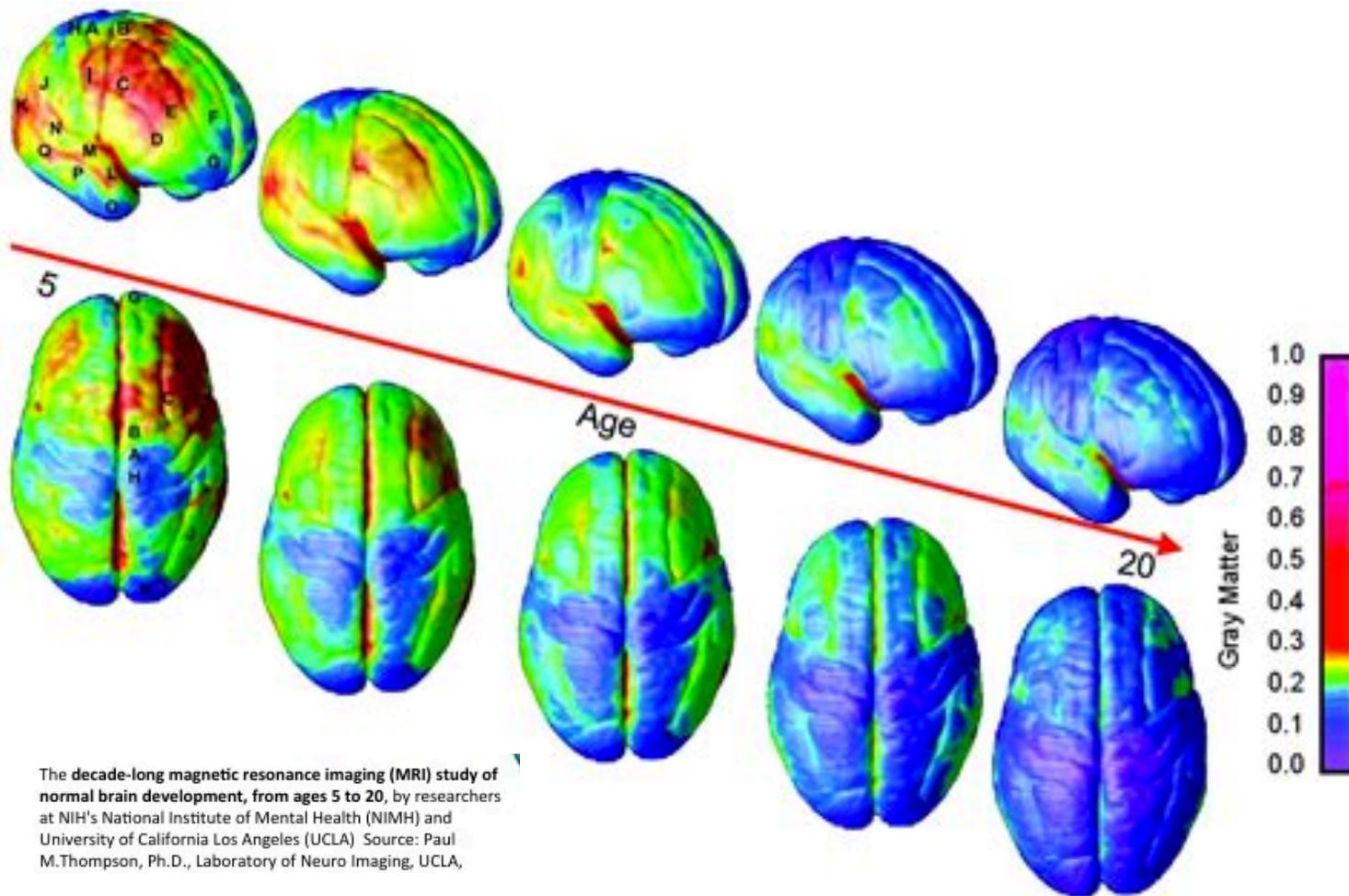


# Dangers of Marijuana Use By Teenagers and Young Adults

Raymond Bertino MD  
President Elect  
Illinois Society of Addiction Medicine

Marijuana hurts people. Of all people, the young are the most likely to be hurt by marijuana.



The decade-long magnetic resonance imaging (MRI) study of normal brain development, from ages 5 to 20, by researchers at NIH's National Institute of Mental Health (NIMH) and University of California Los Angeles (UCLA) Source: Paul M.Thompson, Ph.D., Laboratory of Neuro Imaging, UCLA,

