



## Cannabis Use Disorder Linked to Increased Schizophrenia Risk in Males

Featured   Neuroscience   Psychology   ·   May 6, 2023

***Summary:*** *Young men who suffer from cannabis use disorder are more likely to develop schizophrenia, according to a new study.*

*The study analyzed health records data of over 6 million people in Denmark and discovered a strong association between cannabis use disorder and schizophrenia. 30% of cases of schizophrenia among men aged 21-30 may be prevented by treating cannabis use disorder.*

*Effective treatments for both conditions are available, making it imperative to expand prevention, screening, and treatment for people who experience mental illnesses associated with cannabis use.*

### ***Key Facts:***

1. A study led by researchers at the National Institute on Drug Abuse and the Mental Health Services in the Capital Region of Denmark found that young men with cannabis use disorder are at a higher risk of developing schizophrenia.
2. The study analyzed detailed health records data spanning 5 decades and representing more than 6 million people in Denmark to estimate the fraction of schizophrenia cases that could be attributed to cannabis use

disorder on the population level.

3. The association between cannabis use disorder and schizophrenia was found to be much stronger among young men, and as many as 30% of cases of schizophrenia among men aged 21-30 might have been prevented by avoiding cannabis use disorder.

***Source: NIH***

Young men with cannabis (marijuana) use disorder have an increased risk of developing schizophrenia, according to a study led by researchers at the Mental Health Services in the Capital Region of Denmark and the National Institute on Drug Abuse (NIDA) at the National Institutes of Health.

The study, published in *Psychological Medicine*([link is external](#)), analyzed detailed health records data spanning 5 decades and representing more than 6 million people in Denmark to estimate the fraction of schizophrenia cases that could be attributed to cannabis use disorder on the population level.

Researchers found strong evidence of an association between cannabis use disorder and schizophrenia among men and women, though the association was much stronger among young men. Using statistical models, the study authors estimated that as many as 30% of cases of schizophrenia among men aged 21-30 might have been prevented by averting cannabis use disorder.

[Cannabis](#) use disorder and schizophrenia are serious, but treatable, mental disorders that can profoundly impact people's lives. People with cannabis use disorder are unable to stop using cannabis despite it causing negative consequences in their lives. Schizophrenia is a serious mental illness that affects how a person thinks, feels, and behaves.



Cannabis use disorder and schizophrenia are serious, but treatable, mental disorders that can profoundly impact people's lives. People with cannabis use disorder are unable to stop using cannabis despite it causing negative consequences in their lives. Credit: Neuroscience News

People with schizophrenia may seem like they have lost touch with reality, and the symptoms of schizophrenia can make it difficult to participate in usual, everyday activities. However, effective treatments are available for both cannabis use disorder and schizophrenia.

“The entanglement of substance use disorders and mental illnesses is a major public health issue, requiring urgent action and support for people who need it,” said NIDA Director and study coauthor Nora Volkow, M.D.

“As access to potent cannabis products continues to expand, it is crucial that we also expand prevention, screening, and treatment for people who may experience mental illnesses associated with cannabis use.

“The findings from this study are one step in that direction and can help inform decisions that health care providers may make in caring for patients, as well as decisions that individuals may make about their own cannabis use.”

Previous studies indicate that rates of daily or near daily cannabis use, cannabis use disorder, and new schizophrenia diagnoses are higher among men than women, and that early, frequent cannabis use is associated with an increased risk of developing schizophrenia.

Credit: Neuroscience News

However, few studies have examined differences in the relationship between cannabis use disorder and schizophrenia across different sex and age groups at the population level.

To address this research gap, investigators analyzed data from nationwide health registers in Denmark, which included health records data from more than 6.9 million people who were aged 16-49 at some point between 1972 and

2021.

Using these nationally representative longitudinal data, the researchers investigated how the associations between cannabis use disorder and schizophrenia varied by different sex and age groups, and how these differences changed over time.

Although there are many risk factors associated with schizophrenia, in this study, researchers sought to estimate the proportion of all schizophrenia cases that may be attributed to cannabis use disorder specifically, across sex and age groups at the population level.

The study team estimated that 15% of cases of schizophrenia among men aged 16-49 may have been avoided in 2021 by preventing cannabis use disorder, in contrast to 4% among women aged 16-49.

For young men aged 21-30, they estimated that the proportion of preventable cases of schizophrenia related to cannabis use disorder may be as high as 30%.

The authors emphasize that cannabis use disorder appears to be a major modifiable risk factor for schizophrenia at the population level, particularly among young men.

This study also adds to existing evidence suggesting that the proportion of new schizophrenia cases that may be attributed to cannabis use disorder has consistently increased over the past five decades.

The authors note that this increase is likely linked to the higher potency of cannabis and increasing prevalence of diagnosed cannabis use disorder over time.

“Increases in the legalization of cannabis over the past few decades have made

it one of the most frequently used psychoactive substances in the world, while also decreasing the public's perception of its harm.

“This study adds to our growing understanding that cannabis use is not harmless, and that risks are not fixed at one point in time,” said Carsten Hjorthøj, Ph.D., lead author of the study and associate professor at the Mental Health Services in the Capital Region of Denmark and at the University of Copenhagen.

The authors note that further research is needed to examine potential differences in the potency and frequency of cannabis consumption between young men and women, and to examine the mechanisms underlying the higher vulnerability of young men to the effects of cannabis on schizophrenia.

The association of cannabis potency with cannabis use disorder and psychosis may help inform public health guidelines; policies on cannabis sales and access; and efforts to effectively prevent, screen for, and treat cannabis use disorder and schizophrenia.

