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5th Meeting of the World Congress  
For Freedom of Scientific Research  
**EU Parliament - Brussels**  
**13<sup>th</sup> April 2018**

**Psychedelics,  
MDMA,  
Trauma and  
Addictions:  
Bold Steps  
Forward for the  
Future of  
Psychiatry**



# Contents

- Child abuse, trauma and child development
- MDMA Antibiotic Therapy
- How MDMA treats trauma
- MDMA for treating addictions
- Alcohol: The Killer Legal High
- The Bristol MDMA Study
- The History of Psychedelics in Medicine
- The Psychedelic Renaissance
- An Update of Psychedelic Research happening at Imperial College London
- A Career in Psychedelic Science

# DID YOU KNOW?



#EndTheDrugWar

THERE IS A STRONGER LINK BETWEEN CHILDHOOD TRAUMA AND ADDICTION, THEN THERE IS BETWEEN OBESITY AND DIABETES. TWO THIRDS OF ADDICTS REPORT BEING ABUSED AS CHILDREN. THAT MEANS THAT THE WAR ON DRUGS IS A WAR ON TRAUMATIZED PEOPLE THAT JUST NEED HELP.

# My Patients' and My Own Trajectory Towards MDMA

- Child and Adolescent Psychiatry
- Child abuse and maltreatment
- Adolescent Mental Disorder
- Complex-PTSD
- Substance Misuse
- Adult Addiction Psychiatry
- ***MDMA Therapy***



# **Fear, distortion of self and insecurity....**



- Sexual abuse
- Physical abuse
- Emotional abuse
- Neglect



- **Insecure attachment relationship**
  - Feeling unloved and unlovable
  - Feeling unsafe
- **Infantile Attachment is your Blueprint For Life**

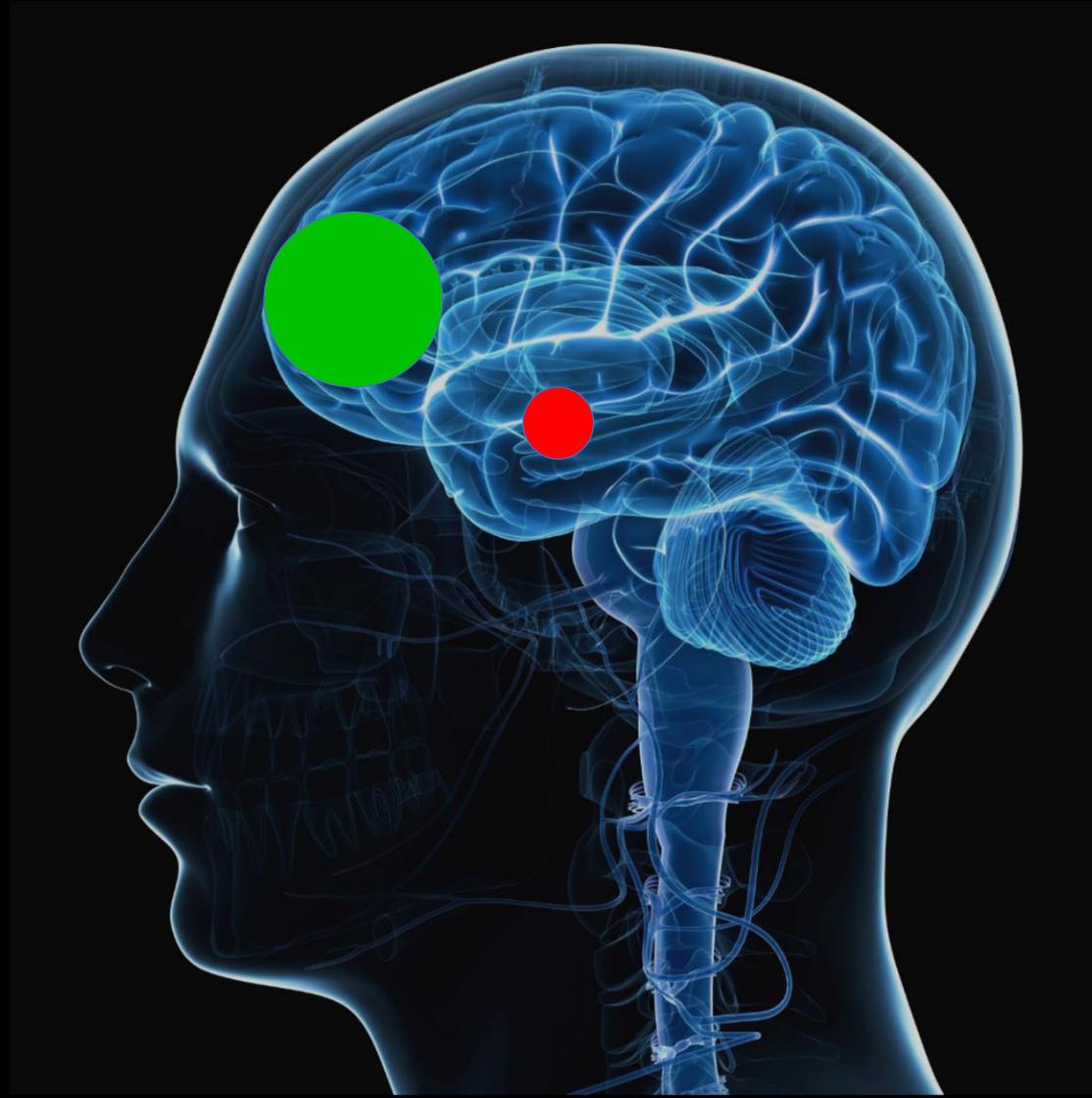
# Unstable Psychological and Social Environments...