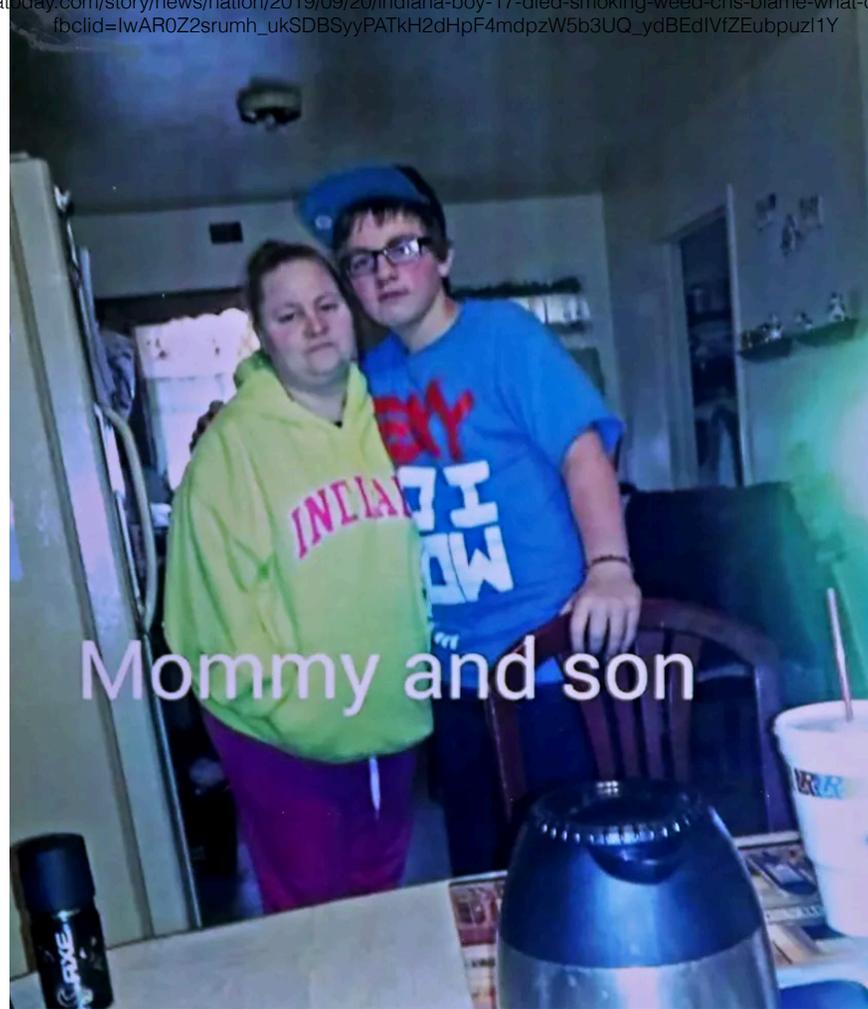
Stories

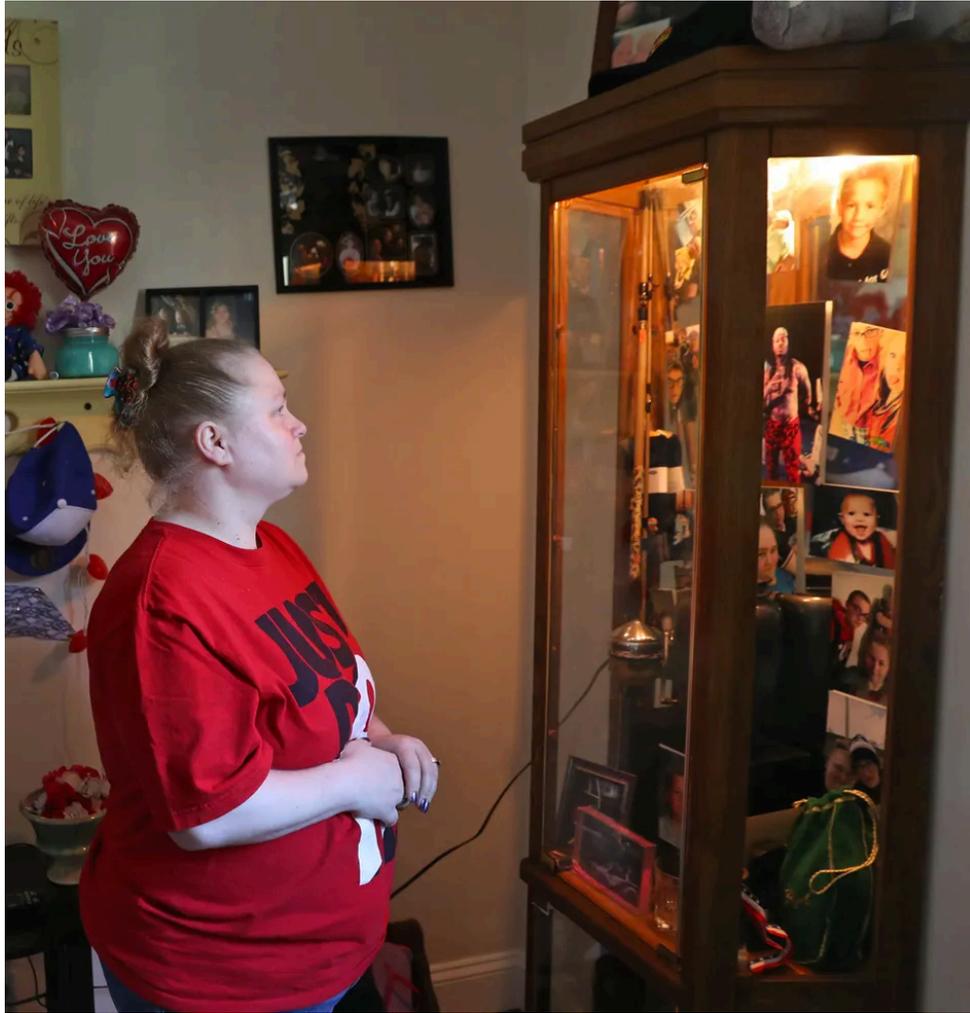
## 17 year-old in Indiana



[https://www.usatoday.com/story/news/nation/2019/09/20/indiana-boy-17-died-smoking-weed-chs-blame-what-chs/2387571001/?fbclid=IwAR0Z2srumh\\_ukSDBSyyPATkH2dHpF4mdpzW5b3UQ\\_ydBEdivfZEubpuzl1Y](https://www.usatoday.com/story/news/nation/2019/09/20/indiana-boy-17-died-smoking-weed-chs-blame-what-chs/2387571001/?fbclid=IwAR0Z2srumh_ukSDBSyyPATkH2dHpF4mdpzW5b3UQ_ydBEdivfZEubpuzl1Y)

[https://www.usatoday.com/story/news/nation/2019/09/20/indiana-boy-17-died-smoking-weed-chs-blame-what-chs/2387571001/?fbclid=IwAR0Z2srumh\\_ukSDBSyyPATkH2dHpF4mdpzW5b3UQ\\_ydBEdIVfZEubpuz1Y](https://www.usatoday.com/story/news/nation/2019/09/20/indiana-boy-17-died-smoking-weed-chs-blame-what-chs/2387571001/?fbclid=IwAR0Z2srumh_ukSDBSyyPATkH2dHpF4mdpzW5b3UQ_ydBEdIVfZEubpuz1Y)







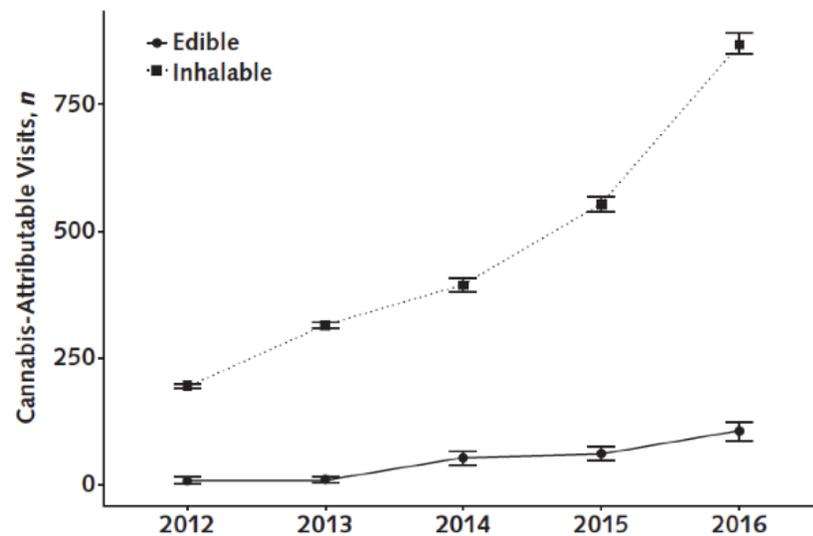
<b>Amount Smoked</b>	<b>Potency (%THC)</b>	<b>THC Absorbed</b>
Joint (0.32 g of flower) (1970)	3%	5.8 mg

<b>Amount Smoked</b>	<b>Potency</b>	<b>THC Absorbed</b>
Joint (0.32 g of flower) (1970)	3%	5.8 mg
Joint (0.32 g of flower) Today	20%	38.4 mg
Dab (0.5 g of wax concentrate)	70%	235 mg

adapted from: <https://wayofleaf.com/blog/how-much-thc-is-in-a-bowl-dab-and-a-joint>

# U of Colorado Emergency Room - Adults

**Figure 2.** Exposure to edible and inhalable cannabis products in cannabis-attributable visits at UCHED from 2012 to 2016.



Annals of Internal Medicine 2019;170:124.