About this schizophrenia research news

**Author:** [NIDA Press Office](#)

**Source:** NIH

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**Image:** The image is credited to Neuroscience News

**Original Research:** Open access.

[“Association between cannabis use disorder and schizophrenia](#)

[stronger in young males than in females](#)” by Nora Volkow et al.

*Psychological Medicine*

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## Abstract

### Association between cannabis use disorder and schizophrenia stronger in young males than in females

#### Background

Previous research suggests an increase in schizophrenia population attributable risk fraction (PARF) for cannabis use disorder (CUD). However, sex and age variations in CUD and schizophrenia suggest the importance of examining differences in PARFs in sex and age subgroups.

#### Methods

We conducted a nationwide Danish register-based cohort study including all individuals aged 16–49 at some point during 1972–2021. CUD and schizophrenia status was obtained from the registers. Hazard ratios (HR), incidence risk ratios (IRR), and PARFs were estimated. Joinpoint analyses were applied to sex-specific PARFs.

#### Results

We examined 6 907 859 individuals with 45 327 cases of incident schizophrenia during follow-up across 129 521 260 person-years. The overall adjusted HR (aHR) for CUD on schizophrenia was slightly higher among males (aHR = 2.42, 95% CI 2.33–2.52) than females (aHR = 2.02, 95% CI 1.89–2.17); however, among 16–20-year-olds, the adjusted IRR (aIRR) for males was more

than twice that for females (males: aIRR = 3.84, 95% CI 3.43–4.29; females: aIRR = 1.81, 95% CI 1.53–2.15). During 1972–2021, the annual average percentage change in PARFs for CUD in schizophrenia incidence was 4.8 among males (95% CI 4.3–5.3;  $p < 0.0001$ ) and 3.2 among females (95% CI 2.5–3.8;  $p < 0.0001$ ). In 2021, among males, PARF was 15%; among females, it was around 4%.

## Conclusions

Young males might be particularly susceptible to the effects of cannabis on schizophrenia. At a population level, assuming causality, one-fifth of cases of schizophrenia among young males might be prevented by averting CUD. Results highlight the importance of early detection and treatment of CUD and policy decisions regarding cannabis use and access, particularly for 16–25-year-olds.

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Parkinson's, Alzheimer's, brain research, depression and other sciences.

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## 9 Comments

**Larry Bloom**

Reply

May 8, 2023 at 4:32 am

OMG...are you kidding me? Was there ANY evidence of causality presented? NO! So you have determined that young men who are entering their teen years, when schizophrenia first presents, are using pot and the ones who are sick use more and THIS is proof of causality? Are the researchers idiots? No, but they LOVE the news cycle!

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**R Wilcox**

Reply

May 7, 2023 at 1:31 pm

I am bipolar, not schizophrenic. I do not use pot, though I did decades ago. If I had to bet, could not hedge my bets, and my options were 1) pot causes shizophrenia and 2) schizophrenics are self-medicating with pot, I'd put my money on 2. And the reason it is a problem with young men in particular is that that is commonly when schizophrenia emerges. Women tend to get diagnosed later. The Venn diagram of mental illness and substance abuse has a huge area of overlap; a lot of mentally ill people self-medicate, whether it involves alcohol, pot, prescription meds, etc. And if you're mentally ill, even if you yourself don't self-medicate, you kind of get it. It's just a way to dampen the

noise, or at least your perception of it. Of course self-medication presents alternate problems. What's surprising about this study/article, is that a consideration of self-medication isn't even raised. Downright obtuse. Makes you think maybe someone is grinding an axe.

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**Lawrence Quinones**

Reply

May 7, 2023 at 9:44 am

Leaving aside the points raised by earlier comments, it sounds like what you describe as "cannabis use disorder" is more concisely described as "cannabis addiction." Continued use in spite of harm – that's addiction. why not call it that? Instead of hiding your meaning, better to be more direct, concise, clear.

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**G.Papa**

Reply

May 6, 2023 at 10:08 pm

Repeat yourself much? Long article that repeatedly stated the headline. Expected better from this publication

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**David M Adkins Ph.D. experimental and clinical psychologist (University of Pennsylvania)** Reply

May 6, 2023 at 6:31 pm

Correlation does not imply causality. Perhaps men who are schizophrenic are more likely to use cannabis to medicate their anxiety before they decompensate into full psychosis. I am surprised that the authors would be "assuming" a causal relationship.

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**Larry Bloom****Reply**

May 8, 2023 at 4:28 am

Couldn't agree more! ANY psychotherapist will tell you that "dual diagnosis" (ie, psychosis AND drug use) are very common. "Self medicating" is VERY common.

What the hell is wrong with these people who supposedly are trained as researchers to not understand correlation vs causation? Well, nothing..they want the news cycle and the publicity!

**Y****Reply**

May 6, 2023 at 5:20 pm

Out of all those people nothing was said about how many people smoke pot and are "normal" that is to say without mental health issues when you do a study it should be out of so many ..... 1 N 5 was founded to be left with health issues also to include family with a pass history of issues get back to me when something like that is done

**Willy****Reply**

May 6, 2023 at 10:47 am

Cannabis use disorder sounds great. Very good for everybody, you guys lying. But when you get your fluoridated synthetic cannabis you guys will tell us that it's great if you take the kind made in labs and make it a scheduled drug lots of scripts soon for fluoridated cannabis products like Prozac is also poisoning people's brains with totally un natural fluorine floating in brain doesn't know where to go

**William morley****Reply**

May 6, 2023 at 10:43 am

I didn't use cannabis when I was young except once in while as I didn't like the feeling. But when I tried this new stuff it didn't make me feel bad so now use it all the time and love it. I can't believe intelligent people would attribute a vague so called disease to cannabis use. You are muddling water to make money and blame people for ridiculous so called. Word diseased.

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