

THE CONTRIBUTION OF CANNABIS USE TO PSYCHOTIC SYMPTOMS AMONG METHAMPHETAMINE TREATMENT ENTRANTS

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EXECUTIVE SUMMARY

Background and aims

Methamphetamine users are at a high risk of psychosis due to the drug's psychosis-inducing action and the higher prevalence of chronic psychotic illnesses among this group compared with the general population. High levels of cannabis use among methamphetamine users may also contribute to their risk of experiencing psychotic symptoms: there is growing evidence that cannabis may increase the risk of psychotic symptoms, particularly among people who are vulnerable to psychosis.

The current study aimed to examine whether cannabis use was associated with a higher prevalence of clinically significant psychotic symptoms among methamphetamine treatment entrants. The study utilised baseline data from the Methamphetamine Treatment Evaluation Study (MATES) to determine whether symptoms of psychosis in the month prior to treatment entry were related to the frequency of cannabis use or the severity of cannabis dependence during this time. Further analyses were undertaken to determine whether any relationship between cannabis use and psychotic symptoms could be better accounted for by concurrent methamphetamine or other drug use, demographic factors or comorbid psychiatric conditions. Based on previous evidence, it was expected that:

1. cannabis use would be associated with a small to moderate dose-response increase in psychotic symptoms among methamphetamine treatment entrants;
2. the relationship between cannabis use and psychosis would be more pronounced among people with a history of a chronic psychotic disorder (i.e. Schizophrenia, Schizoaffective Disorder, or Bipolar Affective Disorder);
3. the relationship between cannabis use and psychosis would be attenuated by controlling for other drug use, demographics and comorbid psychiatric disorders.

Methods

This study utilised baseline data collected as part of the Methamphetamine Treatment Evaluation Study (MATES), a large-scale ongoing longitudinal study of treatment outcomes for methamphetamine dependence. Participants in the study were individuals entering drug treatment (residential rehabilitation, detoxification or counselling) with methamphetamine as a primary or secondary drug of concern. Participants were interviewed soon after treatment entry regarding their cannabis use and psychotic symptoms in the month prior to treatment. Cannabis measures included number of days used cannabis in the past month (frequency), and Severity of Dependence Scale score in the past month (dependence). Psychotic symptoms were measured using the Brief Psychiatric Rating Scale (BPRS) subscales of suspiciousness, unusual thoughts, and hallucinations applied to the past month. BPRS subscale scores range from one to seven, with a score of four or more indicating a symptom is clinically significant. In addition, information was collected about methamphetamine use, previous diagnoses with a chronic psychotic disorder and a range of demographic, drug use and additional mental health variables. Major Depression, Social Phobia and Panic Disorder in the past year were measured using the Composite International Diagnostic Interview (CIDI). Chronic psychosis was defined as having being told by a doctor the participant may have Schizophrenia, Schizoaffective Disorder or Bipolar Affective Disorder.

The prevalence of psychotic symptoms was examined for the total sample and the sample stratified by having been diagnosed with a chronic psychotic disorder. Spearman correlations were carried out to examine univariate relationships between cannabis use (frequency and dependence) and the severity of psychotic symptoms (suspiciousness, unusual thoughts, and hallucinations) and to identify potential confounders. Confounders were defined as variables significantly related to both cannabis use and psychotic symptoms ($p < 0.05$). Logistic regression analyses were carried out to examine the association between past month cannabis use and clinically significant past month psychotic symptoms. Both unadjusted and adjusted odds ratios were estimated with analyses controlling for previous psychotic diagnosis and potential confounders. Analyses of the sample were stratified by whether participants had a diagnosis with a chronic psychotic disorder to examine whether the relationship between cannabis use and psychotic symptoms varied between methamphetamine users with and without a history of a chronic psychotic illness.

