

NMPhA MidWinter Meeting 2024

Psychoactive Mushrooms in Contemporary Use: Bridging the Gap for Modern Pharmacy

Presented by Dr. Regina Moore

Introduction

Regina Moore, PharmD

- UNM COP: 2010

The Psychedelic Pharmacists Association

- Co-Founder
- Board of Directors Jan 2021-July 2023
- Board of Advisors August 2023-Present

Oregon Psilocybin Services RAC

- Products & Testing Subcommittee

Lincoln County Mycological Society

- Member since 2013, webmaster

Amanita Science & Magic Facebook Group

- Group Admin, 77k+ members

Women's Personal Finance

- Owner/Operator



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PHARMACISTS

Objectives

After attending this program, the pharmacist participants will be able to:

- Discuss a brief history of the ethnomycology of Amanita and psilocybin mushrooms.
- Discuss modern applications and community-driven uses of psychoactive mushrooms.
- Consider current and emerging legal frameworks related to Amanita and psilocybin mushrooms.
- Offer risk reduction strategies, enabling responsible and safe advice to users of psychoactive mushrooms.

Psychoactive Mushrooms in Contemporary Use

TECHNICIANS

Objectives

After attending this program, the technician participants will be able to:

- Discuss a brief history of the ethnomycology of Amanita and psilocybin mushrooms.
- Discuss modern applications and community-driven uses of psychoactive mushrooms.
- Consider current and emerging legal frameworks related to Amanita and psilocybin mushrooms.
- Recognize when to engage a pharmacist to provide responsible and safe risk reduction advice for users of psychoactive mushrooms.

Psychoactive Mushrooms in Contemporary Use



Disclosures

None

Psychoactive Mushrooms in Contemporary Use

Pre-Test Question 1

Which group has the strongest evidence for historical ritual use of psilocybin mushrooms?

- A) The Vikings in Scandinavia
- B) The Maori of New Zealand
- C) The Aztecs in Central America
- D) The Aboriginal Australians



Psychoactive Mushrooms in Contemporary Use

Pre-Test Question 2

What is a potential self-care application of *Amanita muscaria* that is being explored by modern individual?

- A) As a substitute in gluten-free diets
- B) In aiding benzodiazepine tapering processes
- C) As a natural sweetener for diabetics
- D) In enhancing athletic performance during endurance sports



Psychoactive Mushrooms in Contemporary Use

Pre-Test Question 3

What is the legal status of *Amanita muscaria* mushrooms in the United States?

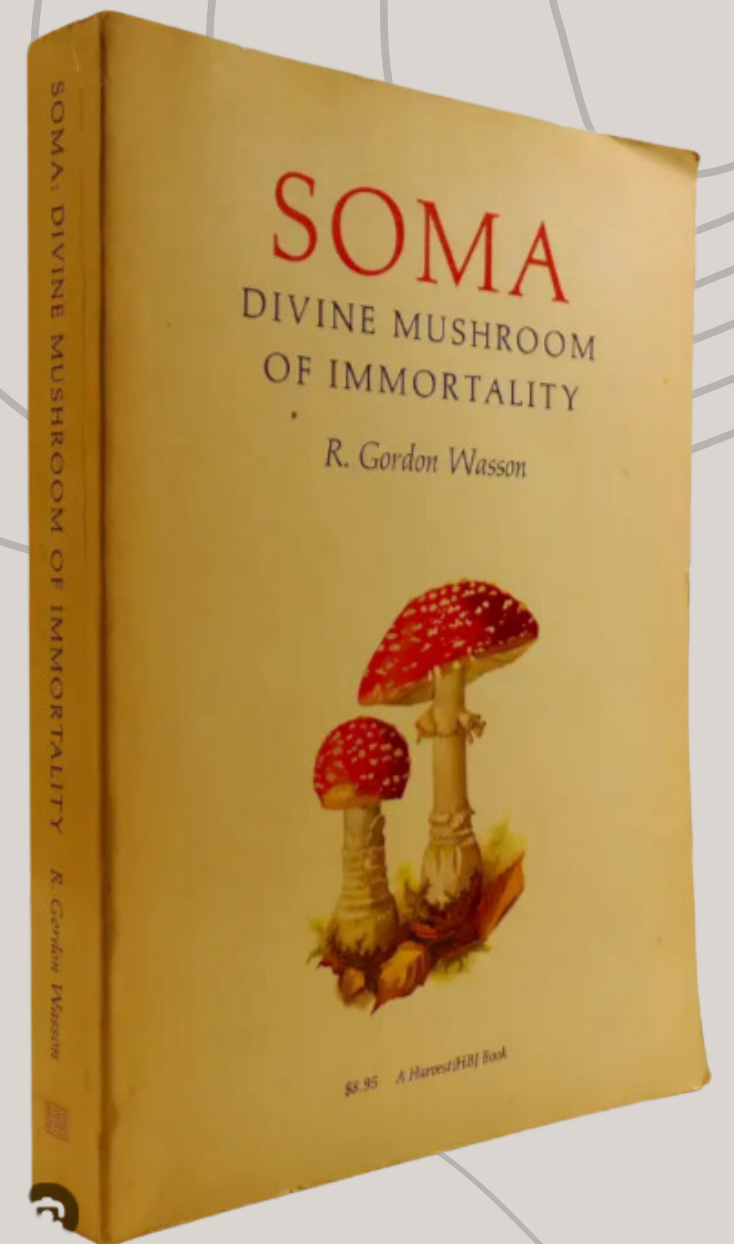
- A) They are classified as a Schedule II drug.
- B) They are completely illegal to possess or use.
- C) They are not specifically regulated under the Controlled Substances Act.
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Psychoactive Mushrooms in Contemporary Use

