Basically, since the time of "Reefer Madness," the connection between cannabis and psychosis has been a hot political issue. Moreover, the undefined risk of psychosis is also a frequently cited reason against legalization. But, does cannabis actually cause psychosis?

Scientists have worked to understand the connection between cannabinoids and psychosis for decades. Presently, it is one of the most studied areas in cannabis science. But, despite a significant volume of research on the subject, the answer is still not firm.

Accordingly, the current common belief is that there may be a connection between some patterns of cannabis use and psychosis in some people. But, what type of relationship this may be and the direction of causation remains up for debate.

Does Cannabis Cause Psychosis?

What is Psychosis?

Basically, the National Institute of Mental Health (NIMH), defines psychosis as the following. It is a series of "conditions that affect the mind, where there has been some loss of contact with reality." The most common signs of psychosis are delusions, hallucinations, and paranoia. Someone in a psychotic episode will generally behave in ways inappropriate for the situation. For example, it will be very difficult to follow their train of thought from one moment to the next.

Signs of Psychosis

Overall, there are four possible triggers of psychosis. These include:

- mental health,
- certain medical conditions,
- genetics,
- and recreational drug use.

Some examples of mental health conditions are schizophrenia, or bipolar disorder. Chronic stress and even sleep deprivation may also be risk factors.

Medical conditions may also lead to the onset of psychosis. These include brain tumors, multiple sclerosis, and HIV/AIDS. Finally, substance abuse can trigger a psychotic episode. It may come from

a single exposure, overuse of alcohol or drugs, or withdrawal.

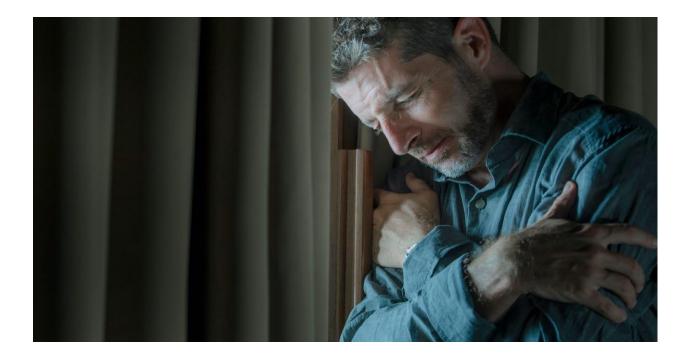
Does cannabis cause psychosis? The scientific community is trying to understand if cannabis alone can lead to psychosis.

The Difference Between Psychosis and Schizophrenia?

Within the sensational headlines, psychosis is frequently confused with schizophrenia. While the two medical conditions are similar, these are not always the same.

Defining Schizophrenia

The American Psychiatry Association defines schizophrenia as the following. It is "delusions, hallucinations, disorganized speech and behavior, and other symptoms that cause social or occupational dysfunction. For a diagnosis, symptoms must have been present for six months and include at least one month of active symptoms."



Defining Psychosis

Psychosis, on the other hand, has a narrow definition. It requires "the presence of hallucinations (without insight into their pathologic nature), delusions, or both hallucinations without insight and delusions."

The difference? Psychosis is not a mental health disorder on its own. But, alongside other signs and symptoms, it may be a part of one. According to the authors of "Cannabis and Psychosis Through the Lens of DSM-5," psychosis is the symptom, "whereas Schizophrenia is a chronic, lifelong illness, characterized by the presence of severe psychotic symptoms."1)

Prolonged experience with psychosis is a central aspect of a schizophrenia diagnosis. Other symptoms need to be present as well, because psychosis is only one symptom. It is not a singularly diagnosable medical condition.

What is Cannabis-Induced Psychosis

Cannabis, particularly synthetic or tetrahydrocannabinol (THC)-rich products, can be associated with psychotic symptoms. These range in severity from mild and pleasant to severe and persistent. The symptoms also vary in the duration. This means these may only last for as long as the intoxication or may persist long afterward. 2)

The Perception Changes of "Being Stoned"

According to "Being Stoned: A Review of Self-Reported Cannabis Effects," published in 2003, people surveyed about the effects of feeling high did report hallucinations. Further reported experiences connected to psychosis include the following:

- Anxiety,
- Talkativeness,
- Heightened sense perceptions.