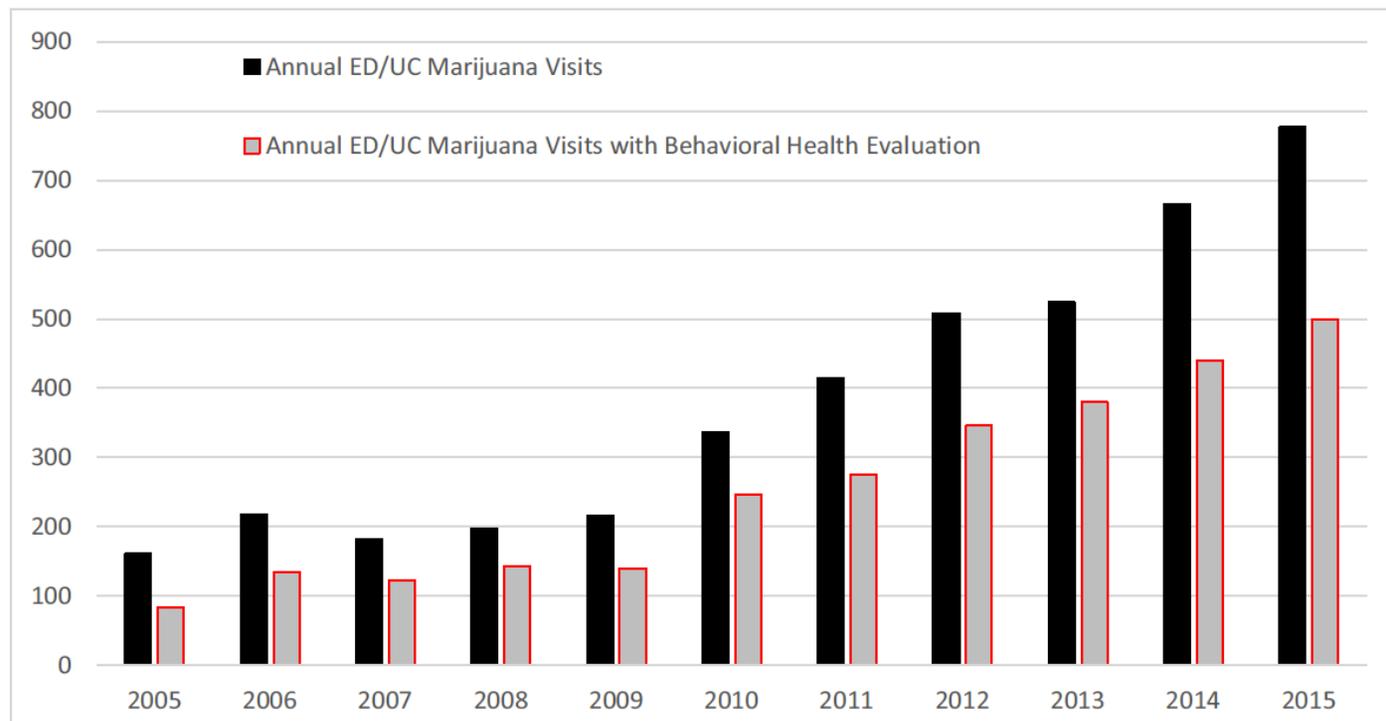
Error bars indicate 95% CIs. UCHED = UCHealth University of Colorado Hospital Emergency Department.

## University of Colorado Cannabis attributable ER patients

- 2567 ER visits for cannabis over 4 years
- 788 were for GI problems (30.7%)
- Of those 788 visits, 440 visits (by 301 patients) were due to hyperemesis
  - a. one patient visited the ER 17 times in one year for hyperemesis

Ann Intern Med. 2019;170:124.

# U of Colorado Emergency Room/Urgent Care Adolescents/young adults, ages 13-20

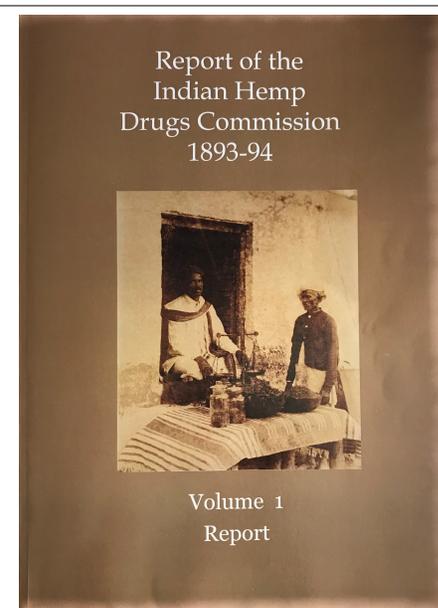


Journal of Adolescent Health 63 (2018) 239–241

As you know, you cannot go home  
if you cannot stop vomiting.

# Reviews of marijuana issues -Psychosis

- The Report of the Indian Hemp Drugs Commission, 1894
  - \* <https://digital.nls.uk/indiapapers/browse/archive/74908458>
- The Health and Social Effects of Nonmedical Cannabis Use, WHO, 2016
  - \* [https://www.who.int/substance\\_abuse/publications/cannabis\\_report/en/index8.html](https://www.who.int/substance_abuse/publications/cannabis_report/en/index8.html)
- The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research, National Academy of Sciences, 2017
  - \* <https://www.nap.edu/catalog/24625/the-health-effects-of-cannabis-and-cannabinoids-the-current-state>



*The National Academies of*  
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National Academies of Sciences,  
Engineering, and Medicine 2017.  
The health effects of cannabis and  
cannabinoids:

The current state of evidence  
The National Academies Press. doi:  
10.17226/24625

“Cannabis use is likely to increase the risk of developing  
schizophrenia and other psychoses;  
the higher the use, the greater the risk.”

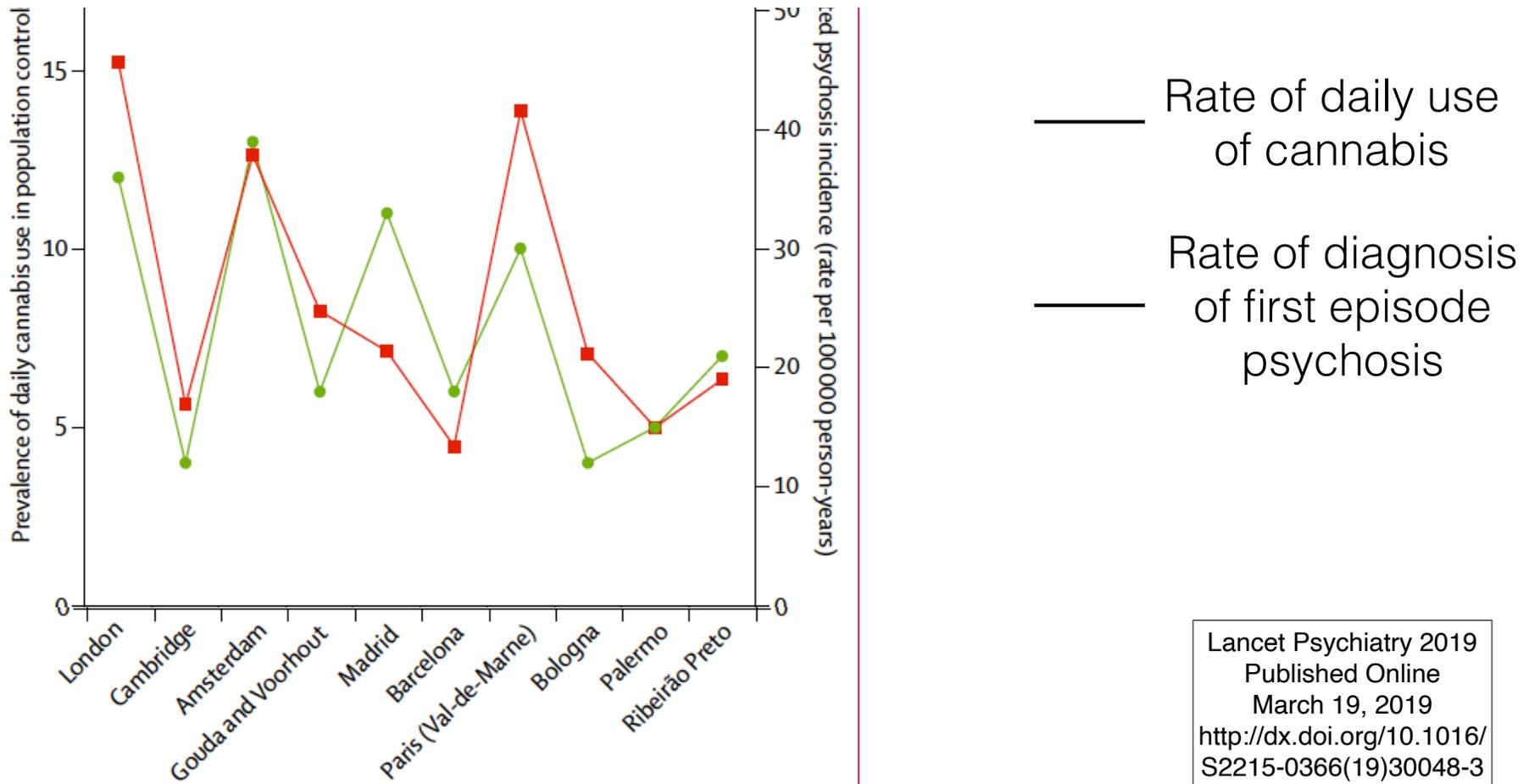
“It is now incontrovertible that heavy use of cannabis increases the risk of psychosis.”

