



Cannabis and Psychosis

WA State Poison Center Overdose Awareness Series
August 14, 2024

Beatriz Carlini, PhD, MPH
Cannabis Education and Research Program Director
Research Associate Professor, Psychiatry

Sharon Garrett, MA, MPH
Research Scientist, Psychiatry



W UNIVERSITY *of* WASHINGTON
PSYCHIATRY & BEHAVIORAL SCIENCES
School of Medicine



CANNABIS EDUCATION
& RESEARCH PROGRAM

ADAI CERP

- Lexi Nims
- Sharon Garrett
- Bia Carlini
- Meg Brunner
- Lyndsey Kellum



Agenda

Evidence connecting cannabis and psychosis

Minimizing risk: policy and interventions

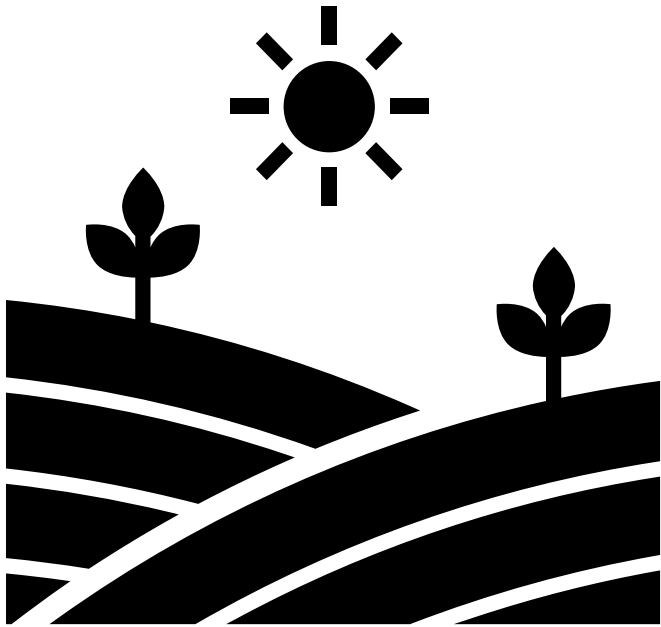
What's next?

Agenda

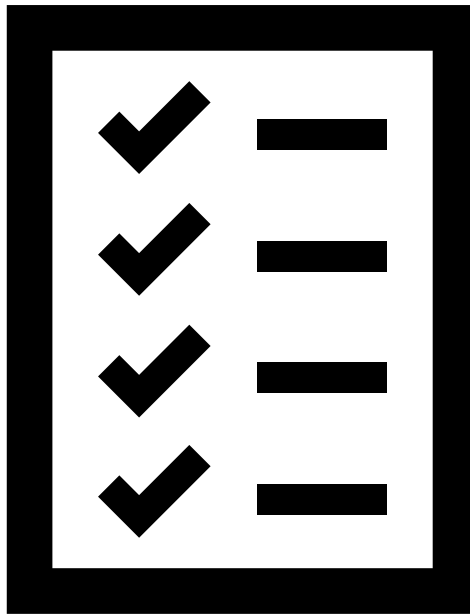
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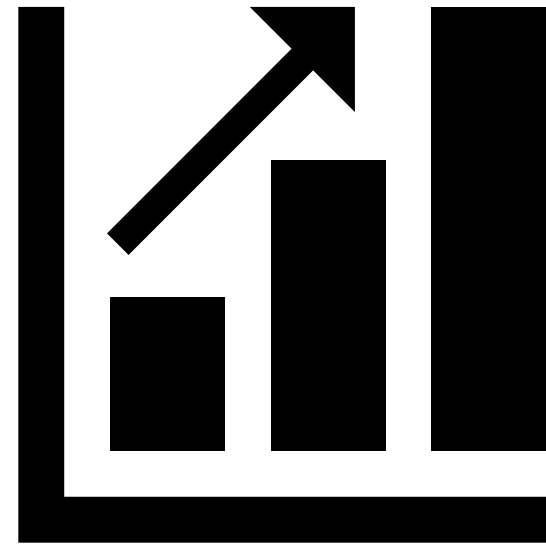
What's next?