Brief History of Amanita

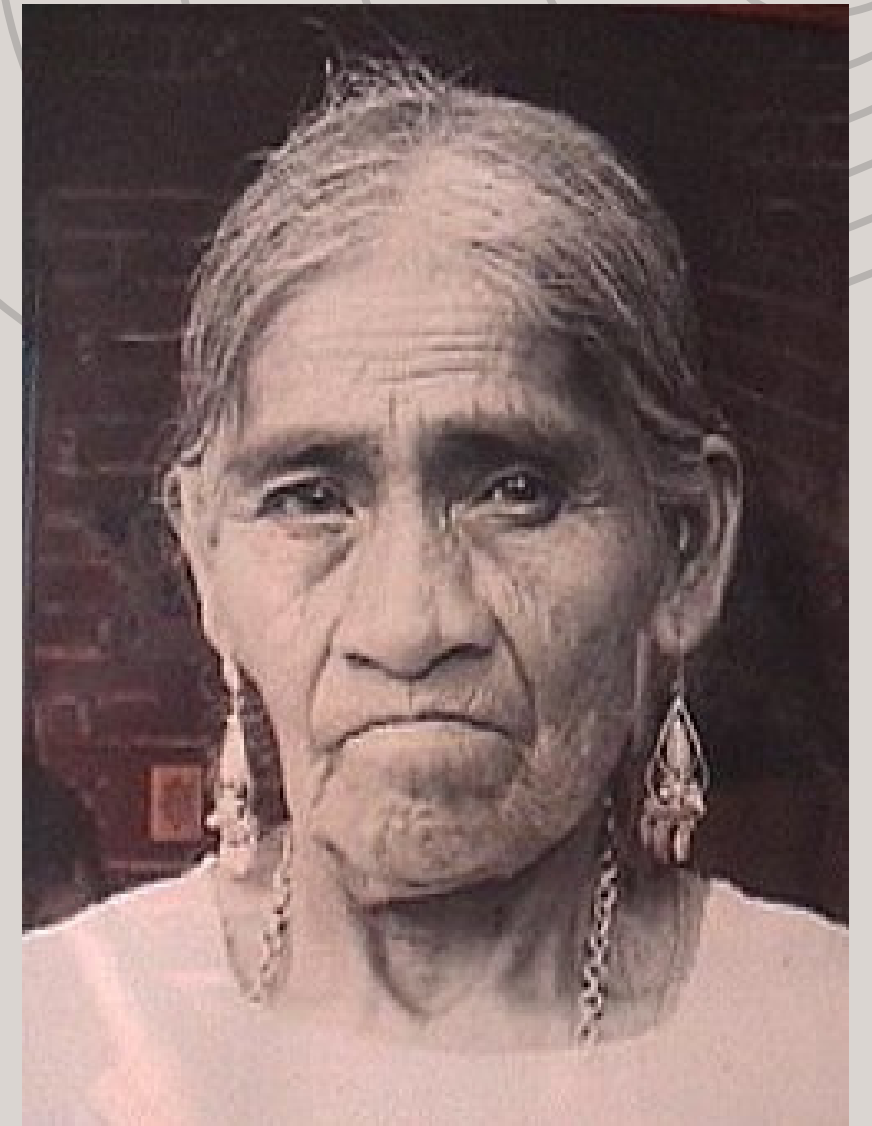
- Known as 'Fly Agaric' for its insecticidal properties in some cultures.
- Sacred use by indigenous Siberian tribes, particularly by shamans for spiritual journeys.
- Features in various folklore and myths across Europe and Asia.
- Historically used in Europe for its psychoactive effects during religious festivals.
- Possible connections to ancient Hindu texts describing the divine Soma.
- Symbolic appearances in Christmas traditions and fairy tales.



History & Ethnomycology

Brief History of Psilocybin

- Central to spiritual and religious ceremonies of indigenous Mesoamerican cultures.
- Aztecs named it 'Teonanácatl' or 'flesh of the gods'.
- “Rediscovered” by Western science in the 1950s by R. Gordon Wasson -->
- Little credit given to curendera Maria Sabina of Huatla de Jimenez, Sierra Mazateca area of Oaxaca for introducing Wasson in 1955.
- Subject of early psychedelic research in the 1950s and 1960s
- Ban in the late 20th century under the War on Drugs.
- Recent resurgence in academic and medical interest.



History & Ethnomycology

Graphics from María Sabina. (2023, December 27). In Wikipedia.
https://en.wikipedia.org/wiki/Mar%C3%ADa_Sabina

Pharmacology of Amanita

- Main actives are isoxazole alkaloids
 - Ibotenic acid (active on glutamate receptors)
 - Muscimol (effects GABA receptors)
- Other compounds are present (such as muscarine)
- Ibotenic acid readily undergoes decarboxylation to muscimol
- Complex effect of opposing systems
 - glutamate--> excitatory
 - GABA --> inhibitory
- Considered dissociative deliriant vs. traditional hallucinogen
- Rare toxicity treatment complicated by complex status