“Starting use in adolescence... carries more risk.”

King’s College London

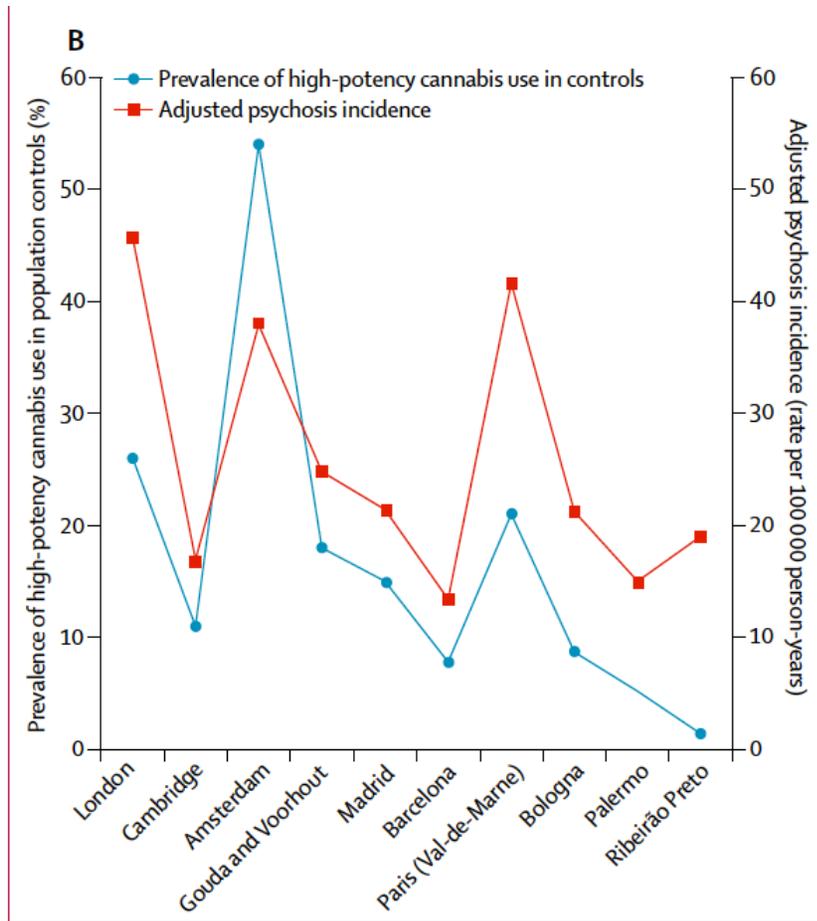
The British Journal of Psychiatry (2018) 212, 195–196.

## Prevalence of 1st episode psychosis vs daily use of cannabis in 10 world cities.



Lancet Psychiatry 2019  
 Published Online  
 March 19, 2019  
[http://dx.doi.org/10.1016/S2215-0366\(19\)30048-3](http://dx.doi.org/10.1016/S2215-0366(19)30048-3)

## Prevalence of 1st episode psychosis vs high potency cannabis in 10 world cities.



— Prevalence of high-potency cannabis ( $\geq 10\%$  THC)

— Rate of diagnosis of first episode psychosis

Lancet Psychiatry 2019  
 Published Online  
 March 19, 2019  
[http://dx.doi.org/10.1016/S2215-0366\(19\)30048-3](http://dx.doi.org/10.1016/S2215-0366(19)30048-3)

“Therefore, assuming causality, if high-potency (THC  $\geq$  10%) cannabis were no longer accessible, the adjusted incidence rates for all psychotic disorder in Amsterdam would drop from 37.9 to 18.8 cases per 100,000 and in London from 45.7 to 31.9 cases per 100,000.”

(\*Rate of opioid overdose deaths in the US in 2019 was 15.2 per 100,000) (<https://www.cdc.gov/drugoverdose/data/statedeaths.html> - retrieved 4/25/2021)

Lancet Psychiatry 2019  
Published Online  
March 19, 2019  
[http://dx.doi.org/10.1016/S2215-0366\(19\)30048-3](http://dx.doi.org/10.1016/S2215-0366(19)30048-3)

# Psychosis stories

Skunk user who bit, throttled and stabbed his mother 23 times in drug-induced frenzy leaving her fighting for her life is detained in hospital indefinitely



<https://www.dailymail.co.uk/news/article-5280997/Teen-stabbed-mother-23-times-detained-hospital.html>

“Almost immediately  
you launched a frenzied attack on your mother.”

Judge Nicholas Loraine-Smith

“You told staff that people had tried to kill you  
and you did have blood on your clothes and on your hands.”

Judge Nicholas Loraine-Smith

“So why did this happen?”

“Dr Ian Cummings diagnosed paranoid schizophrenia, that illness has not been helped by cannabis use.”

