

Emergency department visits for substance use linked to higher risk of developing schizophrenia

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People visiting the emergency department (ED) for substance use—particularly cannabis—are at high risk of developing

schizophrenia, according to new research.

The study, led by researchers at The Ottawa Hospital, Bruyère Research Institute, and ICES, showed that people with an ED visit for substance-induced psychoses (brief episodes of hallucinations or delusions triggered by substance use or withdrawal) had an 18.5% risk of developing to schizophrenia within three years of their ED visit.

The study, "Transition to schizophrenia spectrum disorder following [emergency department](#) visits due to substance use with and without psychosis," was published in *JAMA Psychiatry*.

Individuals with an ED visit for substance use without psychosis (e.g., a visit for intoxication) had a lower 1.4% risk of developing schizophrenia but were still at markedly increased risk relative to the general population, of which 0.1% developed schizophrenia within three years.

"Our findings demonstrate an important increase in risk of being diagnosed with schizophrenia after an episode of substance-induced psychosis or substance use without psychosis—163 times and 10 times higher than the background risk in the general population," says lead author and ICES Adjunct Scientist Dr. Daniel Myran, who is also a family physician, Fellow at The Ottawa Hospital, Assistant Professor with the uOttawa Department of Family Medicine and Investigator at the Bruyère Research Institute.

Researchers analyzed ICES health records from nearly 10 million people aged 14 to 65 years living in Ontario, Canada, from January 2008 to March 2022. Individuals were included if they had no past history of psychosis or schizophrenia. Individuals with a first-time ED visit for substance use (with or without psychosis) were compared to members of the general population. There were 407,737 individuals with an ED visit for substance use, of which 13,784 (3.4%) were for substance-induced

psychosis.

The researchers found important differences in risk by type of substance use. For individuals with substance-induced psychosis, [cannabis](#) had the greatest risk, with 26% of individuals developing schizophrenia within three years—a rate 242 times higher than the general population.

Amphetamine use (predominantly methamphetamine or crystal meth) was the highest-risk substance without psychosis, with 3.7% of individuals developing schizophrenia within three years—a rate 28.4 times higher than the general population.

For all substance use ED visits, younger age and male sex (assigned at birth) were associated with a higher risk of schizophrenia, particularly for cannabis use. Over 40% of males aged 14–24 years with an ED visit for cannabis-induced psychosis were diagnosed with schizophrenia within three years, twice the risk of females of the same age.

"The use of cannabis in people with first episode psychosis is the rule rather than the exception, and continued use of cannabis also worsens the prognosis of psychosis after onset. It is important to note that too frequently people using cannabis are not aware of the associated risks for their [mental health](#) and need to be better informed," says co-author Marco Solmi, Medical Director of the First Episode Psychosis On Track service at The Ottawa Hospital.

Studies from a variety of disciplines all support that substance use can play a key role in the development of schizophrenia. While some portion of this relationship is related to shared [risk factors](#) where individuals at high risk of schizophrenia may be predisposed towards heavy [substance use](#) due to genetic or [environmental factors](#), evidence supports that drugs such as cannabis may play a causal role in the development of [schizophrenia](#).

"The high risk of cannabis use, particularly for young men, has important implications for public education and policies given global trends of increasing cannabis use and interest in the legalization of cannabis," adds Dr. Myran.

Co-author Dr. Jess Fiedorowicz, Head and Chief of the Department of Mental Health at The Ottawa Hospital, notes that, "National surveys have consistently indicated a steady trend for increasing cannabis use across Canada. Our team has observed a striking increase in individuals presenting with significant psychiatric issues that appear due to cannabis use. We hope this study draws attention to this important but too often ignored public health issue."

More information: Transition to schizophrenia spectrum disorder following emergency department visits due to substance use with and without psychosis, *JAMA Psychiatry* (2023). [DOI: 10.1001/jamapsychiatry.2023.3582](https://doi.org/10.1001/jamapsychiatry.2023.3582)

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