While these symptoms don't always become challenging or require clinical attention, they are worth noting.3)



Cannabis Intoxication and Psychosis

Technically, cannabis consumption, as it pertains to the development of psychosis, falls into three very different mental health conditions. These are listed in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5). These are Cannabis Intoxication, Cannabis-Induced Psychotic Disorder (CIPD), and Schizophrenia.

Cannabis intoxication is the experience of being high. Depending on the dose, cannabinoid profile, and individual, the signs of psychosis will range from mild delusions or paranoia to full-blown hallucinations. Most people consuming the plant recreationally will confirm this experience is the desired effect. Basically, intoxication is exactly what they were looking for following cannabis consumption. In these cases, "the psychotic symptoms [are not] sufficiently severe or persistent enough to warrant clinical attention for their own sake."4)

But What Happens When Psychosis Persists?

When the symptoms become severe and persistent enough, the diagnosis becomes CIPD. This is a variant of substance-induced psychotic disorder. For this diagnosis, a physician needs to note the use of cannabis before or during symptom development. Then, they must indicate that the delusions or hallucinations were extreme enough to warrant clinical attention. If the symptoms persist longer than one month, a new diagnosis is needed.

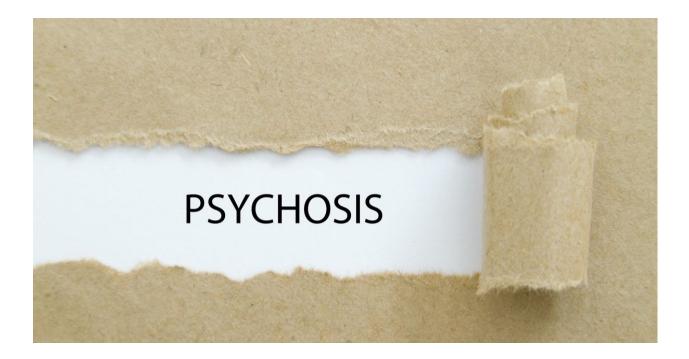
Is this confusing? A significant difference between simple intoxication and cannabis-induced psychosis is the presence of patient insight. Even amid intense psychotic symptoms, someone who is merely intoxicated will understand that their experience stems from recent cannabis consumption. During psychosis, however, people begin to lose touch with reality.

During CIPD and intoxication, cannabis-induced psychosis generally amplifies the positive symptoms of psychosis rather than the negative ones. The DSM-5 describes the "positive" symptoms of psychosis as delusions, hallucinations, disorganized thinking and behavior, and abnormal motor behavior. The negative signs are: diminished emotional expression, inability to experience pleasure, and difficulty relating to others.5)

Chronic Psychosis and Schizophrenia

The most chronic psychotic episodes will eventually lead to a diagnosis of schizophrenia. As per Nathan T. Pearson and James H. Berry, the authors of the 2019 analysis cited above, "schizophrenia is diagnosed when there are multiple psychotic symptoms present coupled with a decreased level of work and/or social functioning and the total duration of the disturbance is greater than 6 months."₆)

Interestingly, in 2017, "Rates and Predictors of Conversion to Schizophrenia or Bipolar Disorder Following Substance-Induced Psychosis," confirmed a link between a single lifetime diagnosis of CIPD with an increased risk for schizophrenia. As the authors of this study concluded, "Substance-induced psychosis is strongly associated with the development of severe mental illness, and a long follow-up period is needed to identify the majority of cases."7)



Does Cannabis Cause Schizophrenia?

The link between cannabis and psychosis is a lingering problem for pro-cannabis advocates, patients, and physicians. Accordingly, there are already decades of research on the subject. And yet, there's still no conclusive evidence one way or the other. The debate continues within scientific, political, and cultural contexts. Does cannabis cause psychosis, making it a substance dangerous for the public — or not?