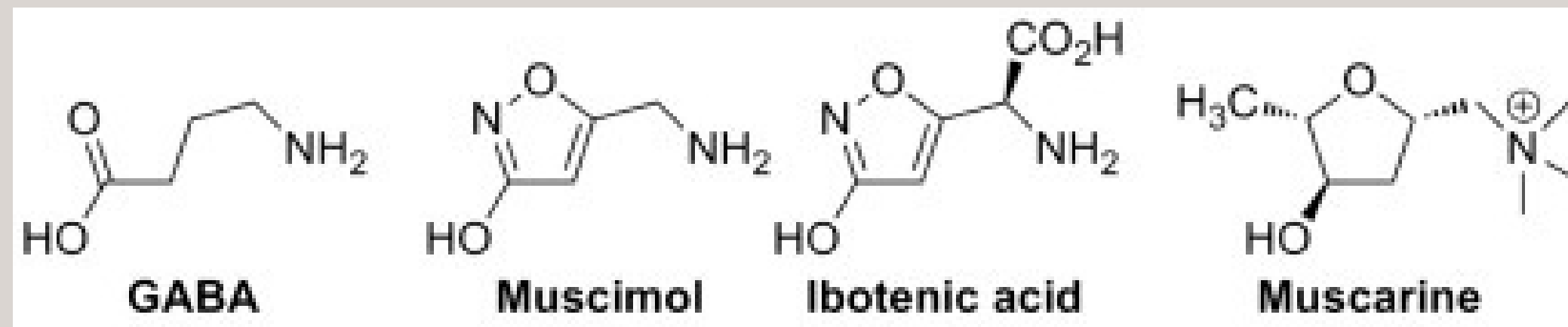


Photo: Frontiers in Medicine

Pharmacology of Psilocybin

- Present in more than 200 species of fungi, with the list growing
- Psilocybin is a tryptamine of the indolamine family.
- Biologically active molecule is psilocin
 - Psilocybin (relatively stable) undergoes rapid dephosphorylation to psilocin, much less stable.
- Classical psychedelic related to serotonin with activity at multiple receptors and systems
 - Hallucinogenic effects attributed to 5-HT_{2a} activation
- Less studied alkaloids include baeocystin, norbaeocystin, norpsilocin, aeruginascin
- Beta-carbolines with potential MAOI effect in some species which may boost activity of tryptamines.

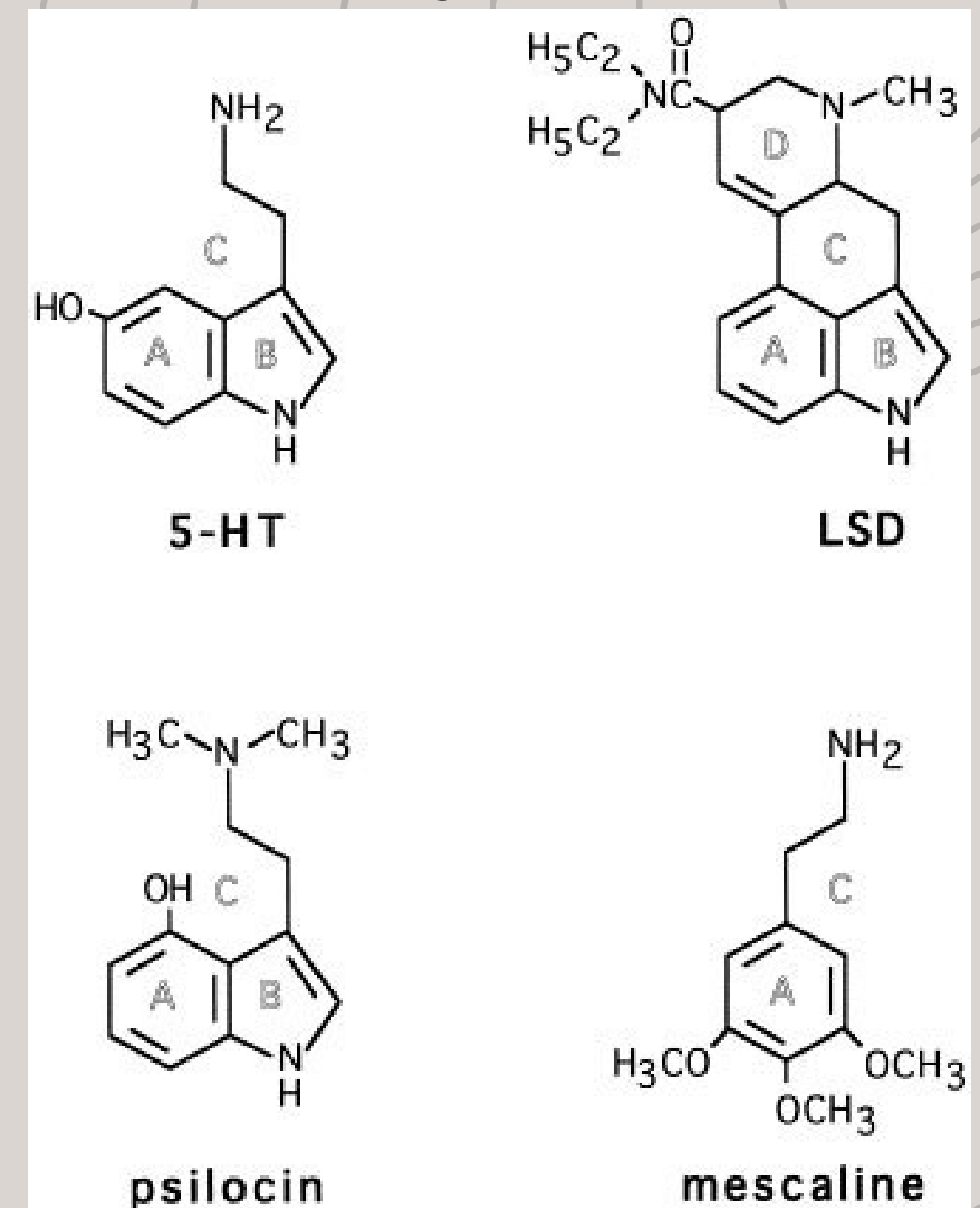


Photo: Neuropsychopharmacology
21, 16-23 (1999)

Amanita: Modern Cultural Significance



- Currently not classified as a controlled substance in most countries, leading to legal ambiguity
- Gaining popularity in modern neo-shamanic practices
- Interest in its potential for psychotherapy and spiritual exploration
- Depicted in modern media and art reflecting psychedelic culture
- Growing online communities sharing experiences and preparation techniques
 - Recreation
 - Spiritual growth
 - Self care

History & Ethnomycology

Calm is the first legal Amanita Muscaria extract available for sale in the USA.