Landscape

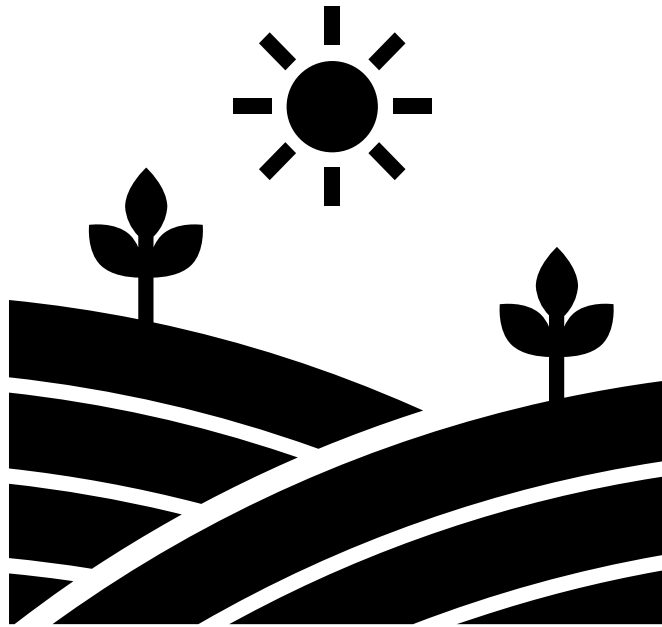


Definitions



Research Evidence

DISTRUST



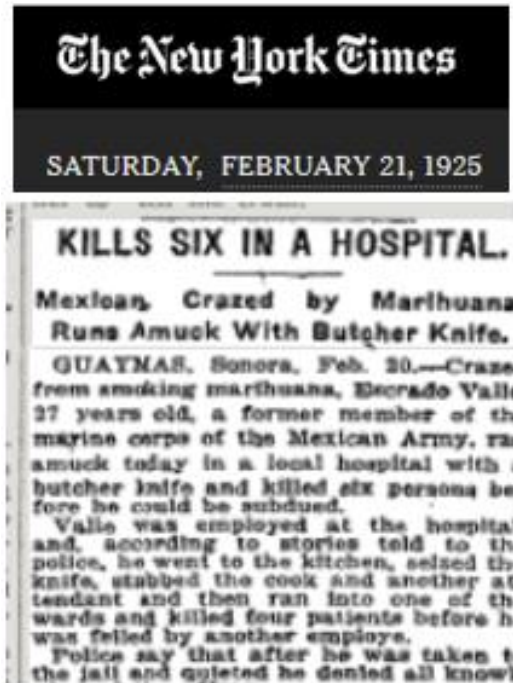
Landscape

Definitions

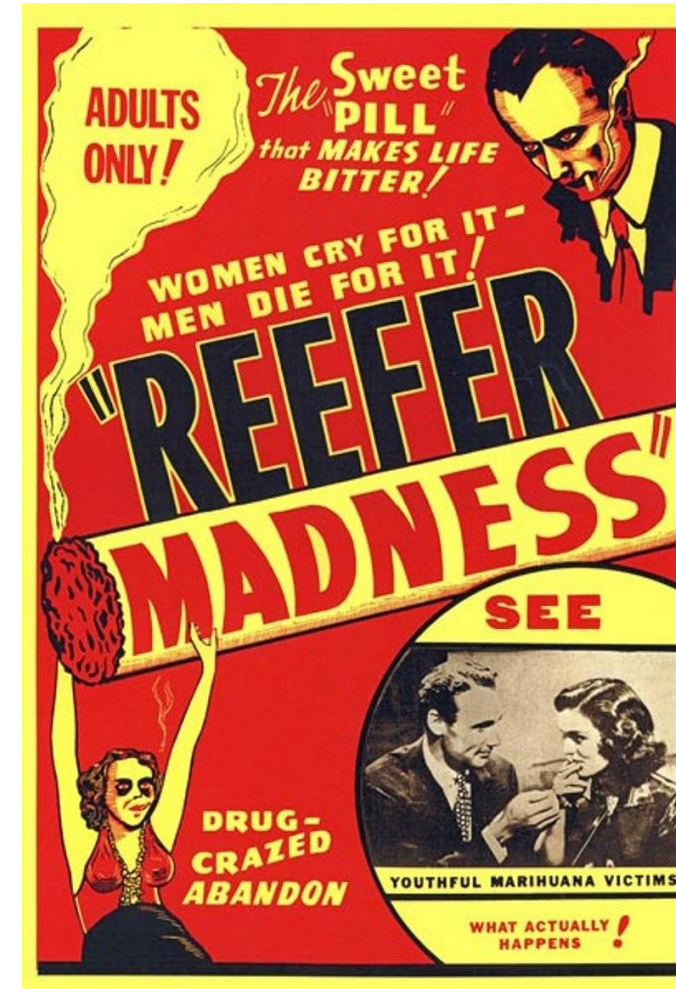
Research Evidence

1925

“KILLS SIX IN A HOSPITAL
Mexican crazed by marihuana runs
amok with butcher knife”



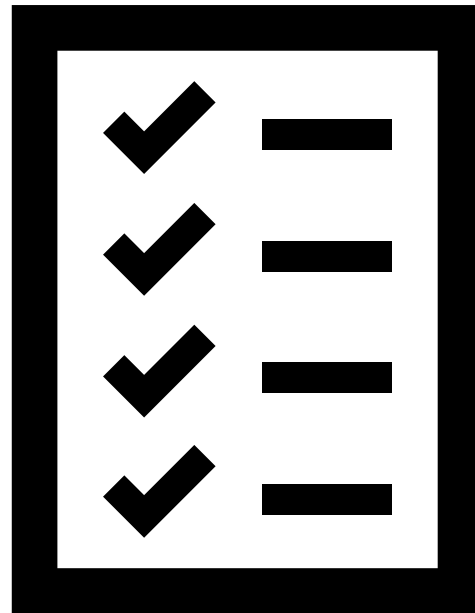
1936







Landscape



Definitions

Research Evidence

Psychotic Symptoms

- Delusions
- Hallucinations
- Thought Disorder / incoherent speech

Schizophrenia is a psychotic disorder (chronic)