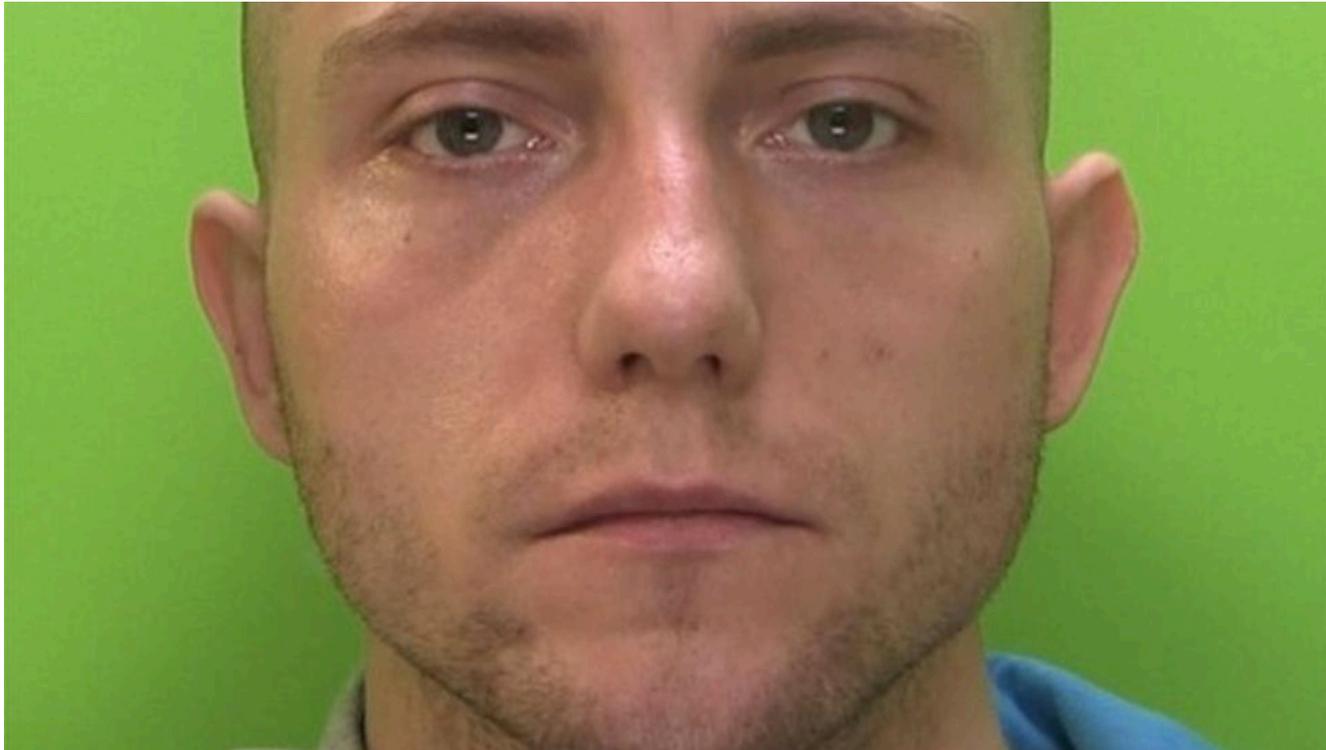
Judge Nicholas Loraine-Smith

Dr Bradley Hillier, who was one of three forensic psychiatrists to assess Jamil after the attack said skunk was one of the contributing factors behind his psychosis.



Jabbie will be kept in a secure hospital wing at Bethlam Hospital in south London (pictured) for psychiatric treatment and will have to apply to a mental health tribunal in order to be released

## Worksop man Kamil Dantes jailed for parents' stab killings



<https://www.bbc.com/news/uk-england-nottinghamshire-33605877>



A post-mortem examination said Mr and Mrs Dantes died from stab wounds. The attack was so severe the tip of one of the knives became lodged in Mrs Dantes's head.

<https://www.bbc.com/news/uk-england-nottinghamshire-33605877>

Judge Haddon-Cave added: "Your deteriorating mental health had much to do with your history of drug use and in particular your cannabis habit."

Kamil said the attack was "the biggest mistake of [his] life"

<https://www.bbc.com/news/uk-england-nottinghamshire-33605877>

Final story about psychosis

Psychosis  $\neq$  Violence

Causality

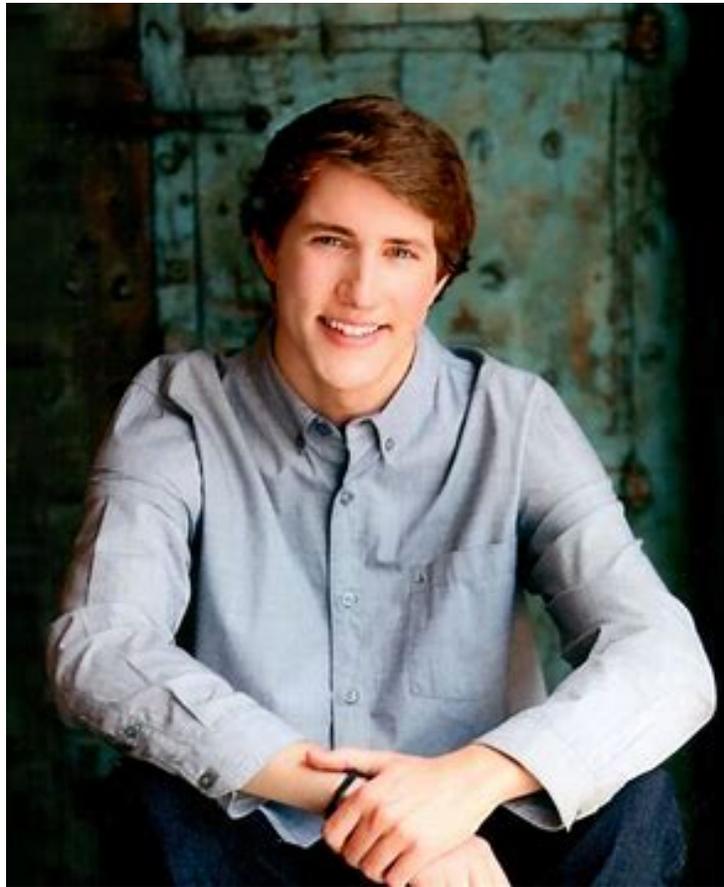


## CONCLUSION 12-7

12-7(a) There is moderate evidence of a statistical association between cannabis use and increased incidence of suicidal ideation and suicide attempts, with a higher incidence among heavier users.

12-7(b) There is moderate evidence of a statistical association between cannabis use and increased incidence of suicide completion.

# Suicide



<https://www.9news.com/article/news/health/highlands-ranch-couple-puts-spotlight-on-marijuana-after-sons-suicide/73-40a0cf97-52be-4768-81b9-ed68fa9e7335>



<https://www.9news.com/article/news/health/highlands-ranch-couple-puts-spotlight-on-marijuana-after-sons-suicide/73-40a0cf97-52be-4768-81b9-ed68fa9e7335>

National Academies of Sciences, Engineering, and Medicine 2017.  
The health effects of cannabis and cannabinoids:  
The current state of evidence  
The National Academies Press. doi: 10.17226/24625

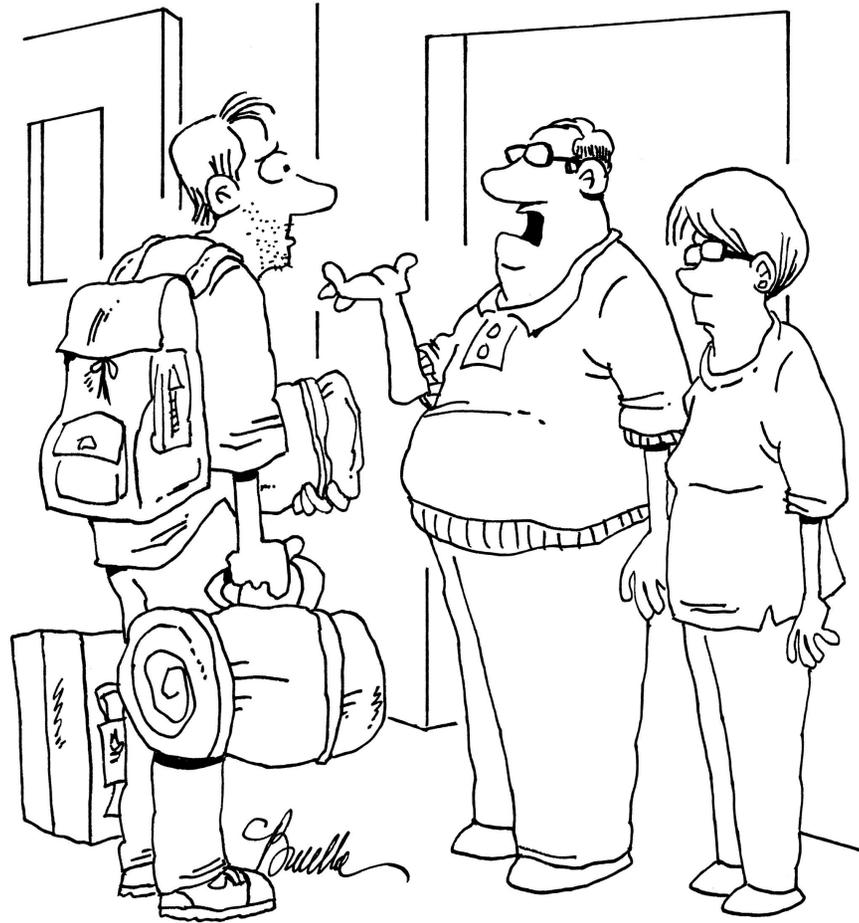
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“There is moderate evidence of an association between cannabis use and the impairment of the cognitive domains of verbal learning and attention.”