- Parental criminality
- Parental mental illness
- Domestic Violence
- Parental Substance Misuse
- Unemployment
- Poor housing
- Race and social exclusion
- Poor education

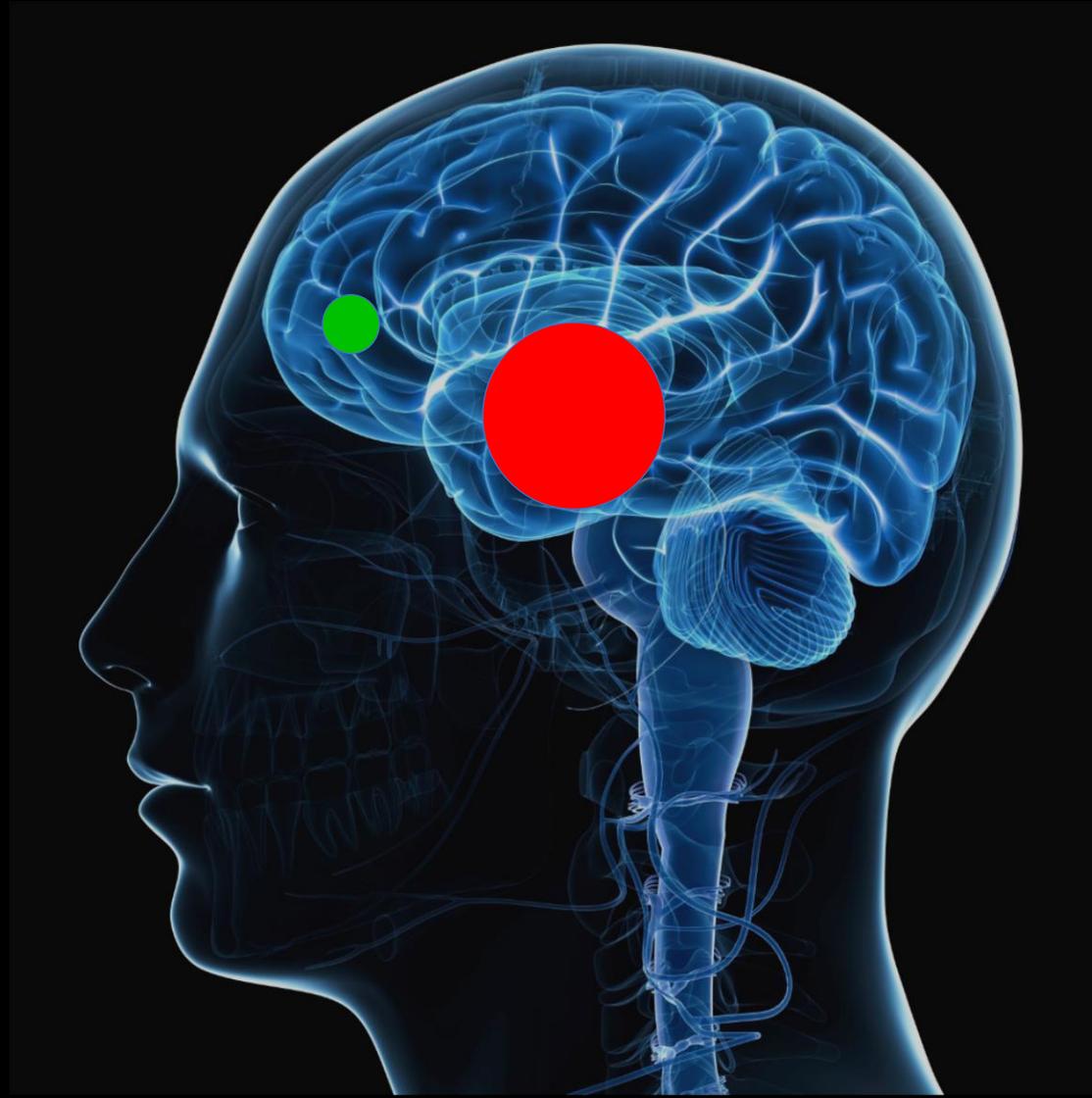
# Fear, Trauma and the Developing Brain:

The Prefrontal Cortex versus The Amygdala



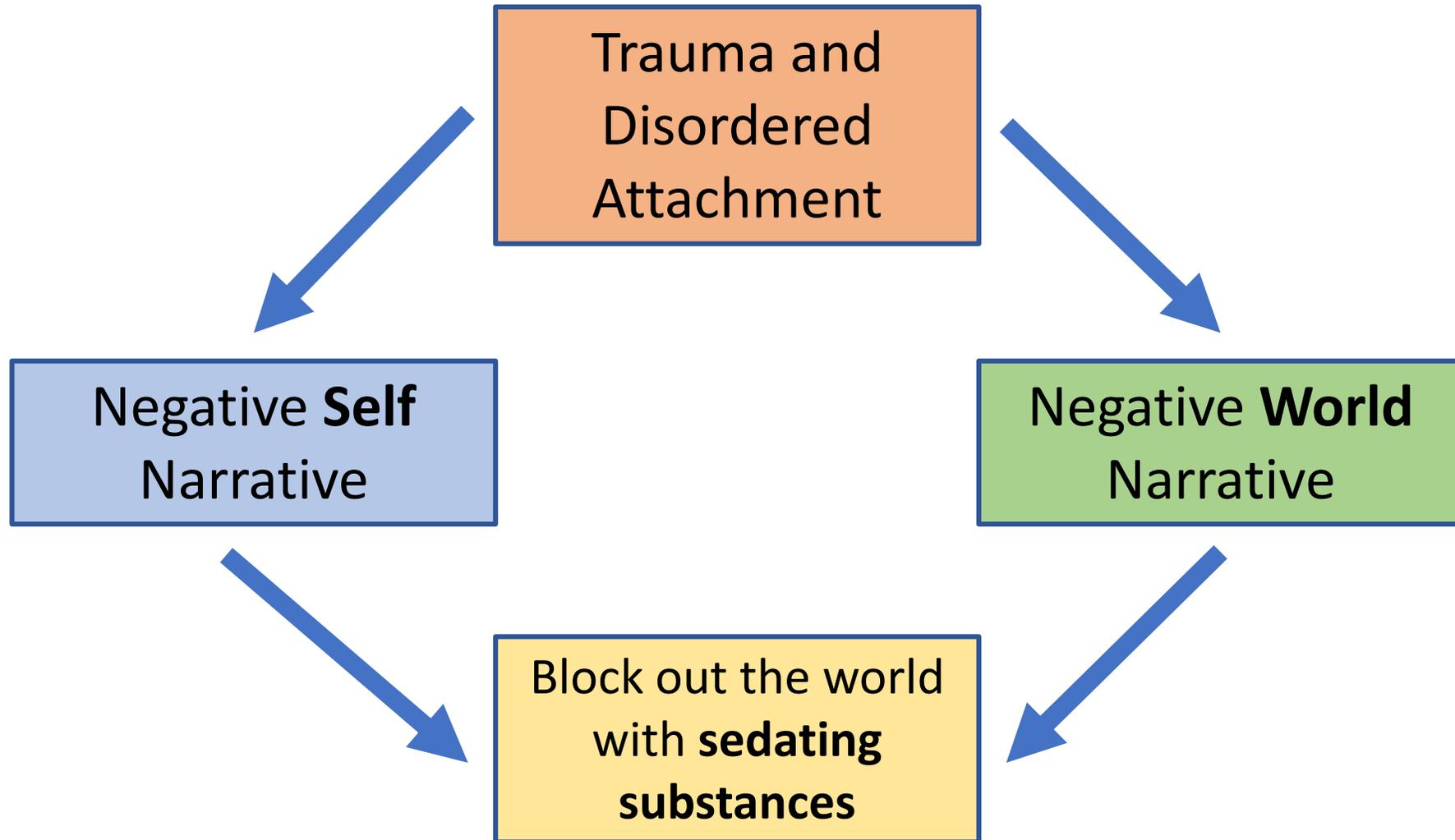
# Fear, Trauma and the Developing Brain:

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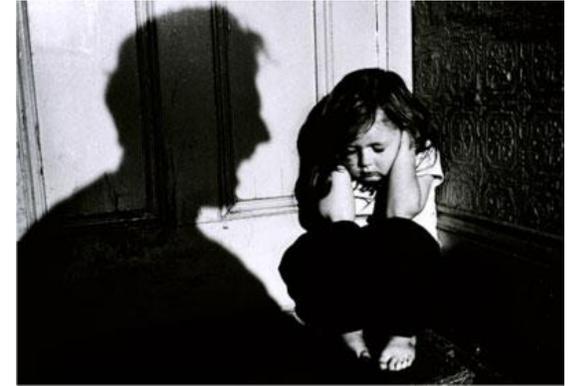
Childhood  
Trauma

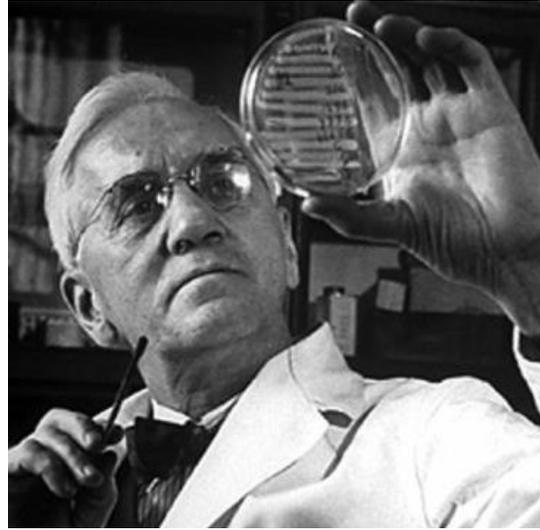
# A Design Fault in the Human Brain



# The Clinical Burden of Childhood Trauma

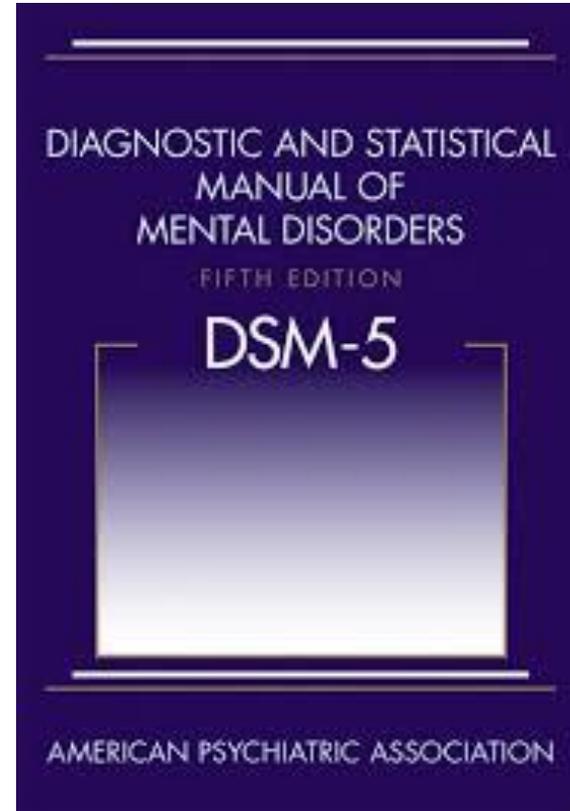
- Polypharmacy
- Poly-psychotherapies
- High rates of self-harm and suicide
- Poor engagement with psychological inputs
- **50% treatment resistance**
- **High rates of substance misuse and addiction**





# Trauma:

Where is Psychiatry's Antibiotic?