This carefully extracted product harnesses Amanita Muscaria's restorative powers to soothe the body, tackle physical distress, and may help with sleeping.

Psilocybin: Modern Cultural Significance

- Microdosing trends in Western cultures for improved mood and creativity
- Ongoing research into therapeutic uses for mental health issues
 - TRD, PTSD, AUD, Fragile X syndrome, MDD, fibromyalgia, anorexia nervosa, GAD (source: Psychedelic Alpha drug dev tracker)
- Societal shift towards decriminalization and medical research
- Featured in documentaries, books, and public discourse on mental health
- Evolving as a tool for personal growth and psychological healing
- Increasingly accepted in mainstream culture for potential health benefits

History & Ethnomycology

DIY Mycology

- Surge in home cultivation of mushrooms, supported by online resources and kits.
- Role of social media in spreading mycology as a hobby and science.
- Communities sharing techniques, success stories, and safety tips.
- Small scale to underground industry
- “For microscopy use only”

Quote from KOB4 1/15/22:

“In 2005 the New Mexico Court of Appeals overturned a conviction of one man who was charged with trafficking psychedelic mushrooms. Which many argue means you can legally grow magic mushrooms in your home for personal use.”



Modern Applications and Community-Driven Uses

The Microdosing Trend

- Increasing popularity of microdosing psilocybin for mental clarity, creativity, and emotional balance as a part of wellness and self-care routines.
- Anecdotal reports and emerging scientific studies on its effects.
- Popularized by Dr. James Fadiman and Paul Stamets
- Intended to be subperceptual

- The Fadiman Protocol: Subperceptual dose Q 3 Days
- The Stamets Stack: 0.1-0.2g dried mushroom + 500-1000mg dried lions mane mushroom extract or powder + 25-50mg FLUSHing niacin. Used Days 1-4, weekly with non-dosing days on day 5-7

- Lack of defined “microdose,” many likely “mini-dosing”
- Huge rise in “microdose” coaching and related services
- Amanita microdosing is also an early trend.

Modern Applications and Community-Driven Uses

Medical Applications

The main research applications apply to mental health

Some are searching for psychedelics without the “psychedelic” effect. Taking out the “trip”

Nascent industry - find professional associations to discuss quality data and research with peers

Help set standards as they develop

Modern Applications and Community-Driven Uses



Diverse Communities

Indigenous cultures have long used psychedelics and many individuals are seeking to reconnect with their heritage and reestablish (and reimagine) ceremonial practices that colonialism destroyed.

It is unclear how widespread traditional psilocybin mushroom use was among indigenous Americans outside Central America. Nevertheless, they have an important role as entheogens in indigenous cultures.