Starting in 1969, with the study "Marihuana Psychosis, Acute Toxic Psychosis Associated With the Use of Cannabis Derivatives," the scientific community has been fascinated with the link between psychosis and cannabis use. Clearly, based on case studies and qualitative work, there is a causal link between cannabis and the development of a psychotic episode for some people. Still, the nature of this relationship has proven difficult to pinpoint.8)Talbott, J. A. (1969). "Marihuananna Psychosis". *Journal of the American Medical Association*, 210(2), 299. doi: 10.1001/jama.1969.03160280039006.

Does Cannabis Affect Severity of Psychotic Symptoms?

As Pearson and Berry contest, cannabis use leads to psychotic symptoms, which range in severity (pleasant to highly hallucinogenic) and duration (a few moments to months). In their words, "The temporality and specificity of cannabis intoxication and CIPD (exposure and then immediate

symptoms) allow us, with reasonable confidence, to say cannabis use "causes" these conditions."9)

What is less clear is why some people experience only mild, pleasant, or no signs at all of psychosis. In contrast, others may eventually endure a severe episode of CIPD, or perhaps, even schizophrenia. Is it frequency of use, dose size, genetics, environment, or perhaps strain potency?



Cannabis and Psychotic Episodes: A Complicated Relationship

Cannabis Consumption Is Up – Psychosis Isn't

Pro-cannabis advocates often cite the evidence that while cannabis use is up, rates of schizophrenia remain the same. But in a positive development for the pro-cannabis camp, a new study published in the Lancet suggests otherwise. Using data collected from several European and Brazilian sites, the authors connect the dots between daily cannabis use, access to high-potency products, and increased rates of psychosis. As they compared sites with easy access to high potency cannabis to sites without, they noted "striking variation" in the number of reported psychotic episodes.10)

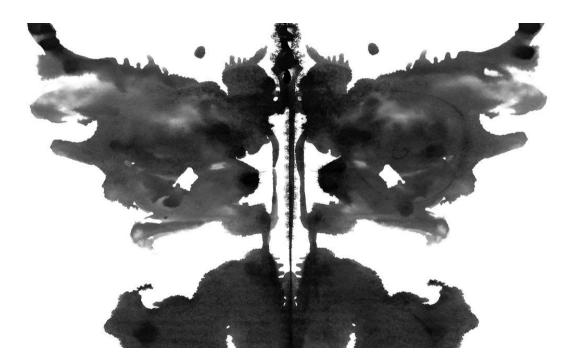
Debate Still Rages

But even this study doesn't clarify matters enough to settle the debate. In review after review, the conclusions of some of the finest minds in science determine the relationship between cannabis use and psychosis is multifaceted. According to these literature reviews, many more requirements must be met before a single use of cannabis increases the risk of a future psychotic episode.

No "Statistically Significant Effect"

For example, Pearson and Berry concluded, "No one factor can be said to cause schizophrenia. Rather, a multitude of potential component causes influence the likelihood of schizophrenia via their presence or absence." In their opinion, "Cannabis use appears to be a component cause of schizophrenia but is neither necessary nor sufficient."11)

In another review, published in 2014 within Schizophrenia Research, researchers examined how genetics may impact the future risk of schizophrenia, with or without cannabis use. They determined above all other factors, family history predicted rates of schizophrenia more so than the history of cannabis use. They found "no statistically significant effect of cannabis use" on the development of psychosis.12)



Does THC Potency Increase the Risk of Psychosis?

Short answer? Yes.

THC Potency

Even if researchers cannot agree on the role cannabis plays for the development of psychosis, they are slowly finding strong evidence that high potency THC may increase the risk. Accordingly, there have been several recent studies investigating this relationship.