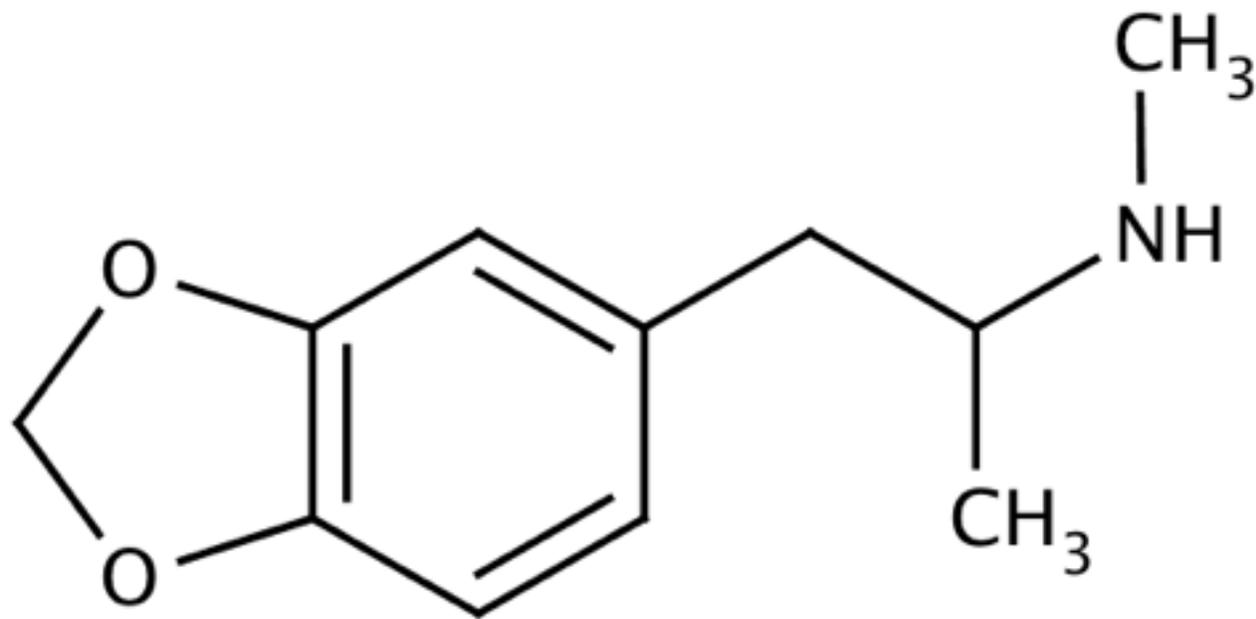


After 100 years of modern Psychiatry:

**This is not good enough!**

So where are we going wrong?

# MDMA



# 3,4 Methylenedioxyamphetamine (MDMA)

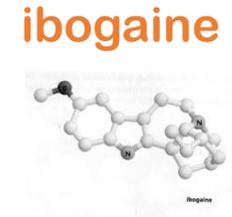
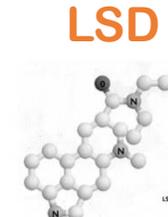
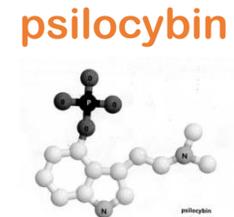
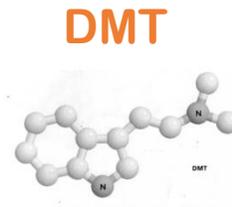
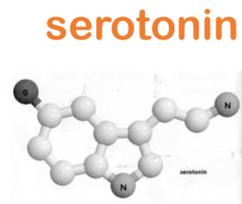
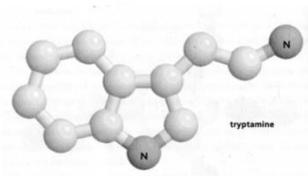
## The 'Perfect Tool' for Trauma Psychotherapy

- Short acting
- Less perceptually disturbing than classical psychedelics
- Almost always pleasurable
- Safe in therapeutic applications
- Access to painful traumatic memories
- **Enhances empathy**

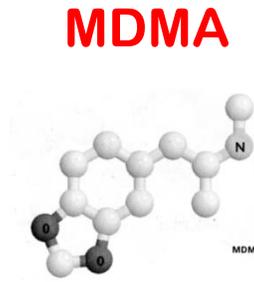
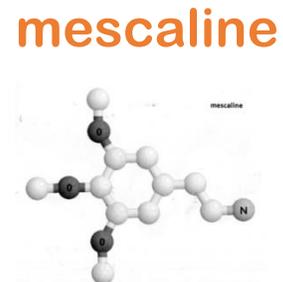
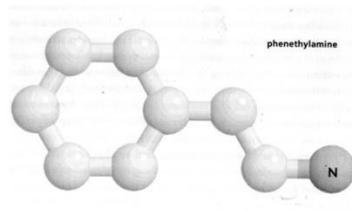


# What sort of psychedelic drug is MDMA?

## Tryptamines

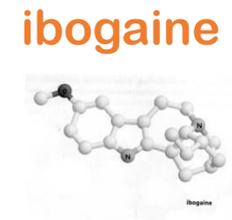
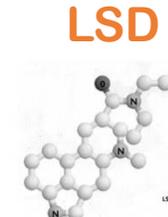
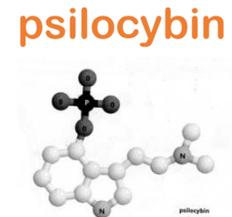
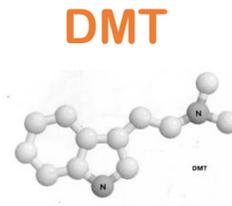
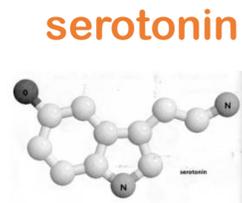
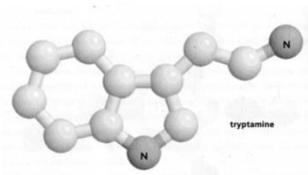