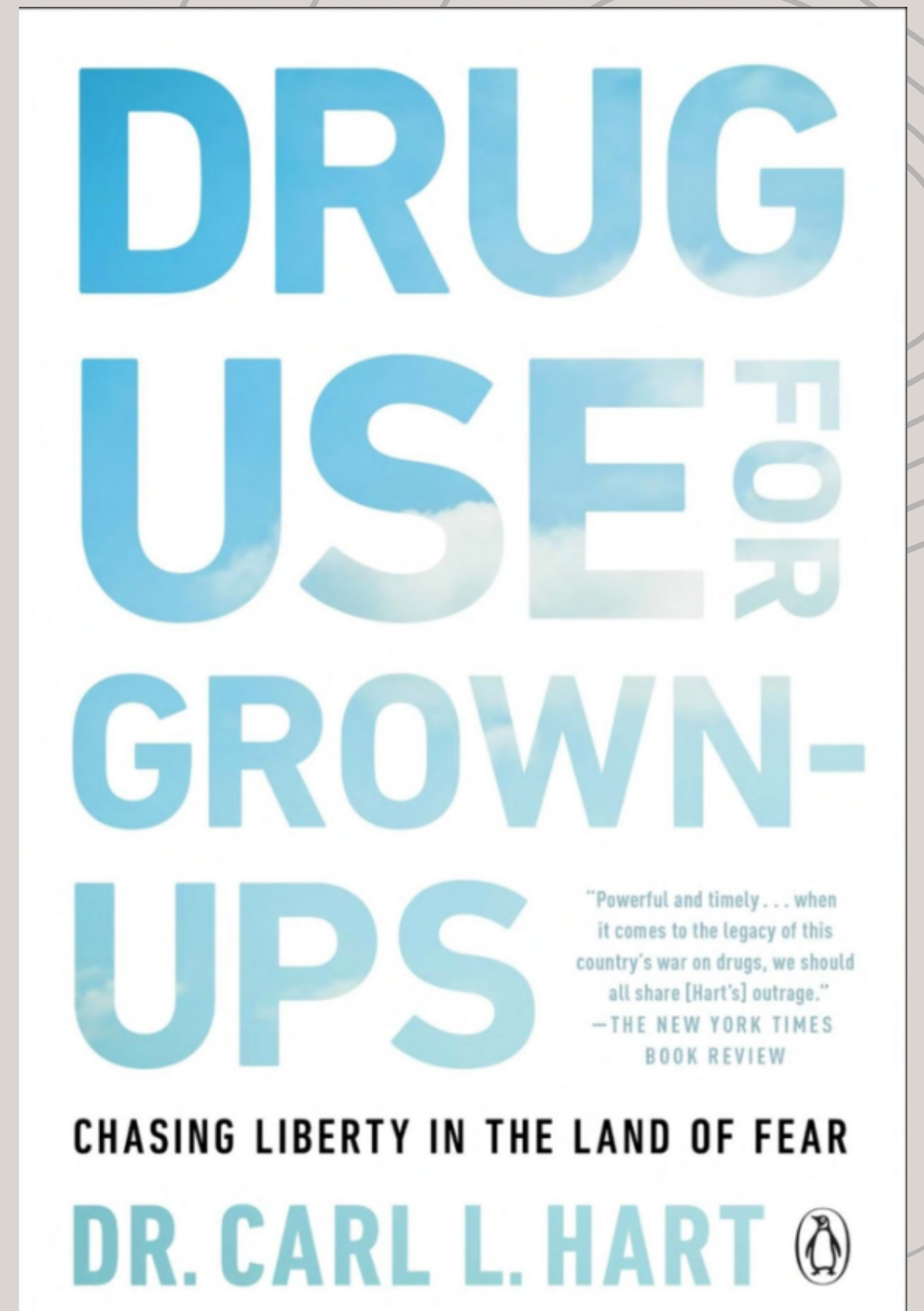
artist unknown

Cultural Competencies

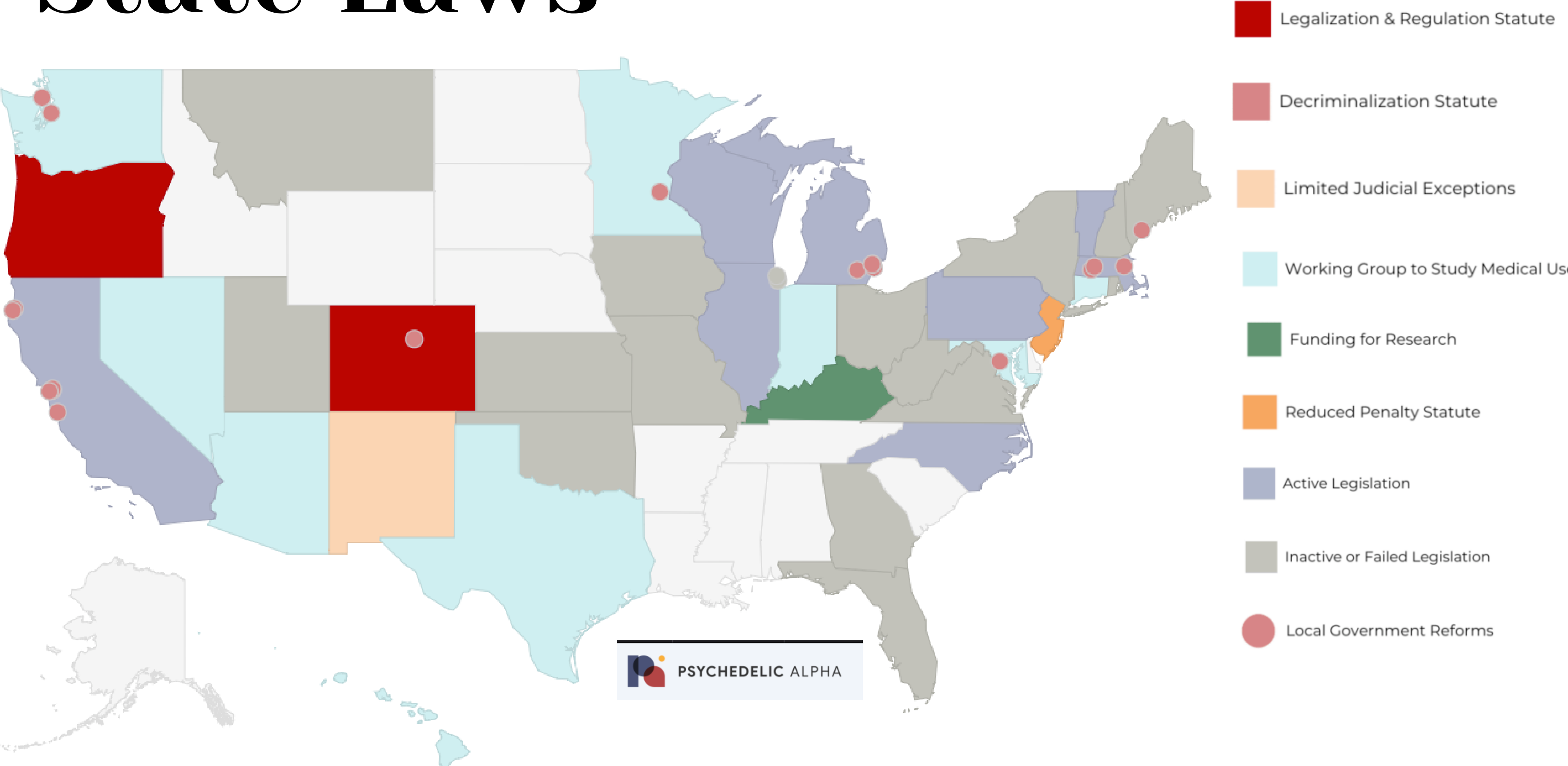
Practical Steps in Competency

- Reframing substance use
- Avoiding assumptions
- Recognizing cultural norms
- Encourage open dialogue
- Education and lifelong learning: collect data and learn
- Empathy and patient-centered care
- Stigma reduction
- Fostering safety and risk reduction