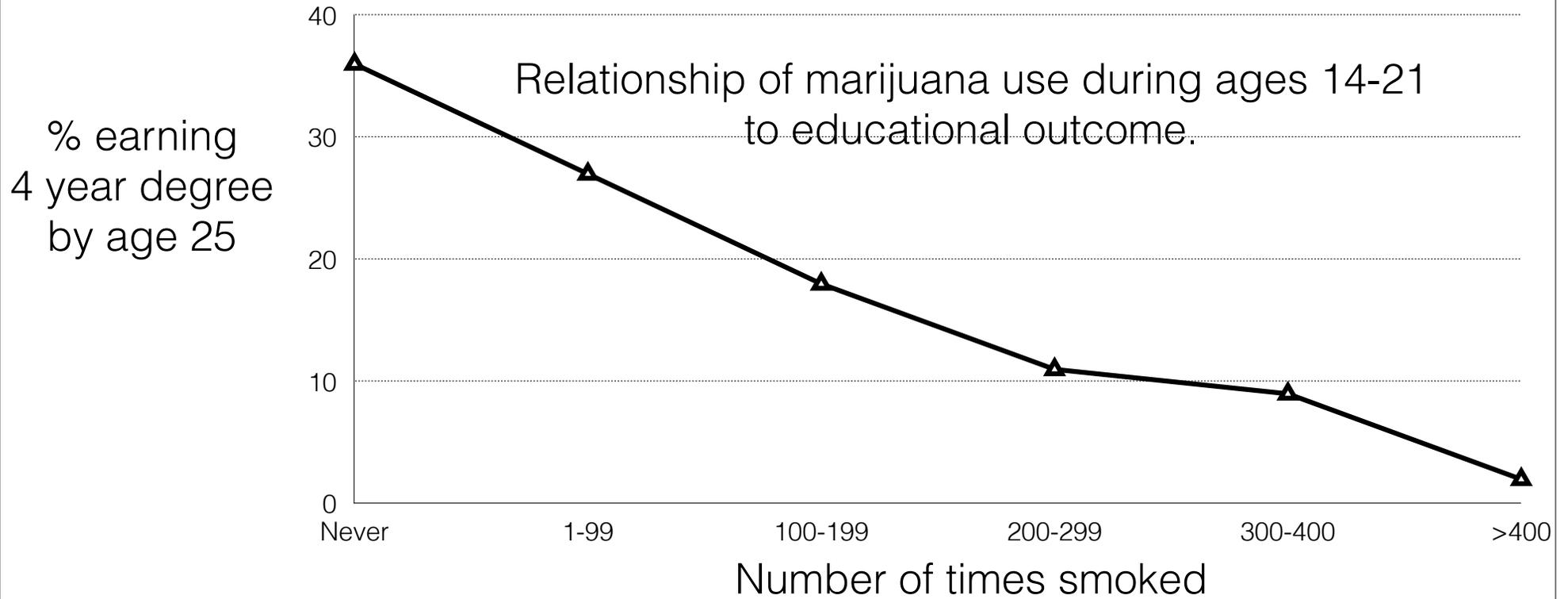


*"When I was your age, I was an adult."*



"You can't live in our basement. Your brother beat you to it."