## Phenethylamines

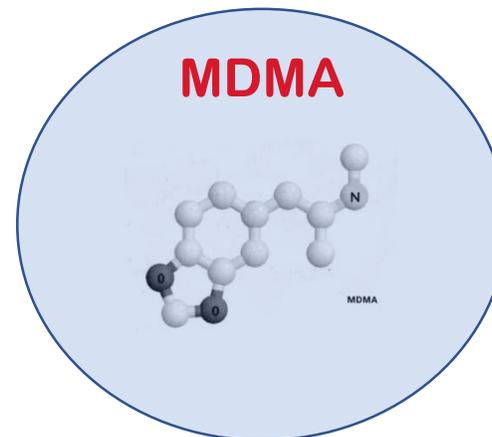
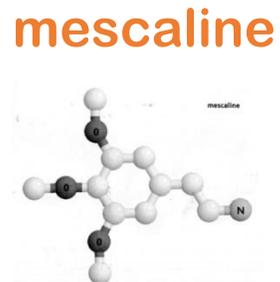
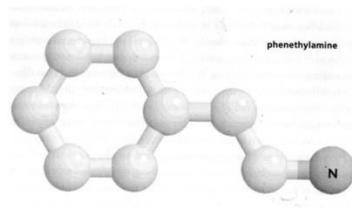


# What sort of psychedelic drug is MDMA?

## Tryptamines



## Phenethylamines



# What sort of psychedelic drug is MDMA?

**Classical psychedelics** (5-HT<sub>2A</sub> receptor partial agonists)

LSD, Psilocybin, DMT, Mescaline

**Entactogens** (Serotonin receptor agonists)

MDMA, MDA, MMDA, 2C-series etc

**Dissociative anaesthetics** (NMDA-antagonists)

Ketamine, PCP, NO<sub>2</sub>

**THC** (Cannabinoid receptor agonist)

**Ibogaine** (Nicotinic receptor antagonist)

**Salvia Divinorum** (Kappa-Opioid receptor agonist)

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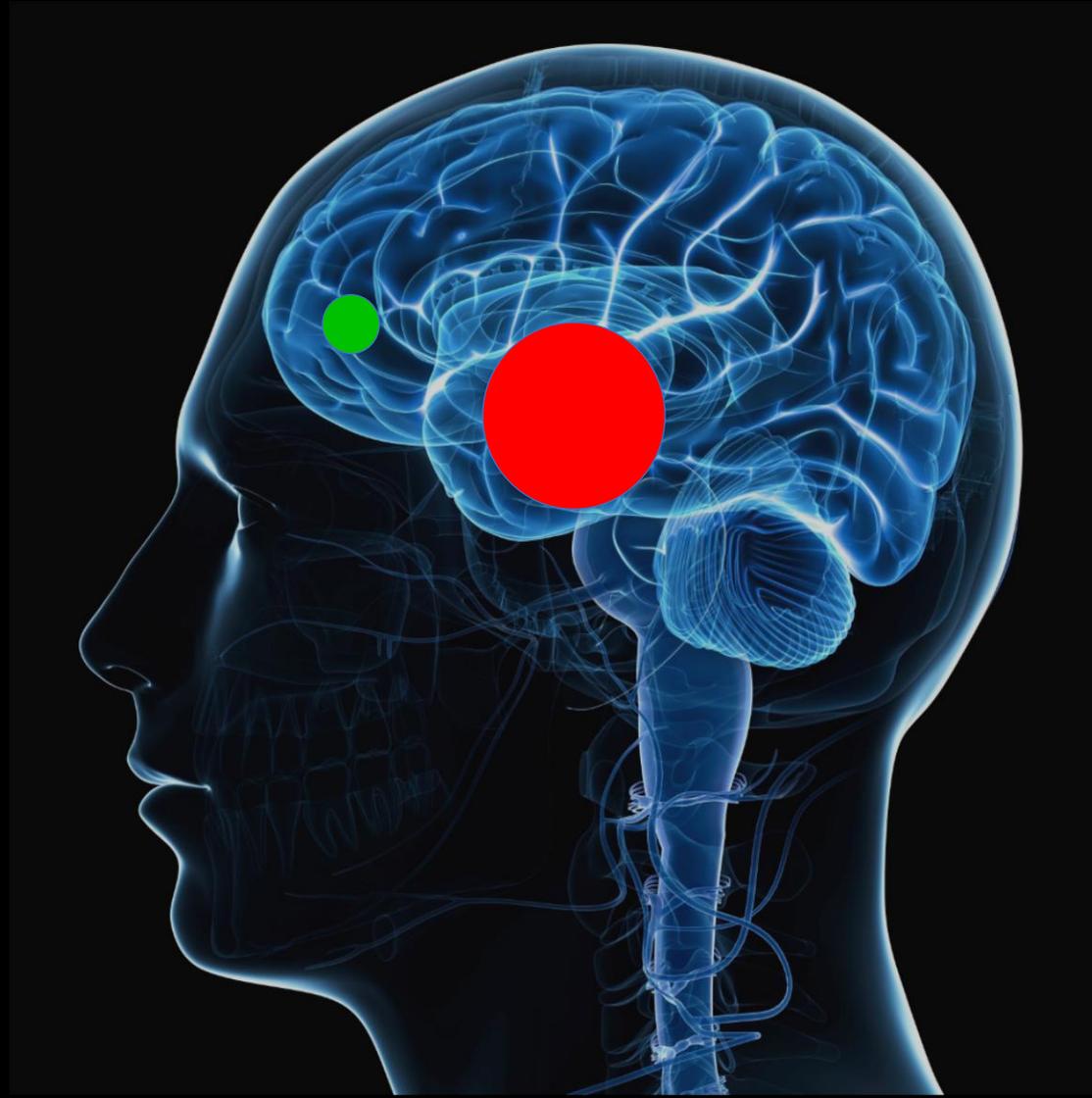
**Ibogaine** (Nicotinic receptor antagonist)