Cultural Competencies



State Laws



1 HOUSE BILL 393

2 **56TH LEGISLATURE - STATE OF NEW MEXICO - FIRST SESSION, 2023**

3 INTRODUCED BY

4 Christine Trujillo and Kristina Ortez and Joy Garratt

5 and Willie D. Madrid

6
7
8
9
10 AN ACT

11 RELATING TO HEALTH; CREATING AN ADVISORY GROUP TO STUDY THE
12 FEASIBILITY OF ESTABLISHING A PROGRAM THAT WOULD USE
13 PSILOCYBIN-DERIVED PRODUCTS TO TREAT PATIENTS WITH CERTAIN
14 MENTAL HEALTH CONDITIONS IN A CLINICAL SETTING; MAKING AN
15 APPROPRIATION.

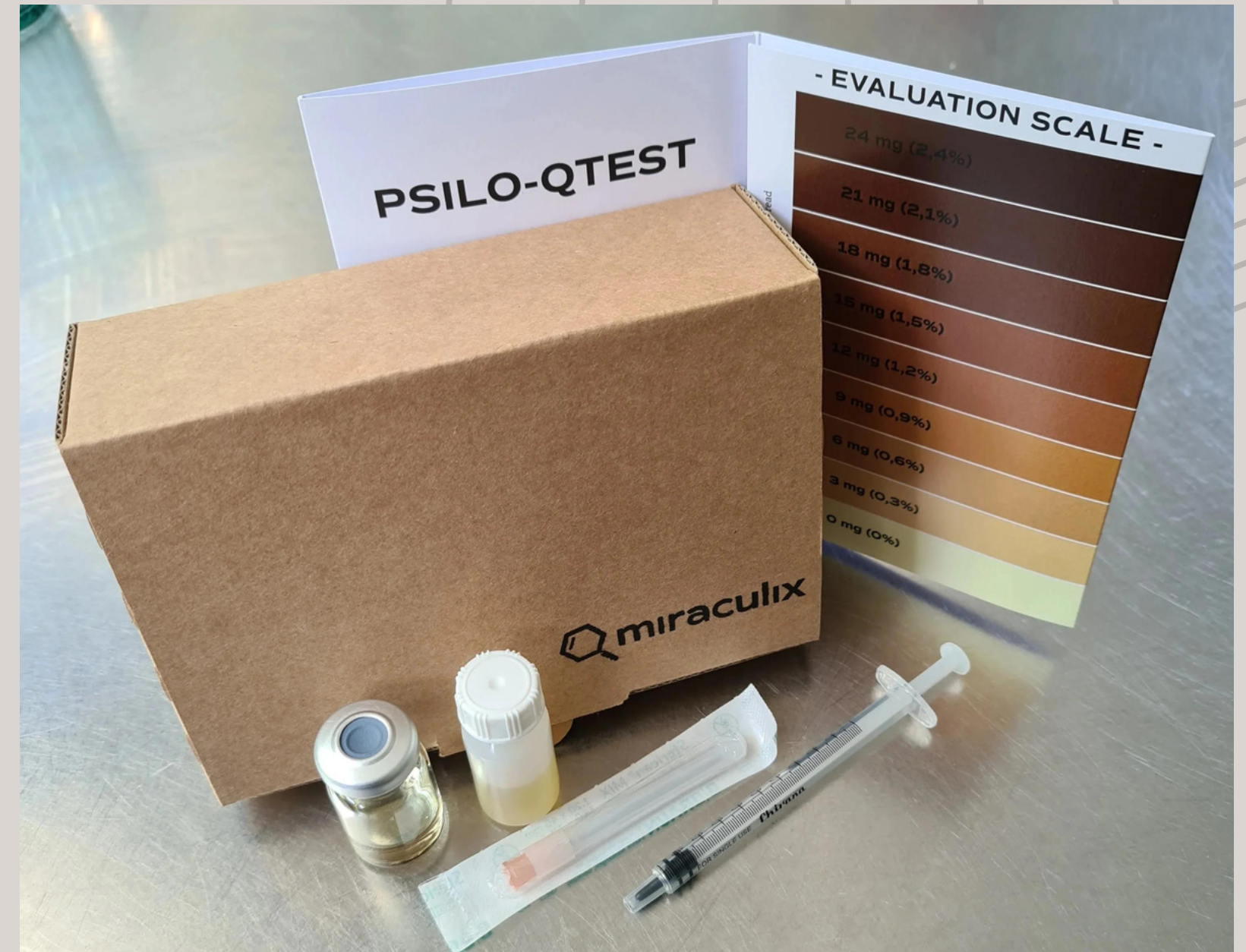
Safety Testing

Psilocybin mushrooms have been largely free of adulteration.

Until recently, mostly “small” growers/word of mouth.

- For whole mushrooms, improve safety with quantitative testing to prevent excess dosing
- “Q-Tests”

Amanita muscaria is generally very easy to identify/verify in raw/dried format. There is no common method for potency testing.



Risk Reduction

Safe Sourcing & Risks

Riding the hype and the cusp of legality

- Ambiguous and excessive claims
- Deceptive marketing designed to play on the want for “legal” psychedelics
- Synthetics (like 4-AcO-DMT), cannabinoids, and unknown blends of “research” compounds
- Synthetic muscimol and ibotenic acid

Strengths and composition highly variable and unknown

Risk Reduction



Peer Support & Integration

- Increase in peer support groups
- Importance of integration process
- Harm reduction education
- Navigating legal & emotional challenges
- Impact on reducing stigma

Pharmacists need to know that communities exist to bridge gaps you may not be able to cover.