- Psychotic Symptoms (hallucinations, delusions and thought disorder)
- Negative symptoms (loss of interest, withdraw from social life, difficulty functioning normally)
- Cognitive symptoms (trouble processing information, using information, focusing)

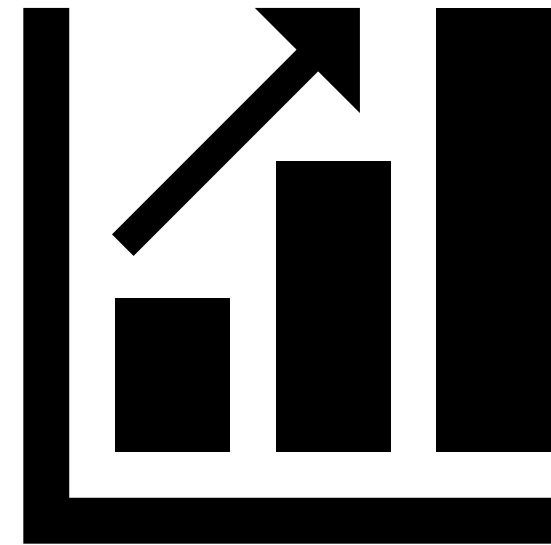
Substance-induced psychoses (acute)

- Psychotic state occurring during intoxication or withdrawal
- Lasting at least 48 hours.
- Common cause of first-episode psychosis.

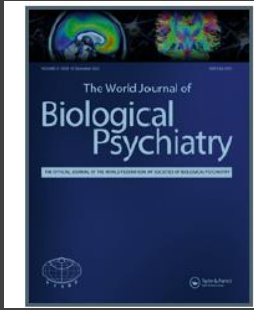


Landscape

Definitions



Research Evidence



World Federation of Biological Psychiatry Task Force, Consensus paper 2022

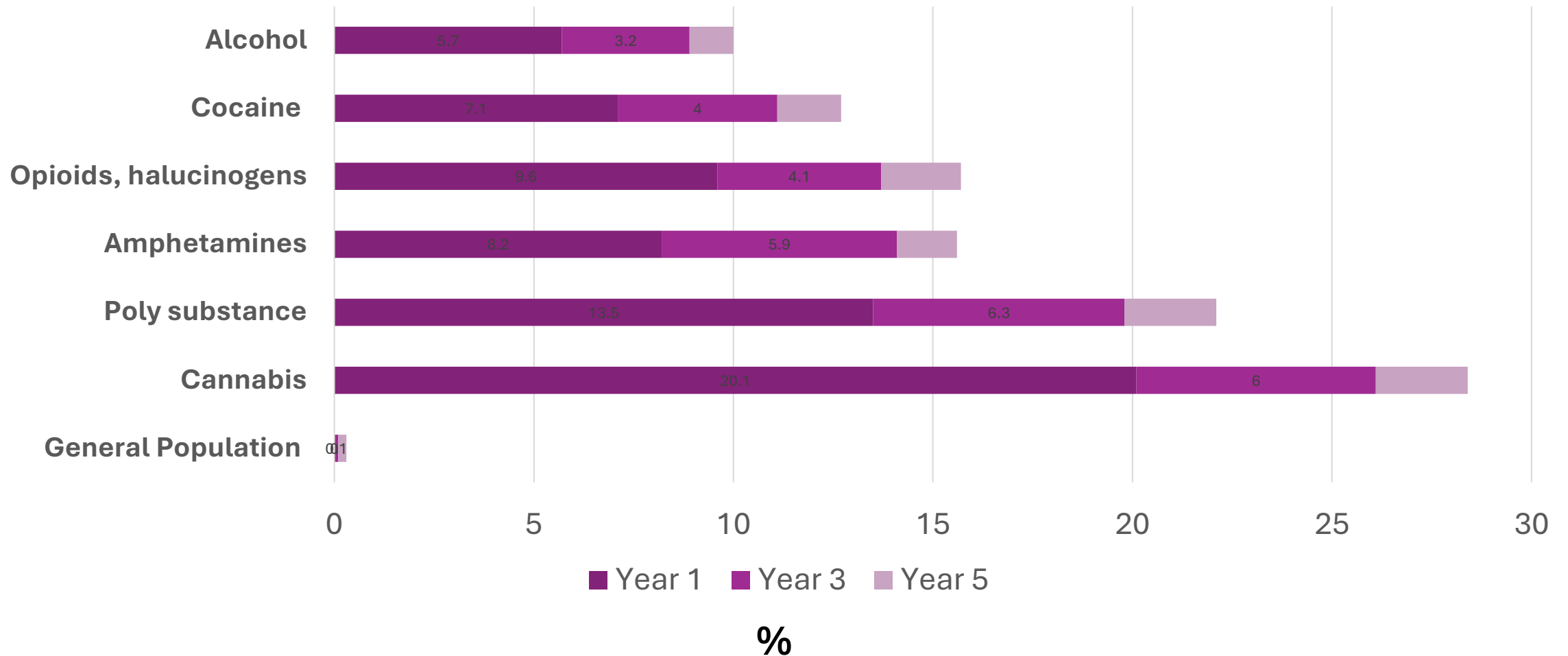
Deepak Cyril D'Souza, Marta DiForti, Suhas Ganesh, Tony P. George, Wayne Hall, Carsten Hjorthøj, Oliver Howes, Matcheri Keshavan, Robin M. Murray, Timothy B Nguyen, Godfrey D. Pearson, Mohini Ranganathan, Alex Selloni, Nadia Solowij & Edoardo Spinazzola (2022) Consensus paper of the WFSBP task force on cannabis, cannabinoids and psychosis, The World Journal of Biological Psychiatry, 23:10, 719-742, DOI:10.1080/15622975.2022.2038797