**Salvia Divinorum** (Kappa-Opioid receptor agonist)

Receptors or site in the brain where MDMA acts:		What are the effects?	Why this helps with psychotherapy?
<b>Increased Serotonin:</b>  <b>(POSITIVE MOOD + CREATIVE THINKING)</b>	5-HT <sub>1A</sub> 5-HT <sub>1B</sub>	<ul style="list-style-type: none"> <li>• ↓ depression</li> <li>• ↓ anxiety</li> <li>• ↓ fear (at the amygdala)</li> <li>• ↓ aggression and defensiveness</li> <li>• ↑ self-confidence</li> </ul>	<ul style="list-style-type: none"> <li>• Less anxiety and aggression improves relationship with therapist</li> <li>• Allows patient to focus on trauma without being overwhelmed by negative affect</li> </ul>
	5-HT <sub>2A</sub>	<ul style="list-style-type: none"> <li>• Alterations in perception of meaning</li> </ul>	<ul style="list-style-type: none"> <li>• Facilitates new ways of thinking of old experiences</li> </ul>
<b>Increased Dopamine and Norepineprine</b>  <b>(STIMULATION)</b>		<ul style="list-style-type: none"> <li>• ↑ level of alertness</li> <li>• ↑ arousal</li> <li>• ↑ conscious registration of external stimuli (at LC)</li> </ul>	<ul style="list-style-type: none"> <li>• Improved behavioural readiness</li> <li>• Improved recall of state-dependent memories of stressful events</li> <li>• Provides ‘Optimum Arousal Zone’</li> </ul>
<b>Increased alpha-2 activity</b>  <b>(RELAXATION)</b>		<ul style="list-style-type: none"> <li>• ↑ calmness and relaxation</li> </ul>	<ul style="list-style-type: none"> <li>• Provides improved mental state for exploring negative cognitions</li> <li>• Provides ‘Optimum Arousal Zone’</li> </ul>
<b>At the hypothalamus</b>  <b>(EMPATHY / BONDING)</b>		<ul style="list-style-type: none"> <li>• Release of oxytocin</li> </ul>	<ul style="list-style-type: none"> <li>• Improved attachment with therapist</li> <li>• Improved empathy and closeness</li> </ul>

# Fear, Trauma and the Developing Brain:

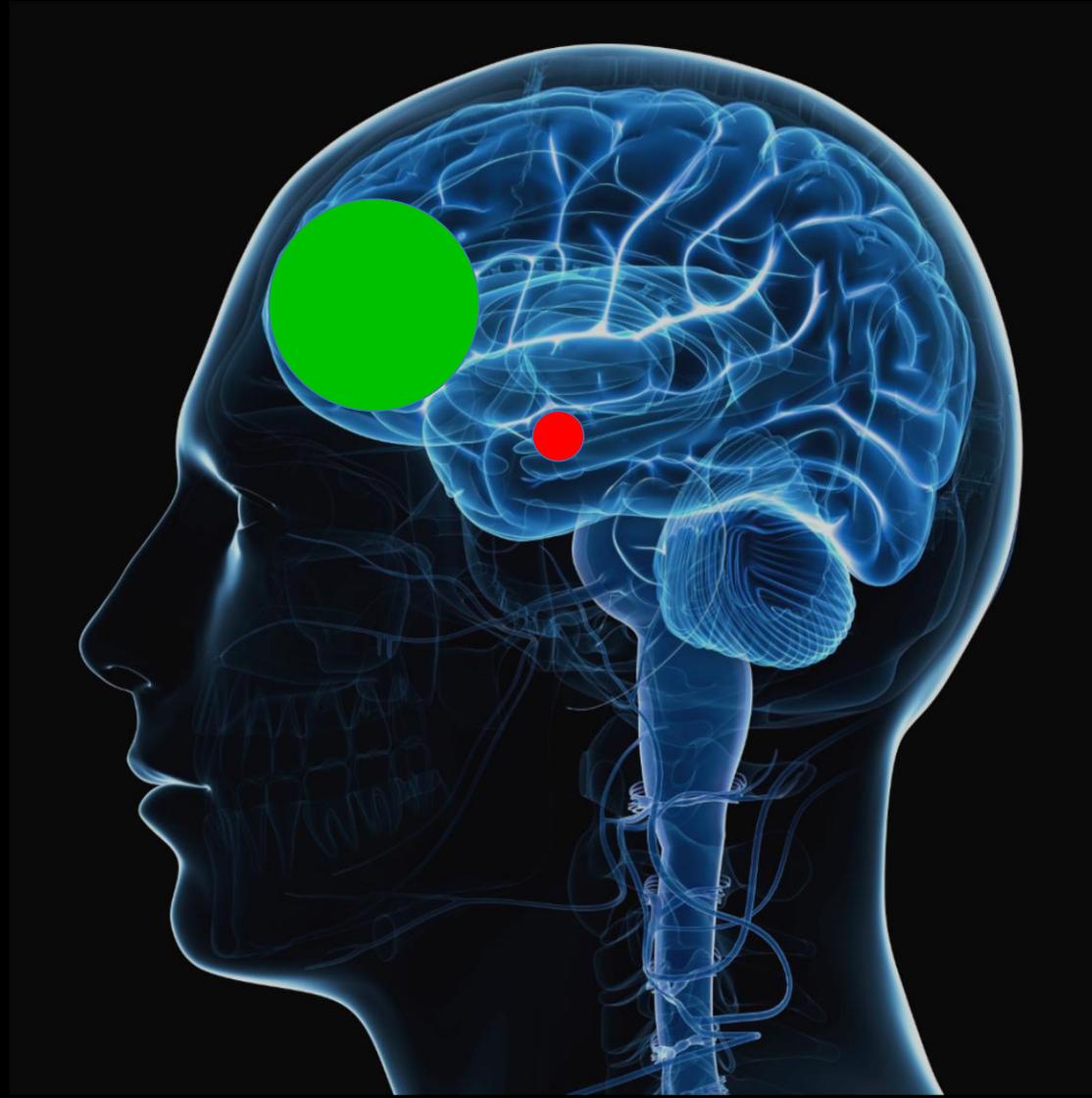
The Prefrontal Cortex versus **The Amygdala**



