

## Cannabis-Induced Psychosis in a 32 year old male

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### INTRODUCTION

Cannabis is the most widely used illicit drug in the United States. In 2002, 11% of those over the age of 12 reported using cannabis. The rate of cannabis use further rose to nearly 18% in 2019<sup>[1]</sup>. This trend holds across much of the world. In 2019, an estimated 200 million people worldwide used cannabis, according to the United Nations Office on Drugs and Crime<sup>[2]</sup>. They also note that adolescents in the United States perceive cannabis use as less harmful than in past years.

The mechanism for intoxication is reasonably well established. There are hundreds of compounds within the cannabis plant. The notable compounds of interest are tetrahydrocannabinol (THC) and cannabidiol (CBD). THC binds the cannabinoid-type receptor 1 (CB1) of the endocannabinoid system. The result is colloquially known as the “high” those who use cannabis seek<sup>[3]</sup>. As the prevalence of cannabis consumption has increased, so too has the potency of cannabis. The concentration of THC in a typical joint has increased by a factor of 10 over the last 50-60 years<sup>[4]</sup>.

In diagnosing cannabis-induced psychosis (CIP), the DSM-V requires distressing delusions or hallucinations that occur after the consumption of cannabis, which cannot be ascribed to any other psychiatric illness<sup>[5]</sup>. Research into the possibility of cannabis-induced psychosis began in earnest in the 1980s and has continued in the decades following<sup>[6]</sup>. The pathogenesis of CIP remains elusive, but it is thought that environmental and genetic differences in intracellular signaling pathways may increase susceptibility<sup>[7]</sup>.

### CASE REPORT:

The patient is a 32-year-old African-American male with longstanding anxiety who was involuntarily admitted for self-mutilation. He reported smoking cannabis and experiencing auditory hallucinations, which he claims were telling him to “take himself out.” The hallucinations were described as multiple voices coming from inside and outside his head, both male and female. They were goading him into harming himself, and eventually, he could not take it anymore, so he decided to barricade himself in the bathroom. He then lacerated his forearm and was brought to the emergency room by his family. After medical stabilization, he was transferred to another facility three days later. He was subsequently admitted to an inpatient psychiatric floor. His auditory hallucinations had resolved four to five days before his psychiatric admission date, and he reported preceding anxiety and insomnia in the days leading up to the episode of psychosis.

The patient postulated that he may have smoked synthetic marijuana because he was a daily cannabis user, and hallucinations had never happened to him before. As for his past psychiatric history, he reported longstanding anxiety for which he had trialed Wellbutrin. He also noted trials of Focalin, Ritalin, and Adderall for ADHD. He denied any history of psychosis, suicidal ideation, or suicide attempts. He reported no family history of psychiatric illness. For other substances, he reported consuming alcohol 1-2 times per month, smoking 1-2 cigars daily, and occasionally using MDMA. The patient was started on a trial of quetiapine, 50 mg QHS, and he agreed to seek outpatient care. He was discharged two days later.

## **DISCUSSION AND CONCLUSIONS**

In a patient with no reported personal or family history of psychosis or recent use of any other hallucinogen, it appears his episode of psychosis was related to his use. It is fair to say that this was not a case of a patient simply being intoxicated due to cannabis use. The patient's habitual cannabis use without a similar episode supports this claim.

A limitation of this report is that it is unknown if the patient truly smoked cannabis alone or if there was synthetic marijuana (K2) instead. The patient did note that he smoked cannabis he did not personally inspect, which is not typical for him. K2 is known to cause similar psychotic effects to what the patient experienced<sup>[8]</sup>. It is also unknown what quantity the patient smoked that day of the incident.

The legalization of cannabis for medical and recreational use has become more prevalent at the state level in the United States and in many other jurisdictions worldwide. Societal condoning of cannabis use has grown, as well as its use. It is not a stretch to imagine that with increased use and strength of cannabis, there would be a rise in reported cases of CIP. However, that has not always been the case. A 4-year study in Canada found no association between cannabis legalization and increased ER visits for CIP, though they acknowledge limitations to their study<sup>[9]</sup>. A European study noted a significant association between the daily use of cannabis and psychosis<sup>[10]</sup>.

The major implication of this case is to add another case of CIP to the literature. There are myriad case reports on CIP, and more extensive studies are needed to strengthen correlation and potentially find a causal link. More research may halt the tide of social acceptance and legalization throughout many nations.