Cannabis use can result
in chronic recurrent
psychoses

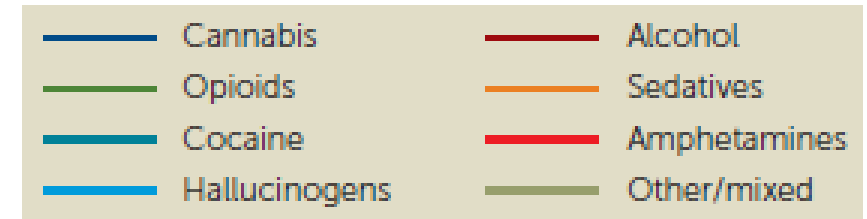
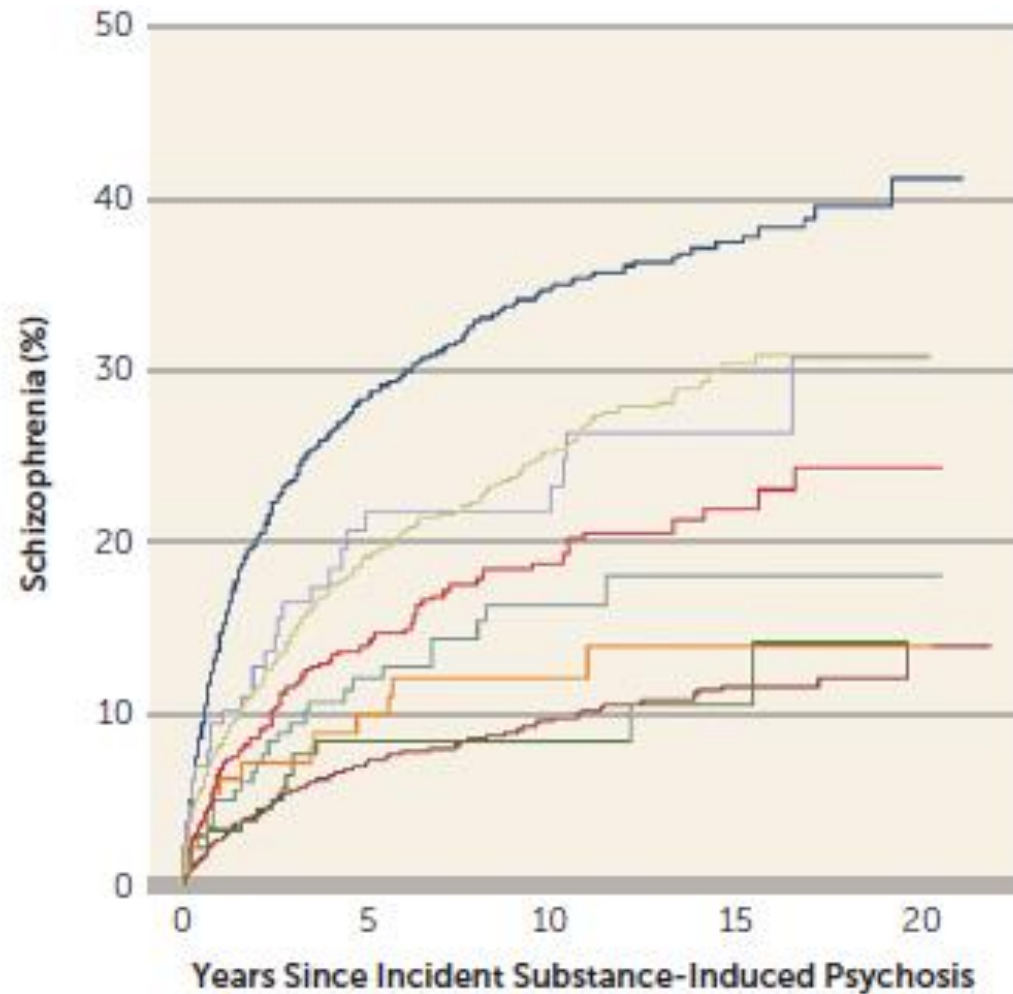
The greater the dose
(potency and frequency)
and the earlier the age
of initiation, the greater
the risk.