Childhood  
Trauma

# Fear, Trauma and the Developing Brain:

The Prefrontal Cortex versus **The Amygdala**



# MDMA

# The Killer Legal High:



# The Clinical, Social and Financial Burden of Alcohol Dependence



- **One quarter** of adults consume alcohol harmfully.
- 6% of men and 2% of women are **dependent**.
- Self-medication for **Undiagnosed PTSD**.
- Impact on employment, family and community.
- 10,000 alcohol-related deaths in UK annually.
- Costs around £20 billion a year in England alone.
- **'The UK's drinks industry is the US's N.R.A.'**

How well is modern psychiatry doing to manage alcohol use disorder?

How well is modern psychiatry doing to manage alcohol use disorder?

**Roughly 90% of people will relapse within 4 years after completing treatment.**

➤ National Institute on Alcohol Abuse and Alcoholism. (1989). *Relapse and Craving*.

# Psychedelics for alcoholism?



Bill Wilson, founder of AA, came to believe that LSD could help “cynical alcoholics” (those who did not believe in a higher power”) achieve spiritual awakening

“Suddenly the room lit up with a great white light. I was caught up in an ecstasy which there are no words to describe.

It seemed to me in my mind's eye, that I was on a mountain and that a wind not of air but of spirit was blowing.

**And then it burst upon me that I was a free man.”**

# And he was right re alcoholism!

Review

## Lysergic acid diethylamide (LSD) for alcoholism: meta-analysis of randomized controlled trials

Teri S Krebs<sup>1,2</sup> and Pål-Ørjan Johansen<sup>1,2</sup>

### Abstract

Assessments of lysergic acid diethylamide (LSD) in the treatment of alcoholism have not been based on quantitative meta-analysis. Hence, we performed a meta-analysis of randomized controlled trials in order to evaluate the clinical efficacy of LSD in the treatment of alcoholism. Two reviewers independently extracted the data, pooling the effects using odds ratios (ORs) by a generic inverse variance, random effects model. We identified six eligible trials, including 536 participants. There was evidence for a beneficial effect of LSD on alcohol misuse (OR, 1.96; 95% CI, 1.36–2.84;  $p = 0.0003$ ). Between-trial heterogeneity for the treatment effects was negligible ( $I^2 = 0\%$ ). Secondary outcomes, risk of bias and limitations are discussed. A single dose of LSD, in the context of various alcoholism treatment programs, is associated with a decrease in alcohol misuse.

### Keywords

Alcoholism, alcohol-related disorders, hallucinogens, meta-analysis, psychedelics, substance-related disorders



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jop.sagepub.com



1970

problems and treatment  
intentions

quiet room

group therapy

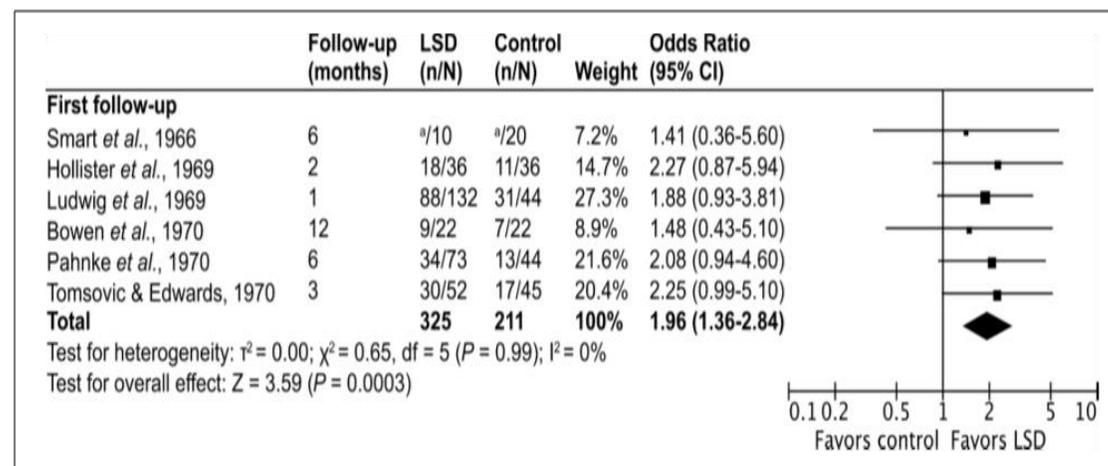


Figure 2. Improvement on alcohol misuse at the first available follow-up after LSD versus control treatments.

\*Continuous outcome data.

Since the banning – one clinical trial + only two neuroscience studies - all in last two years

# Could MDMA Treat Alcohol Dependence?



- Non-specific adjunct / to enhance the psychotherapeutic relationship?
- Peak experience / personality change?
- Spiritual Experience?
- Co-morbid depression and anxiety?
- **Trauma**
- **Empathy**

# The Bristol MDMA-Alcoholism Project 'BIMA'



Ben Sessa, Tim Williams, Claire Durant,  
Laurie Higbed and David Nutt

Avon and Wiltshire NHS Trust and Imperial College, London

- 20 participants
- **Open-Label** Safety and Tolerability Study Design
- 8-week course of psychotherapy
- Male-Female co-therapist pair
- Two MDMA Sessions
- 125mg + 62.5mg MDMA
- Overnight stay
- **Primary Outcomes are safety and tolerability**
- Plus, alcohol abstinence, mental health and Quality of Life follow-up measures