# Christchurch, New Zealand Study (uncorrected data)

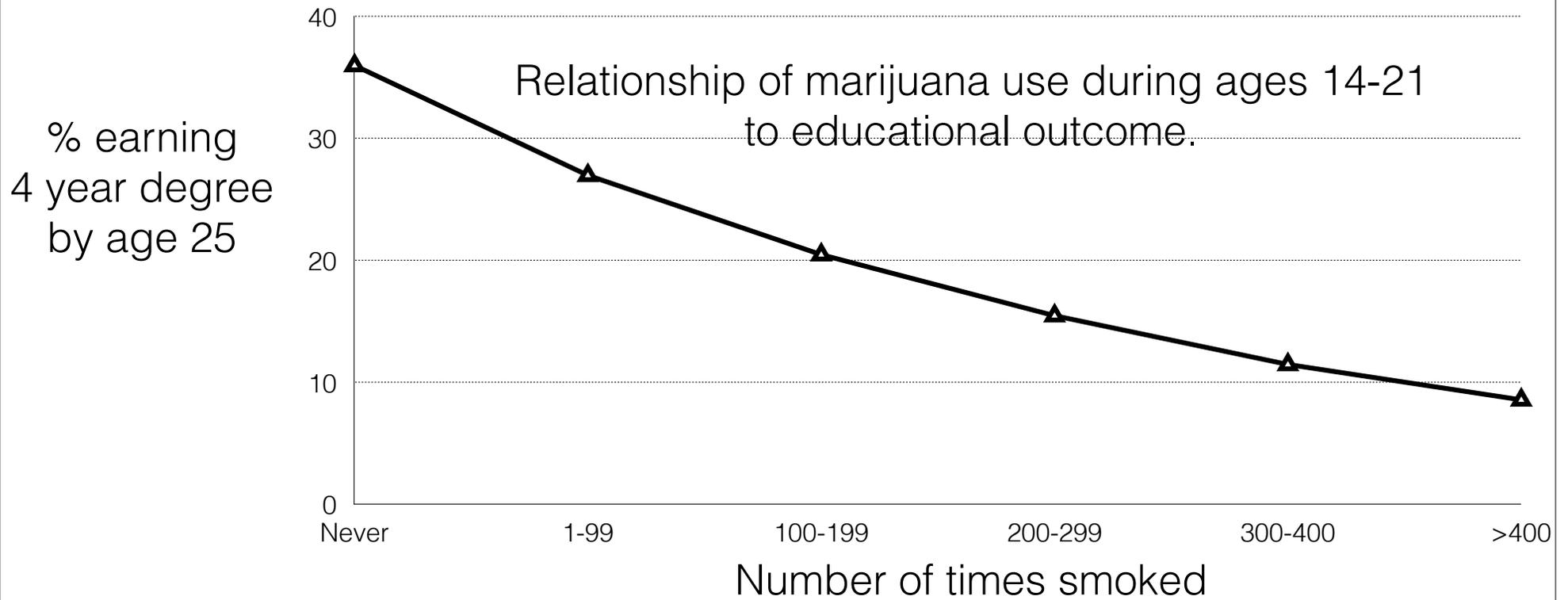


Addiction, 2008: 103, 969-976

# Confounders

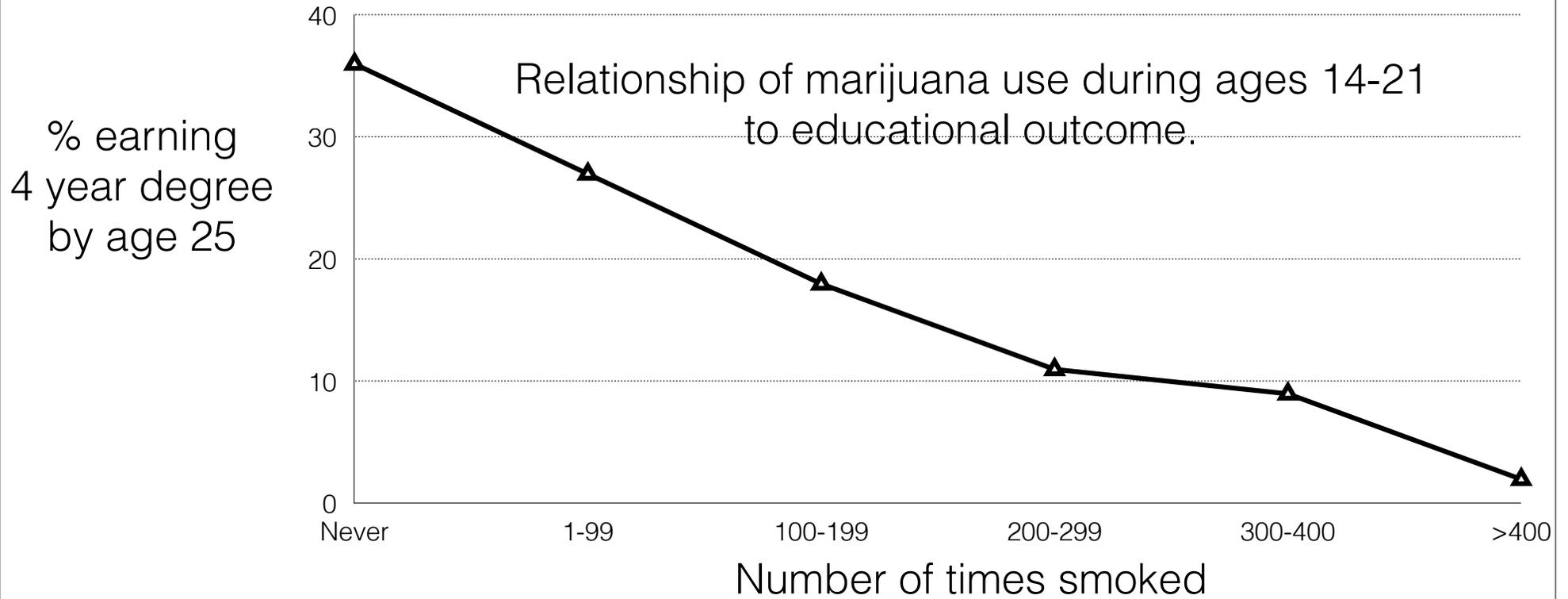
- Family socio-economic status
- Maternal age
- Changes in parents (e.g. divorce)
- Prenatal use of alcohol/drugs
- Childhood sexual abuse
- Use of physical punishment
- Conduct or attention problems
- Parental attachment
- Cognitive ability
- Alcohol/tobacco/drug use

# Christchurch, New Zealand Study Corrected for confounders



Addiction, 2008: 103, 969-976

# Christchurch, New Zealand Study (uncorrected data)



Addiction, 2008: 103, 969-976

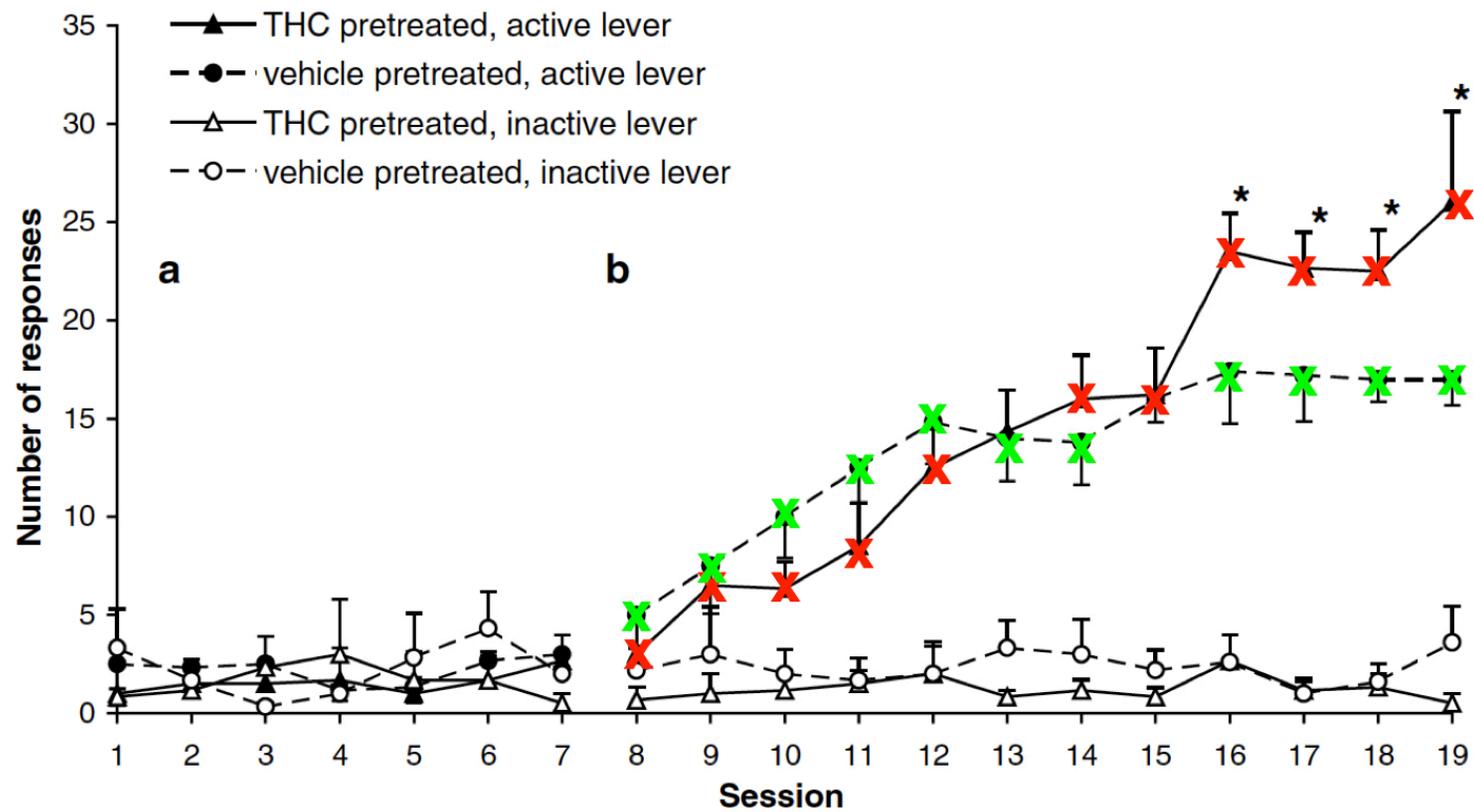
???

# Gateway Theory:

Why It's **Wrong**

??





Neuropsychopharmacology (2007) 32, 607–615

National Academies of Sciences, Engineering, and Medicine 2017.  
The health effects of cannabis and cannabinoids:  
The current state of evidence  
The National Academies Press. doi: 10.17226/24625

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## CONCLUSION 14-3

There is moderate evidence of a statistical association between cannabis use and the development a substance abuse disorder for substances, including alcohol, tobacco, and other illicit drugs.