Results

Participants were typically male (75%), 31 years old (mean), and unemployed (80%). Nearly all were dependent on methamphetamine (97%), and they had used the drug on a median of 16 days in the month prior to treatment (range 0–28). Nearly all (98%) reported lifetime cannabis use, and they had used cannabis on a median of 14 days in the past month.

Twenty-one per cent of participants had a history of a chronic psychotic disorder (i.e. they reported having previously been told by a doctor they had Schizophrenia, Schizoaffective Disorder or Bipolar Affective Disorder).

Fifty-two per cent of participants reported a clinically significant psychotic symptom in the month before treatment, with suspiciousness being more common than unusual thought content or hallucinations (38%, 26% and 31% respectively). When the sample was restricted to participants previously diagnosed with a chronic psychotic disorder ($n=84$), prevalence of reporting a clinically significant psychotic symptom in the past month increased (71%) with hallucinations most common, followed by suspiciousness, and unusual thoughts (53%, 48% and 37% respectively). Among those participants without a history of a chronic psychotic disorder ($n=316$) the prevalence of reporting a clinically significant psychotic symptom in the past month was slightly smaller, with suspiciousness the most commonly reported symptom, followed by hallucinations and unusual thoughts (35%, 24% and 22% respectively).

In univariate analyses cannabis use (days used and dependence) was associated with more severe suspiciousness ($r_s=0.138$, $p<0.01$; $r_s=0.157$, $p<0.01$) and unusual thoughts ($r_s=0.137$, $p<0.01$; $r_s=0.164$, $p<0.01$), but not hallucinations ($r_s=0.013$, $p>0.05$; $r_s=0.024$, $p>0.05$). In logistic regression analyses, the unadjusted odds ratios for cannabis use (days used and dependence) as a predictor of clinically significant suspiciousness and unusual thoughts indicated small positive relationships (days of use OR=1.3 to 2.0; dependence OR=1.7 to 2.7). The relationship between cannabis use and suspiciousness was attenuated and no longer significant after controlling for potential confounders, including pre-existing psychotic disorders, methamphetamine use, age of first use, and past year anxiety disorders (OR=1.2 to 1.5, $p>0.05$). The relationship between cannabis use and unusual thoughts was similarly

attenuated after controlling for potential confounders, with only moderate cannabis use associated with increased risk of unusual thoughts (OR=2.5, $p<0.05$). When the sample was restricted to participants with a history of a chronic psychotic disorder, the odds ratios (both unadjusted and adjusted) between cannabis use and suspiciousness were slightly smaller than for the total sample (psychotic disorder OR=0.9 to 1.6; adjusted OR=0.6 to 1.0), while the odds ratios for cannabis use as a predictor of unusual thoughts was similar to those in the total sample (psychotic disorder OR=1.0 to 2.5; adjusted OR=1.0 to 2.9). None of the relationships between cannabis use and psychotic symptoms were statistically significant when the sample was restricted to participants with a history of a chronic psychotic disorder. Among those participants without a history of a chronic psychotic disorder, the odds ratios between cannabis use and suspiciousness were a similar size to the total sample (OR=1.4 to 1.9; adjusted OR=1.3 to 1.6), as were the odds ratios between cannabis use and unusual thoughts (OR=1.6 to 2.5; adjusted OR=1.5 to 2.4). The current study found no evidence of a relationship between cannabis use and hallucinations.

Discussion

The current study found that the relationship between cannabis use and psychotic symptoms among methamphetamine treatment entrants is small and largely accounted for by other factors, including worse methamphetamine use and increased likelihood of pre-existing psychotic disorders and anxiety disorders. The risk of experiencing psychosis associated with cannabis use was similar, or possibly less, with regards to suspiciousness among methamphetamine users with a history of a chronic psychotic disorder. Future studies examining the relationship between cannabis use and psychosis among methamphetamine users need to adjust for methamphetamine use, pre-existing psychotic disorders, and anxiety disorders. The current study indicates that advising methamphetamine treatment entrants to reduce cannabis use will have a small impact, at most, on their psychotic symptoms.