COMPONENT CAUSE
Increase risk does not
equal single cause or
necessary presence

Conversion to schizophrenia after a substance-induced psychosis episode: 5 years follow up after an ED visit, Ontario, 2008-22 (n=13,784)



Conversion to schizophrenia after a substance-induced psychosis episode: 20 years follow up after an ED visit, Denmark, 1994-2014 (n=6788)



Starzer, M. S. K., Nordentoft, M., & Hjorthøj, C. (2018). Rates and Predictors of Conversion to Schizophrenia or Bipolar Disorder Following Substance-Induced Psychosis. *The American journal of psychiatry*, 175(4), 343–350.

Risk of developing a psychotic disorder according to frequency of use and cannabis potency (10 European cities + 1 South America, n=900)

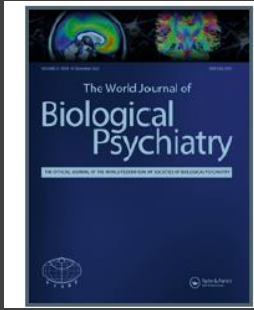


Psychotic Disorder Risk

People with a psychotic disorder who use cannabis compared to non-users who also have psychotic disorders:

Cannabis consumers

- ✓ increase in relapse
- ✓ longer hospital admissions
- ✓ lower psychosocial functioning and recovery
- ✓ less regular use of antipsychotic medications,
- ✓ reduced effectiveness of anti-psychotic medications
- ✓ increased rates of mental health treatment drop out



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Cannabis use can result in
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The greater the dose
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and the earlier the age of
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COMPONENT CAUSE

Increase risk does not
equal single cause or
necessary presence

MODIFIABLE RISK FACTOR

Addressing cannabis use
has the potential to
reduce the risk of
psychosis.