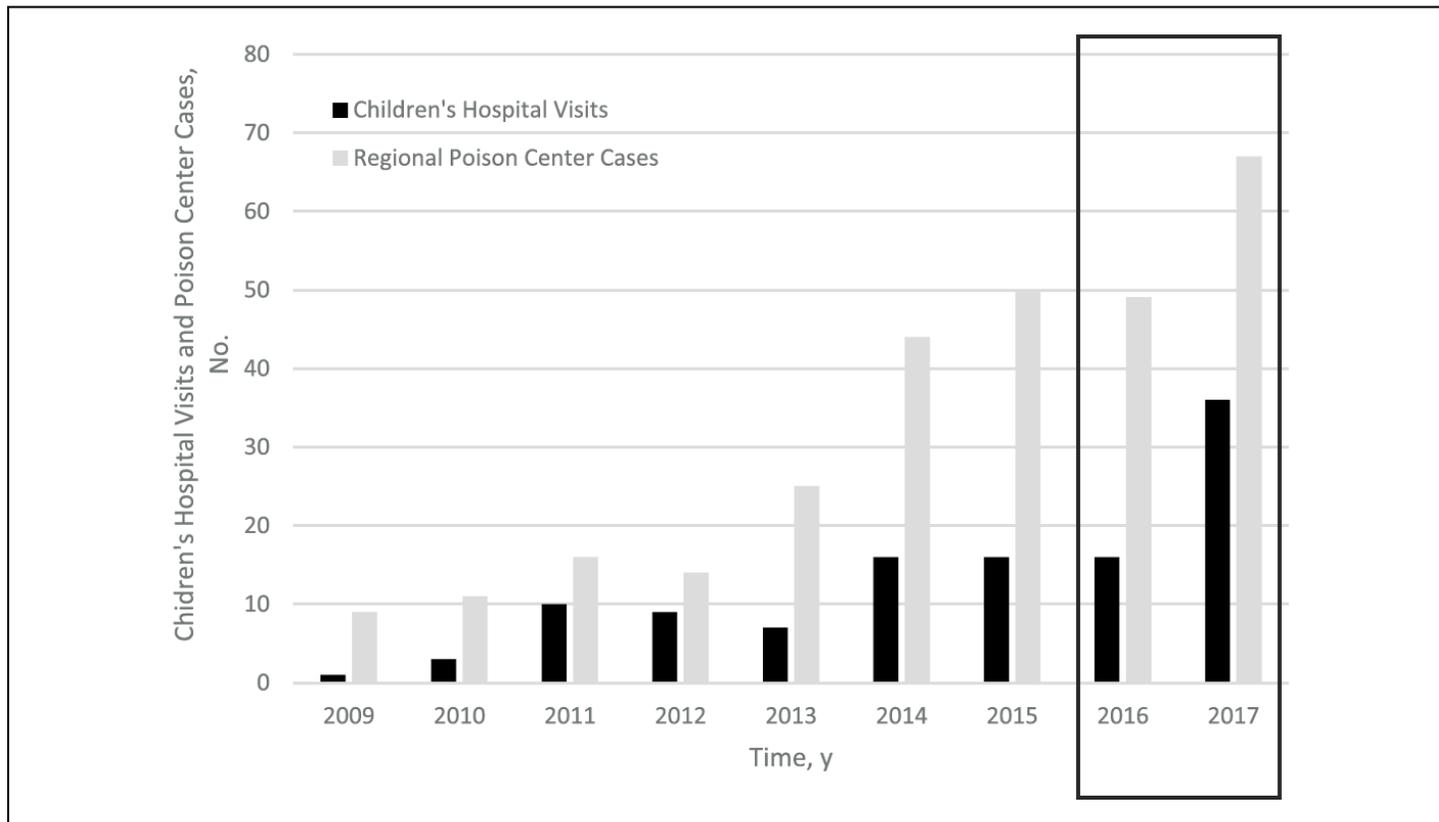
National Academies of Sciences, Engineering, and Medicine 2017.  
The health effects of cannabis and cannabinoids:  
The current state of evidence  
The National Academies Press. doi: 10.17226/24625

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9-4(b) There is moderate evidence of a statistical association between cannabis use and increased risk of overdose injuries among pediatric populations in U.S. states where cannabis is legal.

# University of Colorado Children's Hospital Visits due to marijuana exposure of children <10 years of age



Clinical Pediatrics  
2019, Vol. 58 114-116

National Academies of Sciences, Engineering, and Medicine 2017.  
The health effects of cannabis and cannabinoids:  
The current state of evidence  
The National Academies Press. doi: 10.17226/24625

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**CONCLUSION 9-3** There is substantial evidence of a statistical association between cannabis use and increased risk of motor vehicle crashes.

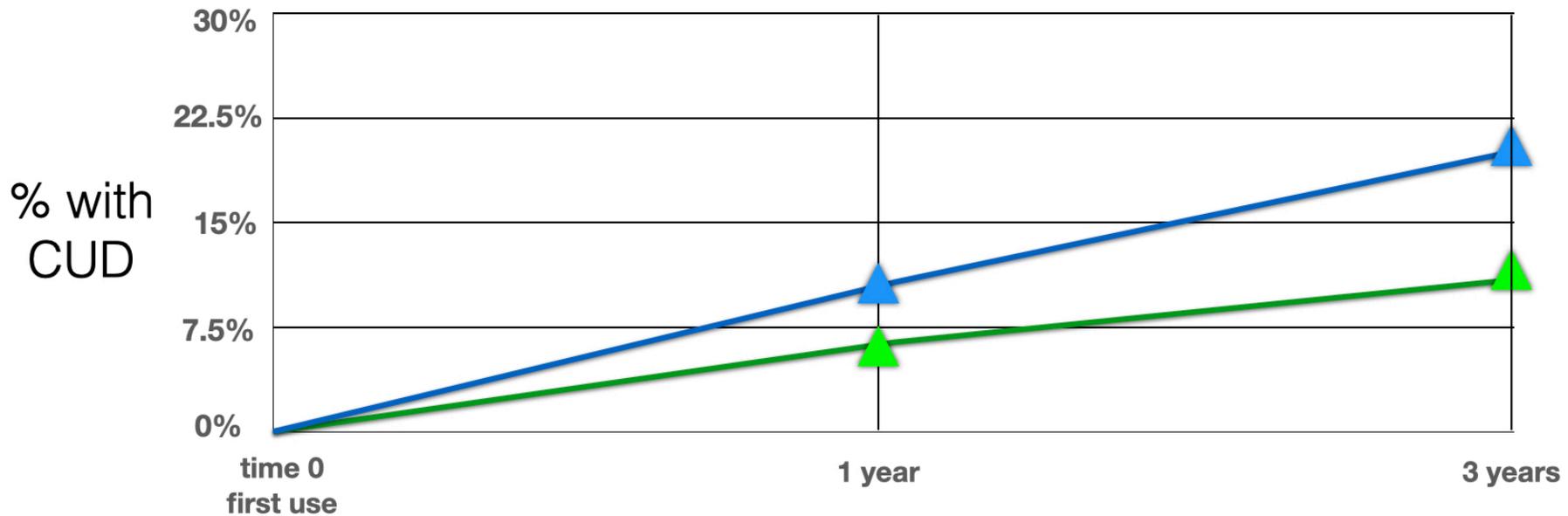
Canadian Study -  
A Population-Based Analysis of the Relationship  
Between Substance Use and Adolescent  
Cognitive Development

“...the concurrent and lasting effects of adolescent cannabis use can be observed on important cognitive functions and appear to be more pronounced than those observed for alcohol.”

Am J Psychiatry 2019; 176:98–106;

## Rate of cannabis use disorder 1 yr and 3 yr post first use

Blue line is for ages 12-17 green line 18-25



More adolescents aged 12-17 who used cannabis developed a substance use disorder than those who used either cigarettes or alcohol.

<https://jamanetwork.com/journals/jamapediatrics/article-abstract/2777817>

Cannabis hurts people.  
Of all people, the young are most likely to be hurt.

- Hyperemesis
- Psychosis
- Suicide - attempts and completion
- Educational attainment
- Gateway
- Overdose by children < 10 years old
- MVA
- Worse than alcohol for adolescent brain cognitive development
- Substance use disorder.