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## **REFERENCES:**

1. SAMHSA, C. for B. H. S. and Q. (n.d.). *Key substance use and mental health indicators in the United States: results from the 2019 National Survey on Drug Use and health*. Key Substance Use and Mental Health Indicators in the United States: Results from the 2019 National Survey on Drug Use and Health. Retrieved August 17, 2022, from <https://www.samhsa.gov/data/sites/default/files/reports/rpt29393/2019NSDUHFFRPDFWHTM L /2019NSDUHFFR090120.htm#summary>
2. *World Drug Report 2021 (United Nations publication, Sales No. E.21.XI.8)*. (n.d.). Drug market trends: Cannabis opioids - united nations office on drugs. Retrieved August 17, 2022, from <https://www.unodc.org/res/wdr2021/field/WD R21 Booklet 3.pdf>
3. Lucia Sideli, Harriet Quigley, Caterina La Cascia & Robin M. Murray (2020) Cannabis Use and the Risk for Psychosis and Affective Disorders, *Journal of Dual Diagnosis*, 16:1, 22-42, DOI: [10.1080/15504263.2019.1674991](https://doi.org/10.1080/15504263.2019.1674991)
4. Favrat, B., Ménétrey, A., Augsburg, M. *et al.* Two cases of "cannabis acute psychosis" following the administration of oral cannabis. *BMC Psychiatry* 5, 17 (2005). <https://doi.org/10.1186/1471-244X-5-17>
5. 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. <https://doi.org/10.3390/ijerph16214149>
6. Andréasson, S., Allebeck, P., Engström, A., & Rydberg, U. (1987). Cannabis and schizophrenia. A longitudinal study of Swedish conscripts. *Lancet (London, England)*, 2(8574), 1483–1486. [https://doi.org/10.1016/s0140-6736\(87\)92620-1](https://doi.org/10.1016/s0140-6736(87)92620-1)

## Cannabis-Induced Psychosis in a 32 year old male

7. Hindocha, C., Quattrone, D., Freeman, T. P., Murray, R. M., Mondelli, V., Breen, G., Curtis, C., Morgan, C., Valerie Curran, H., & Di Forti, M. (2020). Do AKT1, COMT and FAAH influence reports of acute cannabis intoxication experiences in patients with first episode psychosis, controls and young adult cannabis users?. *Translational psychiatry*, *10*(1), 143. <https://doi.org/10.1038/s41398-020-0823-9>
  8. *Spice/ K2, Synthetic Marijuana*. DEA. (n.d.). Retrieved August 17, 2022, from <https://www.dea.gov/factsheets/spice-k2-synthetic-marijuana>
  9. Callaghan, R. C., Sanches, M., Murray, R. M., Konefal, S., Maloney-Hall, B., & Kish, S. J. (2022). Associations Between Canada's Cannabis Legalization and Emergency Department Presentations for Transient Cannabis-Induced Psychosis and Schizophrenia Conditions: Ontario and Alberta, 2015-2019. *Canadian journal of psychiatry. Revue canadienne de psychiatrie*, *67*(8), 616–625. <https://doi.org/10.1177/07067437211070650>
  10. Di Forti, M., Quattrone, D., Freeman, T. P., Tripoli, G., Gayer-Anderson, C., Quigley, H., Rodriguez, V., Jongsma, H. E., Ferraro, L., La Cascia, C., La Barbera, D., Tarricone, I., Berardi, D., Szöke, A., Arango, C., Tortelli, A., Velthorst, E., Bernardo, M., Del-Ben, C. M., Menezes, P. R., ... 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. *The lancet. Psychiatry*, *6*(5), 427–436. [https://doi.org/10.1016/S2215-0366\(19\)30048-3](https://doi.org/10.1016/S2215-0366(19)30048-3)
  - Oliver, D. (2021, September). Newspaper Coverage of Psilocybin – Sentiment and Frequency (1989- 2020). *The Journal of Psychedelic Psychiatry*, *3*(3)
  11. O’Connell, E; Lavine, K; Feller, E (2022, June). News media and psilocybin research: what is the public told? *The Journal of Psychedelic Psychiatry*, *4*(2).
  12. [Office of the Commissioner](#). (2020, January 14). *Right to Try*. U.S. Food and Drug Administration. <https://www.fda.gov/patients/learn-about-expanded-access-and-other-treatment-options/right-try>
  13. *Right to Try In Your State | Right to Try - National Movement*. (2022). Right To Try. <http://righttotry.org/in-your-state/>
- Grob, Charles S., et al. “Pilot Study of Psilocybin Treatment for Anxiety in Patients With Advanced-Stage Cancer.” *Archives of General*