Lowering the risk of developing psychotic disorders

Delay

Age of initiation

Prevent/
Reduce/
Eliminate

Frequent use

Prevent/
Reduce/
Eliminate

High THC levels

Age matters

Early use

Early daily
use

Early high
potency use

Psychosis risk

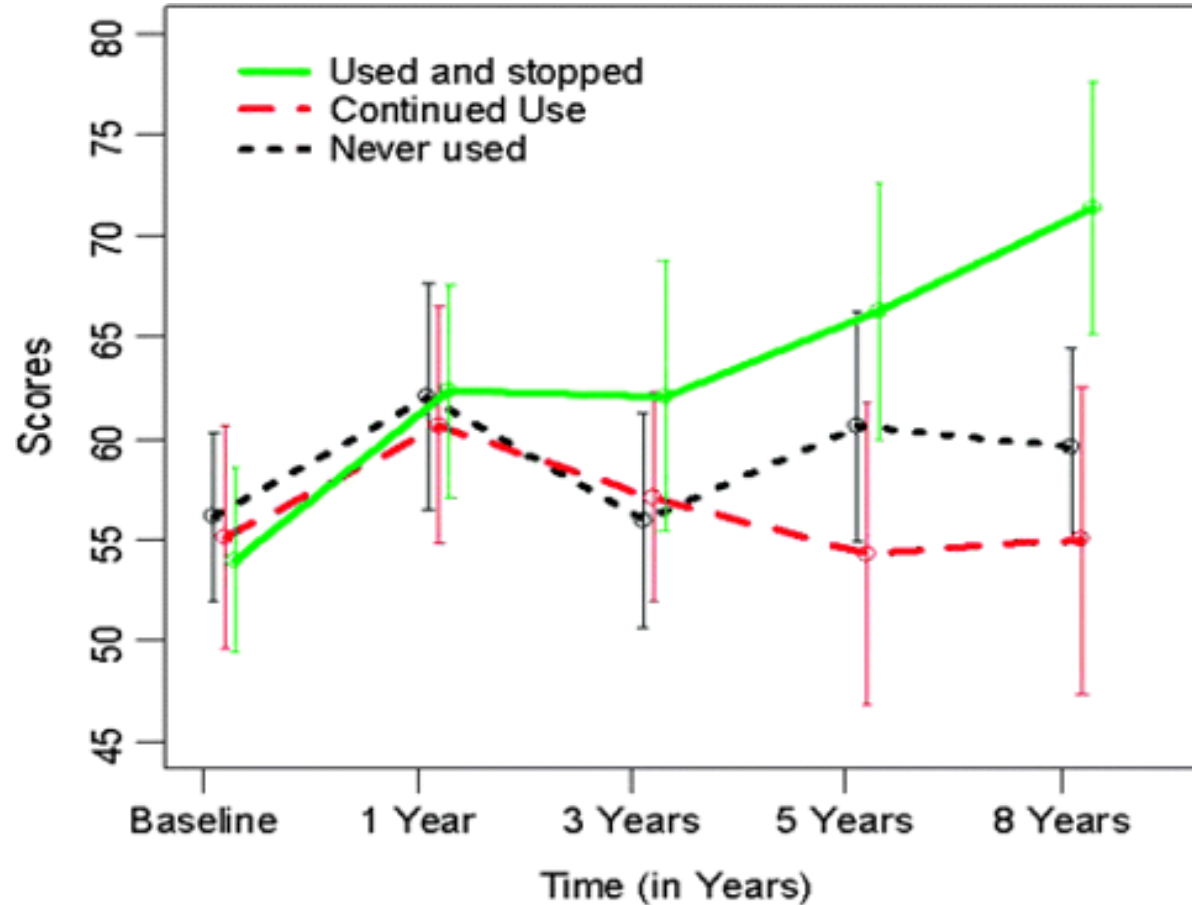
PAF- Population Attributable Fraction

- ✓ Assuming causation, how many new cases of psychotic disorder could be prevented if cannabis daily use was eliminated?
- ✓ Assuming causation, how many new cases of psychotic disorder could be prevented if high potency cannabis use was eliminated?

Locations	High Potency	Daily Use
11 cities	12.2 %	20.4 %
London	30.3%	21.0%
Amsterdam	50.3%	43.8%
Barcelona	4.7%	8.6%

Quitting cannabis improve lives of those who are in treatment for psychotic disorders.

(score of overall functioning, 8 years follow-up)



Agenda

Evidence connecting cannabis and psychosis

Minimizing risk: policy and interventions

What's next?

How can we reduce risk of psychosis?



GOVERNMENT

ENVIRONMENTAL
RISK



INDIVIDUAL
RISK

Policies recommended take into consideration the perspective of local stakeholders and the research evidence

Meant to be adopted as a comprehensive package.

High THC products (high potency): cannabis products with 35% or more THC.

<https://adai.uw.edu/wordpress/wp-content/uploads/High-THC-Policy-Final-Report-2022.pdf>

Washington State
Health Care Authority
Report to the Legislature

High THC policy | Final report

Exploring policy solutions to address public health challenges of high THC products

Engrossed Substitute Senate Bill 5092; Section 215(55); Chapter 334; Laws of 2021
December 31, 2022

Washington State
Health Care Authority



Policy Areas



Decrease Access to
High THC Products



Prevent Initiation of
High THC Products



Empower Consumers
& the Public with
Information &
Education



Policy Areas



Decrease Access to
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Policies Considered	Recommended to WA State	Research Support	WA Stakeholder's support
Implement excise tax levels proportional to total THC content			
Cap THC concentration			
Set purchase limits for THC content			



Policies considered	Recommended to WA State	Research Support	WA Stakeholder's support
Implement excise tax levels proportional to total THC content	Yes	Yes	Yes
Cap THC concentration	No, reassess in the future	Yes	No
Set purchase limits for THC content	No, reassess in the future	Yes	No



Implement excise tax levels proportional to total THC content in products with greater than 35 percent THC concentration

Earmark revenue collected for equity-focused initiatives

Consultation with at least 3 health economists to determine 1) whether this replaces or supplements current taxation, 2) at what point taxes should be collected (wholesale vs. retail), and 3) levels of taxation to achieve significant health benefits.

Tobacco Use: Interventions to Increase the Unit Price for Tobacco Products

[Print](#)

- Snapshot**
- What the CPSTF Found
- Supporting Materials
- Considerations for Implementation

Summary of CPSTF Finding

The [Community Preventive Services Task Force \(CPSTF\)](#) recommends interventions that increase the unit price of tobacco products based on strong evidence of effectiveness in reducing tobacco use. Evidence is considered strong based on findings from studies demonstrating that increasing the price of tobacco products:

- Reduces the total amount of tobacco consumed
- Reduces the prevalence of tobacco use
- Increases the number of tobacco users who quit
- Reduces initiation of tobacco use among young people
- Reduces tobacco-related morbidity and mortality

The Science

Price increases are effective in lowering consumption
Taxation is an effective tool to increase price

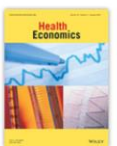


Preventing excessive drinking to save lives



What is the most common pricing strategy for preventing excessive alcohol consumption and related harms?

There is strong scientific evidence that increasing the unit price of alcohol by raising alcohol taxes is an effective strategy for reducing excessive alcohol consumption and related harms.^[1] Increasing alcohol taxes is the most



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Pages 47-64

RESEARCH ARTICLE

Do sugar-sweetened beverage taxes improve public health for high school aged adolescents?