- Psychedelic.Support
- Dance Safe
- Erowid
- Zendo Project

Fireside Project: Psychedelic support hotline:
1-800-62-FIRESIDE (call or text)

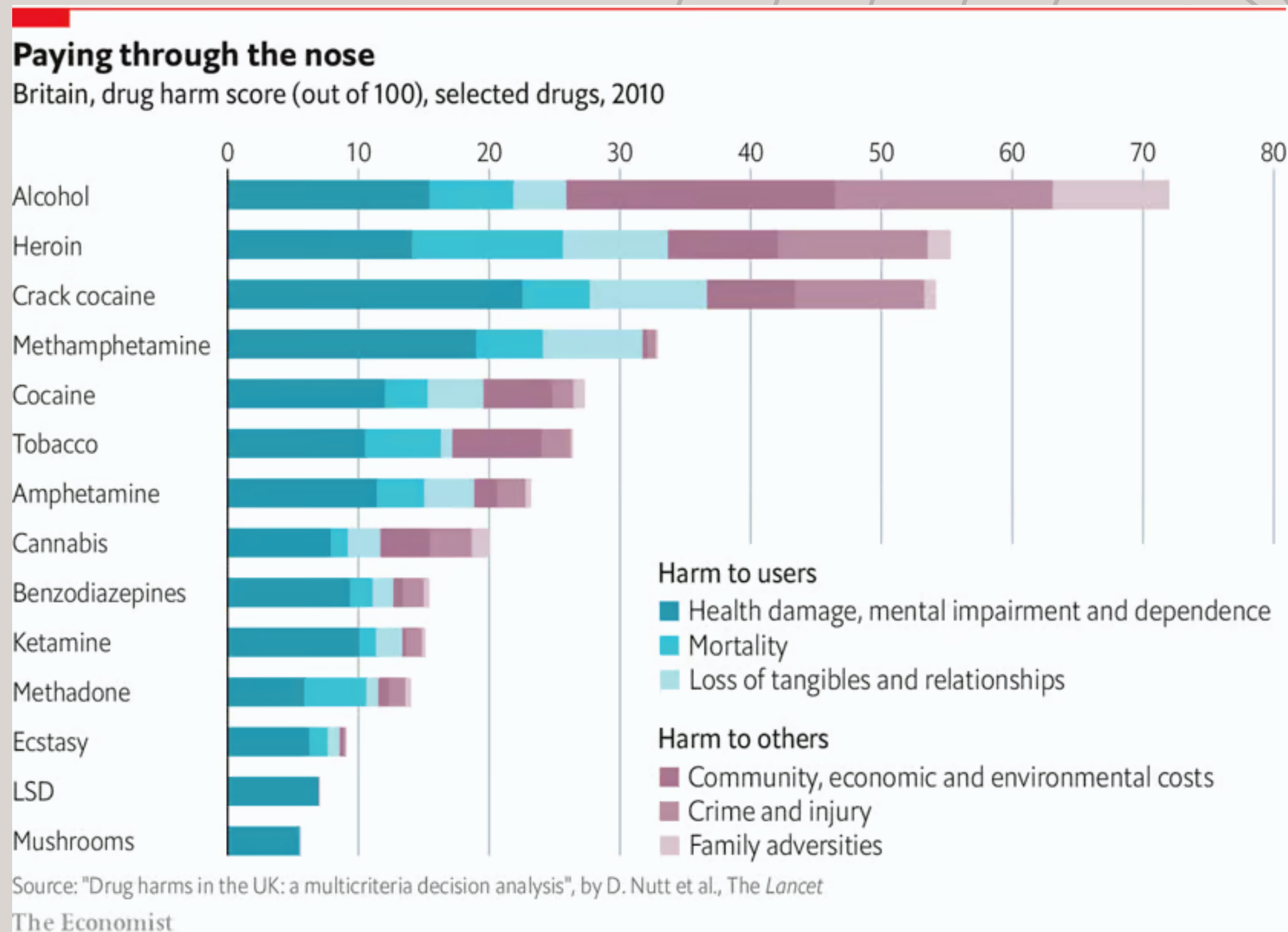
Risk Reduction



Consequences of The War

- Widespread Criminalization
- Barrier to scientific research
- Shaping public perceptions
- Societal and economic costs
- Disproportionate impact on marginalized communities
- Stigma in healthcare

Impact of the Drug War



Reducing Stigma in Healthcare

- Understanding substance use spectrum
- Empathy and openness in patient interactions
- Educating on safe use practices
- Active listening skills
- Our role in public perceptions
- Advocating for balanced policies
- Continuing education
- Advocacy

