in relation to his strained relationship with his mother and the history of violence in the home. Overall, the drawing highlights the client's sense of insecurity, internalized aggression, and difficulty in forming healthy connections with others, which are consistent with his behavioral and emotional challenges as reported during therapy.

Results

The client's assessment revealed moderate positive symptoms (PANSS positive score: 25) and mild negative symptoms (PANSS negative score: 13), indicating the presence of psychosis. General psychopathology was also evident (score: 42). The client scored 15 on the Cannabis Use Disorder Identification Test-Revised, suggesting hazardous cannabis use consistent with cannabis use disorder. Informal risk assessments across sessions showed no current suicidal or homicidal ideation, but a history of suicide attempt during a psychotic episode warranted a moderate risk rating, which was communicated to the family. The House-Tree-Person drawing reflected emotional distress and an unstable sense of self, highlighting feelings of insecurity, isolation, and low self-worth. These findings correspond with the client's familial conflict, history of abuse, emotional neglect, and ongoing psychological difficulties.

Based on these results, along with observations, clinical interview, and DSM-5-TR criteria, the patient was diagnosed with (F12.259) "Moderate Cannabis use disorder", Substance/Medication-Induced Psychotic Disorder With onset during intoxication.

Discussion

This clinical case was studied with a comprehensive focus on the *4Ps model*—predisposing, precipitating, perpetuating, and protective factors—contributing to adolescent substance abuse and subsequent psychotic symptoms. *Predisposing Factors* include genetic, temperamental, psychological, and environmental influences. Temperamental traits such as neuroticism, anxiety sensitivity, and hopelessness mediate genetic risk for substance use and co-occurring disorders, often leading individuals to self-medicate negative emotions like depression. Genetic vulnerability to psychotic disorders, including schizophrenia, is well-documented. Twin, adoption, and family studies consistently show high heritability, with siblings of affected individuals facing a tenfold increased risk (Pirjo et al., 2005). In this case, a family history of psychiatric disorders was established, with similar behaviors reported in the client's older brother, grandmother, and paternal uncle. *Attachment and family dynamics* also play crucial roles. The client exhibited insecure attachment with the mother, a known risk factor for substance use disorders (SUDs), as individuals with insecure attachment often use substances to compensate for deficient emotional regulation and attachment needs. Furthermore, family dysfunction characterized by high conflict, poor communication, and parental over-criticism, as described by Comers (2018), was evident in this client's family. The abusive and overcritical father, along with ongoing marital conflicts, likely contributed to the client's emotional distress and substance abuse. *Precipitating Factors* include stressful or traumatic life events that trigger symptoms. Adolescence is a vulnerable developmental period marked by significant brain, psychological, and social changes, increasing susceptibility to substance experimentation and misuse. Peer influence, school environment, and psychological stressors such as isolation drive substance use initiation. The client's history of being beaten by his father may have acted as a traumatic trigger precipitating psychotic symptoms. Stress is known to increase risk for both substance abuse and psychotic episodes, especially in genetically predisposed individuals (Lataster, 2013). *Perpetuating Factors* involve mechanisms maintaining the disorder. According to the self-medication hypothesis (Khantzian, 1997), substances are abused to cope with unresolved emotional distress, attachment deficits, or trauma. Psychoanalytic theory posits that persecutory delusions in psychosis may serve as defense mechanisms against repressed anxieties, which in this case included unresolved conflicts with parents and school changes. Cognitive theories highlight biases such as "jumping to conclusions" and selective attention to threatening information, which maintain persecutory delusions (Freeman et al., 2002). The client's persecutory delusions, social withdrawal, and heightened anxiety align with these models, alongside research linking psychosis with increased aggression and suicidality (Fazel et al., 2009). *Protective Factors* such as strong family support and high self-efficacy were absent or weak in this case. Self-efficacy related to resisting substance use is crucial in preventing initiation and relapse (Bandura, 1999). The client's insecure attachment and family dysfunction reduced his capacity for emotional regulation and adaptive coping.

Conclusion

The individualized cognitive-behavioral management plan effectively addressed the client's complex needs by targeting psychotic symptoms, substance use, emotional regulation, and family dynamics. Through comprehensive interventions—including psychoeducation, therapeutic engagement, symptom conceptualization, activity scheduling, cognitive restructuring, family counseling, relaxation techniques, anger management, and relapse prevention—the client demonstrated gradual improvements in insight, symptom control, and coping abilities. Despite initial challenges such as treatment resistance and comorbid substance abuse, consistent therapy fostered a more optimistic prognosis, highlighting the potential for sustained emotional stability and long-term recovery with continued multidisciplinary support.

Limitations of the Study

The client's emotional instability and history of trauma made it difficult to establish consistent therapeutic engagement, with significant fluctuations in motivation and cooperation during sessions.

- Limited social support and strained family relationships presented ongoing challenges in providing effective therapy, as the client lacked a reliable support system to reinforce treatment goals outside of sessions.
- Financial constraints restricted access to necessary community resources, which would have been beneficial for long-term recovery and skill-building outside of therapy.
- The client's impulsive behaviors, such as substance use and unsafe sexual activity, presented barriers to maintaining consistent therapeutic progress and created potential safety concerns that needed to be addressed continuously.
- The client's past trauma, particularly within family dynamics, complicated the therapeutic process, requiring a trauma-informed approach that demanded considerable time and patience to see substantial progress.

- Despite significant therapeutic efforts, the client's struggles with substance use and emotional regulation led to setbacks, highlighting the ongoing risk of relapse and the need for continued, long-term therapeutic intervention.

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