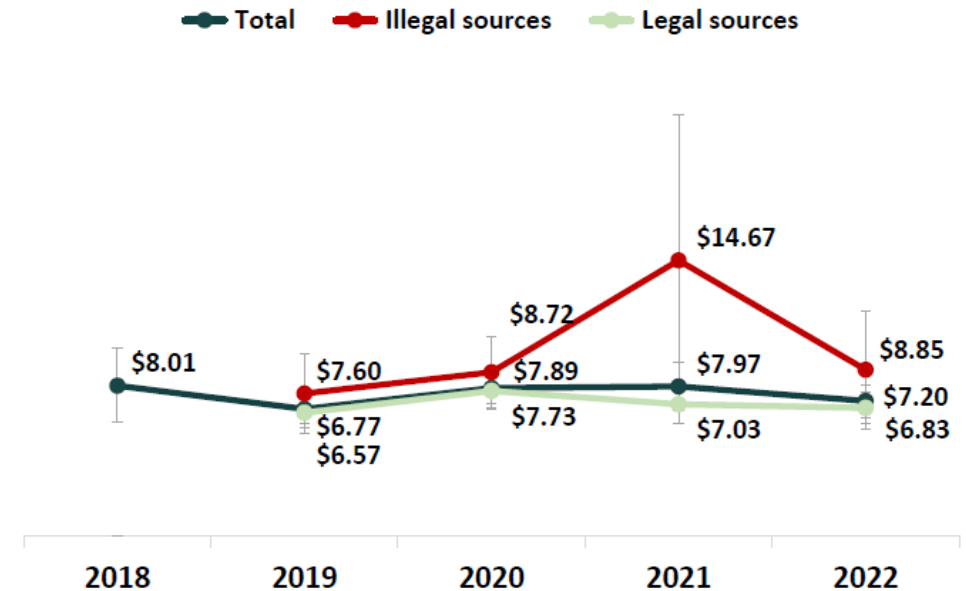
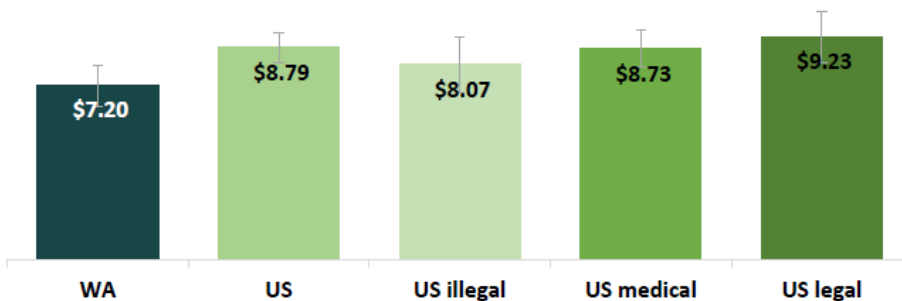
WA has the highest rate of cannabis taxes in the U.S.

Price of dried flower

Washington 2022

In 2022 the price of dried flower reported by consumers in Washington was lower than consumers in other jurisdictions.

Price of dried flower
SALES WEIGHTED PRICE-PER-GRAM OF
DRIED FLOWER AT LAST PURCHASE



 **International
Cannabis
Policy Study**
<https://cannabisproject.ca/>

Policy Areas



Decrease Access to
High THC Products



Prevent Initiation of
High THC Products



Empower Consumers
& the Public with
Information &
Education



Prevent Initiation of High-THC products

	Recommended to WA State	Research Support	WA Stakeholder's support
Prohibit marketing and advertising of high THC products			
Raise legal age of purchase for high THC products to 25 years old			

Prevent Initiation of High-THC products

	Recommended to WA State	Research Support	WA Stakeholder's support
Prohibit marketing and advertising of high THC products	Yes	Yes	Yes
Raise legal age of purchase for high THC products to 25 years old	Yes	Yes	Moderate support

Prohibit Advertising

The Science

Cannabis advertising is common in the U.S. and is noticed

Youth who see ads report more favorable attitudes toward cannabis and are more likely to intend to use

Consistent with a wealth of alcohol & tobacco research

Comprehensive bans are effective for decreasing tobacco initiation

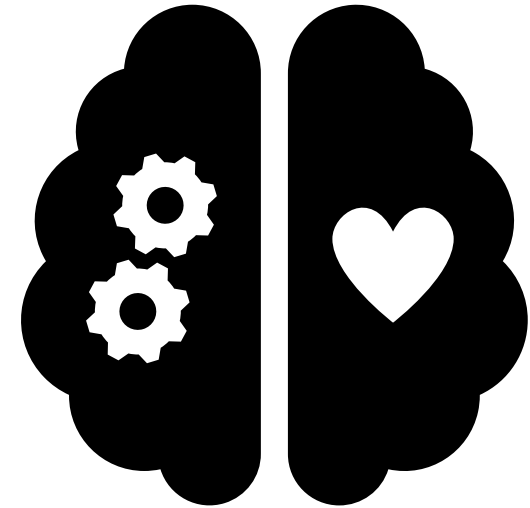


Raise Age Limit to 25

The Science

The human frontal lobe develops rapidly until ~ age 25

Age restrictions for alcohol & tobacco protect young people's health & safety



Friedman, A. S., Buckell, J., & Sindelar, J. L. (2019). Tobacco-21 laws and young adult smoking: quasi-experimental evidence. *Addiction* (Abingdon, England), 114(10), 1816–1823. <https://doi.org/10.1111/add.14653>