Impact of the Drug War

#1 *New York Times* Bestseller



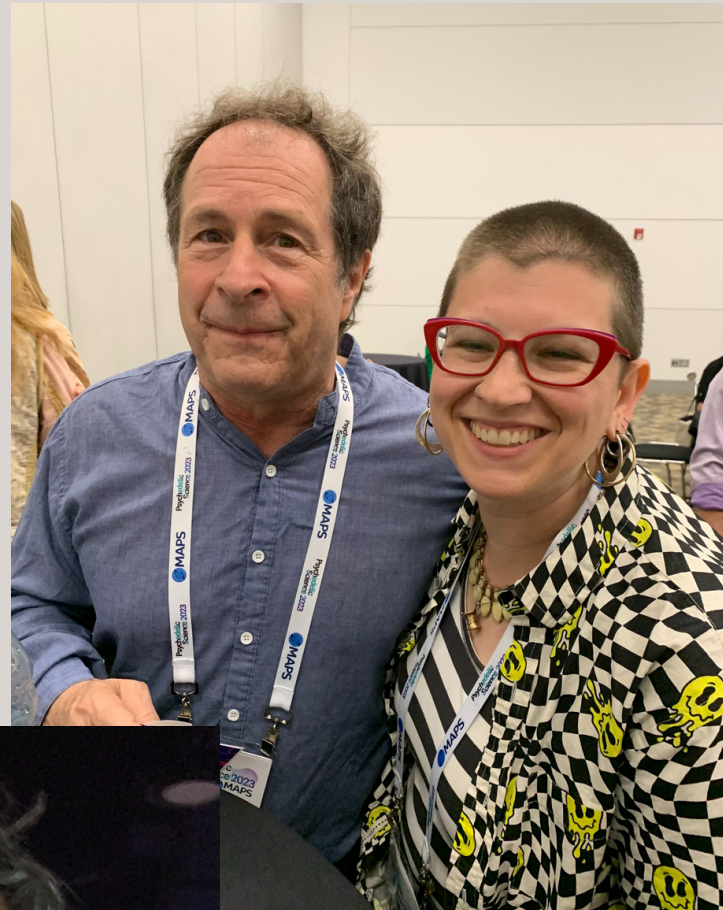
How to Change Your Mind

What the New Science of
Psychedelics Teaches Us
About Consciousness,
Dying, Addiction, Depression,
and Transcendence

Michael Pollan

Author of *This Is Your Mind on Plants*

Rethinking Perceptions



Post-Test Question 1

Which group is historically known for their ritual use of psilocybin mushrooms?

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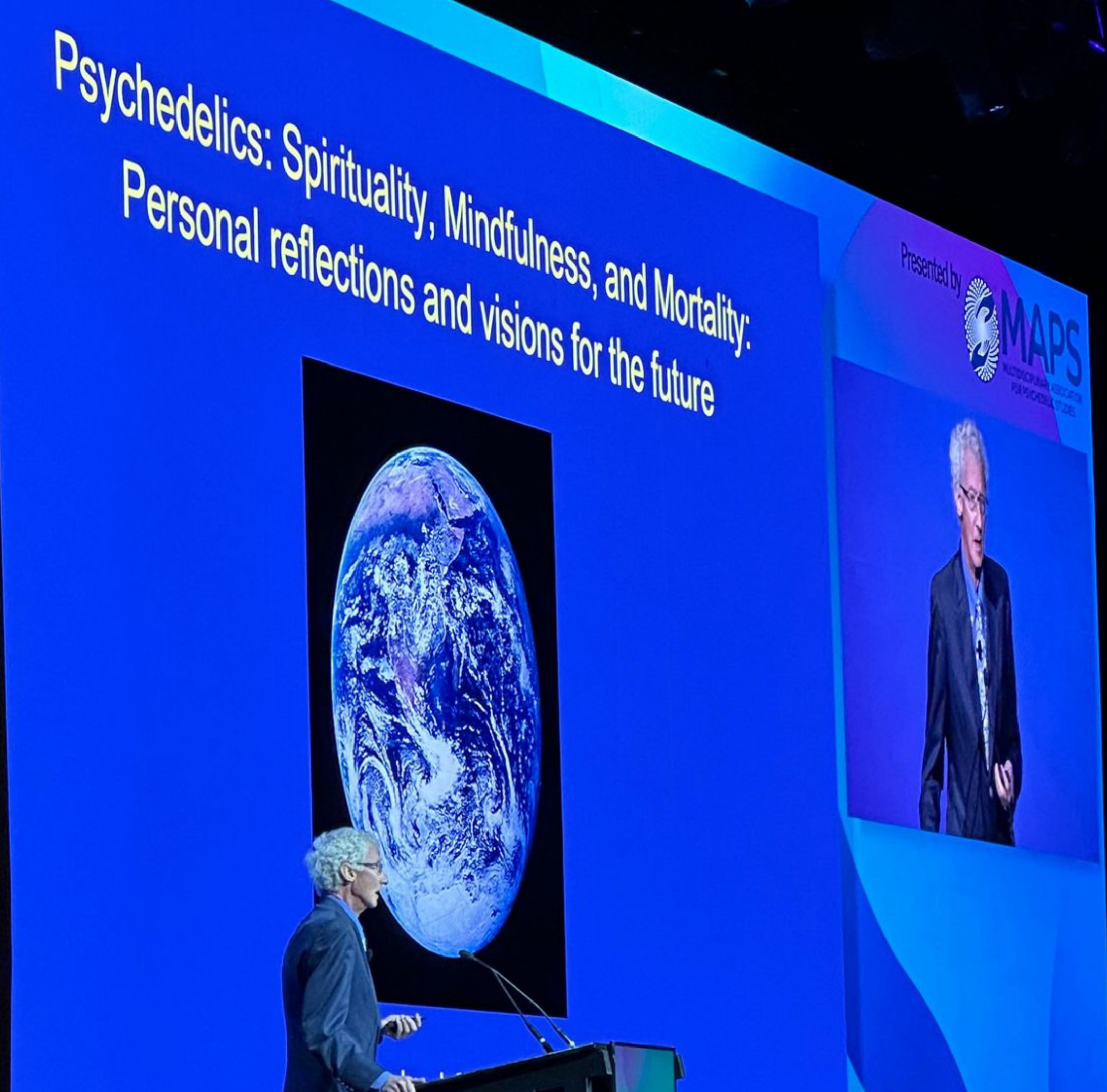


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