

“Whispers of temptation”: The connection between auditory hallucinations and substance use disorder in patients with schizophrenia – A case series

Abstract

Background: Schizophrenia is frequently complicated by comorbid Substance Use Disorders (SUDs), with prevalence rates reported to be between 40-50% across clinical and community settings. Multiple explanatory frameworks have been proposed, including the diathesis–stress model, cumulative risk exposure, reward deficiency syndrome, and self-medication hypotheses. However, the phenomenological role of auditory hallucinations in directly promoting substance use behaviours remains insufficiently explored.

Case presentation: We present a case series of three patients diagnosed with schizophrenia in whom auditory hallucinations were temporally and phenomenologically linked to substance use behaviours involving cannabis and nicotine. In all cases, hallucinated voices explicitly encouraged substance use or reinforced beliefs regarding cognitive or motivational benefits. Resolution of hallucinations following antipsychotic treatment was associated with spontaneous reduction or cessation of substance use without targeted addiction pharmacotherapy.

Conclusion: This case series highlights an under-recognized mechanism linking schizophrenia and SUDs, wherein hallucinations act as drivers of substance uses behaviours. Recognition of this interaction has important implications for assessment, psychoeducation, and integrated treatment planning.

Introduction

Schizophrenia is a chronic psychiatric disorder characterized by disturbances in perception, thought, affect, and behaviour. Substance use disorders represent one of the most prevalent comorbidities, with pooled prevalence estimates suggesting that nearly 41.7% of individuals with schizophrenia meet criteria for a lifetime SUD [1-3]. Commonly involved substances include alcohol, cannabis, nicotine, and stimulants [2,3].

Several theoretical models have been proposed to explain this association, including shared genetic vulnerability, neuro-developmental risk, cumulative environmental stressors, and reward system dysfunction [3-5]. The self-medication hypoth-

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esis suggests that individuals use substances to alleviate distressing psychotic or affective symptoms; however, this model does not fully account for cases where substance use worsens outcomes or precedes symptom relief [3].

Importantly, few studies have examined the content and influence of auditory hallucinations themselves as active contributors to substance use behaviour. This case series aims to address this gap by describing patients in whom hallucinated voices directly encouraged or reinforced substance use.

Case report 1

Mr. A, a 34-year-old unmarried male, presented with a first episode of schizophrenia characterized by persecutory delusions

and prominent second-person auditory hallucinations. He had no prior history of substance use. During the course of illness, hallucinated voices repeatedly urged him to consume cannabis, suggesting that it would enhance attention and cognitive clarity. Despite repeated cannabis use, the patient reported no meaningful improvement in hallucinations or functional capacity.

He was initiated on risperidone with gradual titration to a therapeutic dose. Over six weeks, there was a significant reduction in the frequency and intensity of auditory hallucinations. Following improvement in psychotic symptoms, the patient voluntarily discontinued cannabis use, reporting absence of craving or perceived benefit thereafter.

Case report 2

Mr. D, an 18-year-old male student, presented with a six-month history of social withdrawal, anhedonia, reduced motivation, blunted affect, and persistent auditory hallucinations. He had an established nicotine dependence and a family history of substance dependence, though no known psychotic disorders. The patient reported that smoking temporarily improved mood and motivation, a belief reinforced by hallucinated voices that positively commented on smoking behavior.

Treatment with amisulpiride resulted in marked improvement in negative symptoms and hallucinations within two months. Concurrently, the patient demonstrated a significant reduction in cigarette consumption without formal smoking cessation intervention.

Case report 3

Mr. G, a 24-year-old college student, was admitted with a two-year history of untreated psychosis characterized by academic decline, social withdrawal, auditory hallucinations, and delusional beliefs. During inpatient evaluation, intermittent cannabis use was identified. The patient believed cannabis enhanced concentration during examinations; a belief reinforced by hallucinated voices endorsing its use.

Olanzapine was initiated along with structured psychoeducation. With improvement in hallucinations and insight, the patient discontinued cannabis use and reported improved cognitive clarity and academic engagement.

Discussion

This case series highlights a clinically significant but under-recognized pathway linking schizophrenia and substance use, wherein auditory hallucinations function as internalized drivers of substance-seeking behaviour. Unlike classical self-medication models, substance use in these cases was not primarily aimed at alleviating distress but was actively promoted by psychotic experiences.

Neurobiological models such as reward deficiency syndrome and dopaminergic dysregulation may explain this phenomenon, as impaired reward circuitry can assign maladaptive salience to substance use behaviours [4,5]. Elevated rates of substance use disorders in non-psychotic relatives of individuals with schizophrenia further support the role of shared reward-processing abnormalities [4].

The observed reduction in substance use following antipsychotic-mediated resolution of hallucinations underscores the importance of early and effective treatment of psychotic symptoms. Clinicians should routinely assess the content of hallucinations for substance-related themes, as this has direct implications for risk management and treatment planning.

Conclusion

Auditory hallucinations may play a direct and influential role in the initiation and maintenance of substance use in patients with schizophrenia. Recognition of hallucination-mediated reinforcement provides an opportunity for targeted psychoeducation and integrated intervention. Addressing psychotic symptoms effectively may indirectly reduce substance use and improve long-term outcomes.

Declarations

Ethics and patient consent: Written informed consent was obtained from all patients for publication of anonymized clinical information. All identifying details have been removed.

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Ethical approval: Ethical approval was taken for this case series as per institutional guidelines.

Informed consent: Written informed consent was obtained from all patients for the publication of anonymized clinical information. All identifying details have been removed to protect patient confidentiality.

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