In 2014, *Schizophrenia Bulletin* published, "Daily Use, Especially of High-Potency Cannabis, Drives the Earlier Onset of Psychosis in Cannabis Users." The researchers assessed 410 first-episode psychosis patients and their history of cannabis use. Following the Cox proportional hazards model, they concluded cannabis consumers experienced psychosis at a younger age than non-consumers. Furthermore, they identified other factors that would lower the age of onset, including potency, frequency of use, and age of introduction.13)

Correspondingly, another recent analysis, titled "Traditional marijuana, high-potency cannabis and synthetic cannabinoids: increasing risk for psychosis," (2016) concluded synthetic cannabinoids and THC-rich strains were a confounding risk for future psychosis. But, the highest risk comes with "regular use of high-potency cannabis and synthetic cannabinoids."14)

How Does CBD Impact Cannabis-Induced Psychosis?

It's clear the type of cannabinoid complicates the question of "Does cannabis cause Psychosis?" Researchers now feel that cannabidiol (CBD)-rich strains reduce the risk of psychosis.

In a 2019 edition of the *Journal of Clinical Medicine*, a team of Dutch researchers compiled an in-depth systemic review of related literature. They found evidence supportive of CBD for the treatment of schizophrenia and substance-induced psychosis. Plus, it was useful as a standalone and in conjunction with pharmaceutical antipsychotics.15)

CBD as a Treatment

The authors of this review determined, "acutely psychotic and early onset patients demonstrated reductions of positive and negative symptoms, while treatment resistant and chronic patients showed less promising improvement." They also determined that CBD could positively affect the outcomes for patients with cannabis use disorder. These patients may experience psychosis during the detox

phase of treatment.

This non-intoxicating cannabinoid is also under investigation for the treatment of psychosis in human trials. According to reports, it is performing much better than antipsychotics (as measured by side effect profile). The biological reasoning may be related to the subtle changes CBD makes within the brain, but this is only one theory. Much more research is needed to get to the bottom of the benefits and the full-effects of cannabinoids on psychosis.



Risk and Treatment for Psychosis

Cannabis and Psychosis

Scientists do not totally understand the overall relationship of cannabis-induced psychosis. But, through robust epidemiological research, what is increasingly clear are recommendations that reduce the risk.

Accordingly, *The New York Times* summarized these methods best in their 2019 piece on this subject. "In short: regularly using the new, high-potency cannabis may indeed be a risk for young people who are related to someone with a psychotic condition. On that warning, at least, most experts seem to agree."

Undeniably, (and unfortunately), schizophrenia is a genetically inherited disorder. "As many as four out of five cases of schizophrenia can be traced back to genes inherited from the child's parents," as per a report on Science Alert.

Work With Your Physician

People who have a family member with schizophrenia (or a related psychotic disorder) should not dabble with cannabis unless under the supervision of an experienced physician. Furthermore, because the risk increases with THC-rich strains, they should avoid concentrates and highly potent products at all costs. Experimenting with THC may increase the age of onset.

Beyond the genetic connection, experts agree that cannabis consumption in adolescence will also increase the risk. Daily use by adolescents seems to be an especially strong predictor for later psychosis. The younger age of introduction, paired with frequent use, can predict future mental health issues.

How to Treat Cannabis-Induced Psychosis?

Cannabis induced psychosis is a highly individual experience. It can be short, mild, and pleasurable, therefore better described as merely the experience of intoxication. It may be more serious, recruiting clinical attention for hallucinations and erratic behavior, enduring for months. Combined with more severe symptoms, it could evolve into a full-blown schizophrenia diagnosis. Treatment options therefore vary.



Basically, if you, or someone you know, is presenting with the signs of psychosis it is critical to seek help straightaway. Physicians rely on a combination of psychological interventions and medication to reduce the signs of psychosis.

There are few if any reliable at-home remedies to reduce the severity of a psychotic break or schizophrenia. Work with a physician and a psychiatrist to create a treatment plan encompassing both antipsychotics, therapy, and lifestyle changes, which will improve quality of life. Under this holistic lens, you may wish to speak with your doctor about the new developments in CBD treatments for psychosis.

Does Cannabis Cause Psychosis?

For those people who have a genetic predisposition to psychotic disorders, cannabis may be a contributing factor for the development of the condition. While scientists don't agree on the nuts and bolts, the current evidence does suggest some people increase the risk of psychosis with cannabis use.