Policy Areas



Decrease Access to
High THC Products



Prevent Initiation of
High THC Products



Empower Consumers
& the Public with
Information &
Education





Policies Considered	Recommended to WA State	Research Support	WA Stakeholder's support
Add high THC specific mandatory health warnings			
Add standard THC serving unit and total servings to all cannabis product labels			
Require point-of-sale education about high THC products risks, labels, and dosing			
Fund social media campaigns and PSAs targeting people at high-risk			
Education in communities and schools			



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Fund social media campaigns and PSAs targeting people at high-risk	Yes	Yes	Yes
Education in communities and schools	No	No	Yes

Health Warning Labels (HWLs)

The Science

HWLs are a low-cost, sustainable way of communicating the health effects of products to consumers.

Font sizes 4-6 are the most often used for cannabis HWL in WA

- "There may be health risks associated with consumption of this product. Should not be used by women that are pregnant or breast feeding. For use only by adults twenty-one and older. Keep out of reach of children. Marijuana can impair concentration, coordination, and judgment.

Proposed font size: 10+

"There may be health risks associated with consumption of this product. Should not be used by women that are pregnant or breast feeding. For use only by adults twenty-one and older. Keep out of reach of children. Marijuana can impair concentration, coordination, and judgment.

Standard THC Serving Size – 10 mg for all products

The Science

Cannabis consumers have low THC literacy – adoption of a single and uniform THC serving unit (10 mg)

Vermont educational materials

“a serving size for dabs is about the size of the tip of a ball point pen”

Figure 3: Colorado visual for dab serving size

Concentrate
Serving Size:



Point of Sale Education

Recommendation: distributing point-of-sale education materials for consumers purchasing products other than cannabis flower and includes

- 1) accurate information on the potential harms of consuming high THC products,
- 2) who is at highest risk,
- 3) how to read a product label.
- 4) where to find help in case of negative reactions and
- 5) resources for quitting/reducing cannabis consumption.

The Science

Consumers are more likely to change behavior when product content & health risks are understood

Budtenders want customers to have a good experience

Point-of-sale education in other areas works

Most effective when paired with environmental changes

Targeted Social Media Campaigns & PSAs

Fund social media campaigns and public service announcements (PSAs) targeting people at elevated risk for experiencing high THC products negative effects

The Science

Can be effective when developed well

Most effective when tied to an action



How can we reduce risk of psychosis?



GOVERNMENT

ENVIRONMENTAL
RISK



INDIVIDUAL
RISK

GET HELP

[Learn About Cannabis](#) > [Get Help](#)



I want to help myself



I want to help someone
else



I want to talk to youth



I need help now

LEARN ABOUT CANNABIS

Science-based information for the general public.

[HEALTH RISKS](#)

[PARENTS](#) ▾

[TEENS](#)

[CONSUMERS](#)

[GET HELP](#)

A black and white photograph of a stethoscope resting on a white, textured surface. The stethoscope's chest piece is in the foreground, and the tubing extends towards the background.

THE ROLE OF CANNABIS IN PSYCHOSIS AND SCHIZOPHRENIA

[Learn About Cannabis](#) › [Health Risks](#) › [The Role of Cannabis in Psychosis and Schizophrenia](#)



Can We
Talk?

CannTalk Discussion Guide

Cannabis Use

Tell me about your cannabis use.

What do you like about using cannabis? What do you get out of using cannabis?

What about the other side? What are the not so good things about using cannabis?



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Minimizing risk: policy and interventions

What's next?

ADAI Symposium 2024

<https://adai.uw.edu/cerp/symposium-2024/>

ADAI Symposium

Cannabis, Schizophrenia, and Other Psychotic Disorders:

*Moving Away from Reefer Madness
Toward Science*



September 19, 2024 | 9am-4:30pm PT
Virtual and in-person @ UW Tower

REGISTRATION IS OPEN! Join us this September (virtual or in-person at the [University Tower](#), 4333 Brooklyn Ave NE, Seattle, WA) for our next ADAI Symposium, with a focus on cannabis, schizophrenia, and other psychotic disorders.

This event is free to attend. The [agenda](#) and [speaker information](#) are now available!



ADAI
ADDICTIONS, DRUG &
ALCOHOL INSTITUTE

**CANNABIS EDUCATION
& RESEARCH PROGRAM**

Thanks!

bia@uw.edu &
ghungus@uw.edu



People who experience substance-related adverse effects are increased risk of developing schizophrenia years later.