After decades of research on patients with psychosis piled on top of massive epidemiological studies, two primary hypotheses are emerging:

- 1. Cannabis is not the only trigger for the onset of psychosis but a contributing factor for some.
- 2. For some people, cannabis consumption coupled with a genetic predisposition is increased risk. This is called a shared vulnerability.

In "Cannabis and Psychosis: a Critical Overview of the Relationship," the authors are of the opinion that cannabis does not "in itself cause a psychosis disorder." Instead, it seems likely that "both early use and heavy use of cannabis are more likely in individuals with a vulnerability to psychosis." Accordingly, to draw any conclusions beyond these two hypotheses, we will have to await better controlled and refined studies.16)

References

[1] Pearson, N. T., & Berry, J. H. (2019). "Cannabis and Psychosis Through the Lens of DSM-5." *International journal of environmental research and public health*, 16(21), 4149. doi:10.3390/ijerph16214149.

[2] Green, B., Kavanagh, D., & Young, R. (2003). "Being stoned: a review of self-reported cannabis effects." *Drug and Alcohol Review*, 22(4), 453–460. doi: 10.1080/09595230310001613976.

[3] Diagnostic and statistical manual of mental disorders: Dsm-5. (2017). Retrieved from <u>https://books.google.ca/books?id=-JivBAAAQBAJ&lpg=PT18&ots=ceVL40PNAf&lr&pg=PT19#v</u> =onepage&q=psychosis&f=false.

[4] Starzer, M. S. K., Nordentoft, M., & Hjorthøj, C. (2018). "Rates and Predictors of Conversion to Schizophrenia or Bipolar Disorder Following Substance-Induced Psychosis." *American Journal of Psychiatry*, 175(4), 343–350. doi: 10.1176/appi.ajp.2017.17020223.

[5] Talbott, J. A. (1969). "Marihuananna Psychosis". *Journal of the American Medical Association*, 210(2), 299. doi: 10.1001/jama.1969.03160280039006.

[6] Di Forti M., Quattrone D., Freeman TP., et al. The EU-GEI WP2 Group. 2019. "The contribution of cannabis use to variation in the incidence of psychotic disorder across Europe (EU-GEI): a multicentre case-control study." *Lancet Psychiatry*. Doi: 10.1016/S2215-0366(19)30048-3.

[7] Boydell, J., Dean, K., Dutta, R., Giouroukou, E., Fearon, P., & Murray, R. (2007). "A comparison of symptoms and family history in schizophrenia with and without prior cannabis use: Implications for the concept of cannabis psychosis." *Schizophrenia Research*, 93(1-3), 203–210. doi: 10.1016/j.schres.2007.03.014.

[8] Forti, M. D., Sallis, H., Allegri, F., Trotta, A., Ferraro, L., Stilo, S. A., ... Murray, R. M. (2013). "Daily Use, Especially of High-Potency Cannabis, Drives the Earlier Onset of Psychosis in Cannabis Users." *Schizophrenia Bulletin*, 40(6), 1509–1517. doi: 10.1093/schbul/sbt181.

[9] Murray, R. M., Quigley, H., Quattrone, D., Englund, A., & Forti, M. D. (2016). "Traditional marijuana, high-potency cannabis and synthetic cannabinoids: increasing risk for psychosis." *World Psychiatry*, 15(3), 195–204. doi: 10.1002/wps.20341.

[10] Batalla, A., Janssen, H., Gangadin, S. S., & Bossong, M. G. (2019). "The Potential of Cannabidiol as a Treatment for Psychosis and Addiction: Who Benefits Most? A Systematic Review." *Journal of Clinical Medicine*, *8*(7), 1058. doi:10.3390/jcm8071058.

[11] Ksir, C., & Hart, C. L. (2016). "Cannabis and Psychosis: a Critical Overview of the Relationship." *Current Psychiatry Reports*, 18(2). doi: 10.1007/s11920-015-0657-y.