# The Bristol MDMA-Alcoholism Project 'BIMA'

2-weeks <b>pre-detox</b>	Screening, consent and eligibility interview	
<b>Alcohol Detox</b>	Seven to Ten Days, carried out by local Community Alcohol Detox Team. Followed by baseline assessments.	
1 week post detox	Session 1	60-minute therapy session.
2 weeks post detox	Session 2	60-minute therapy session
3 weeks post detox	<b>Session 3</b>	<b>MDMA-assisted therapy session 1 (~6-8 hours)</b>
	Session 4	Next day follow-up session (60 min) then daily phone calls 4 days.
4 weeks post detox	Session 5	60-minute therapy session
5 weeks post detox	Session 6	60-minute therapy session
6 weeks post detox	<b>Session 7</b>	<b>MDMA-assisted therapy session 1 (~6-8hours)</b>
	Session 8	Next day follow-up session (60 min) then daily phone calls 4 days.
7 weeks post detox	Session 9	60-minute therapy session
8 weeks post detox	Session 10	60-minute therapy session
3 months post detox	Face-to-face Follow-up interview	
6 months post detox	Face-to-face Follow-up interview	
9 months post detox	Face-to-face Follow-up interview	

# Safety Profile of MDMA

- Rates of morbidity and mortality from recreational ecstasy consistently low for last 25 years.
- Risks (hyponatremia and hyperthermia) easily controlled in clinical setting.
- Neurotoxicity scares of 1990s not born out epidemiologically and not relevant at moderate and infrequent doses.
- **Clinical MDMA is not recreational ecstasy.**



# Risks when using psychedelics clinically

- Physiological risks **Low**
- Psychosis and Suicide **Low**
- Dependency risks **Low**
- Hallucinogen Persisting  
Perception Disorder (HPPD) **Rare**



**The History of  
Psychedelics in  
Medicine**

- **The Ancient  
Psychedelic Era:  
Shamanism**

- **The First  
(Scientific)  
Psychedelic Era:  
1890s – 1940s**

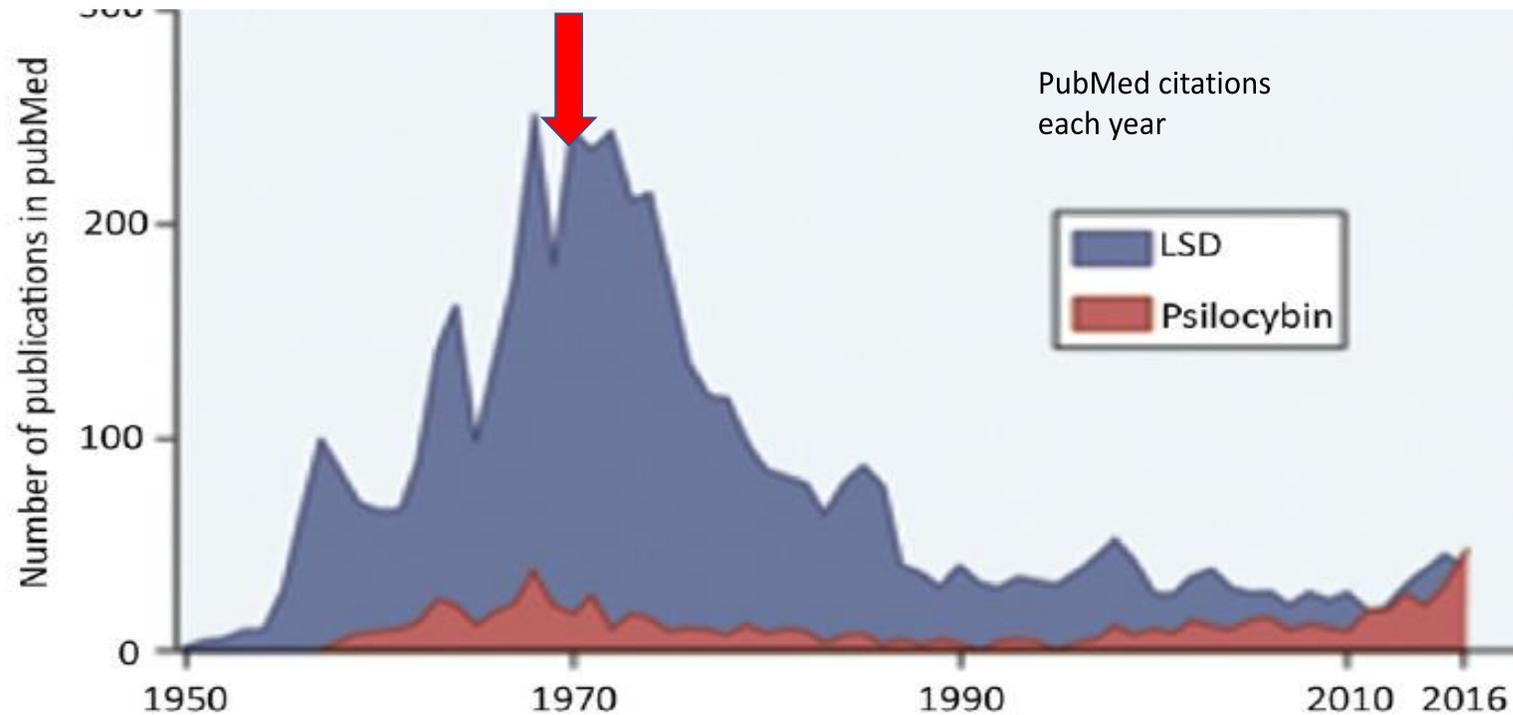
- **The Second  
Psychedelic Era:  
1940s – 1970s**

- **The Dark Ages:  
1971 - 1990**

- **The Third  
Psychedelic  
(Renaissance) Era:  
1990s – Present**

# How the UN Conventions on drugs destroyed research

Impact of the 1971 UN Psychotropics Convention on psychedelic research



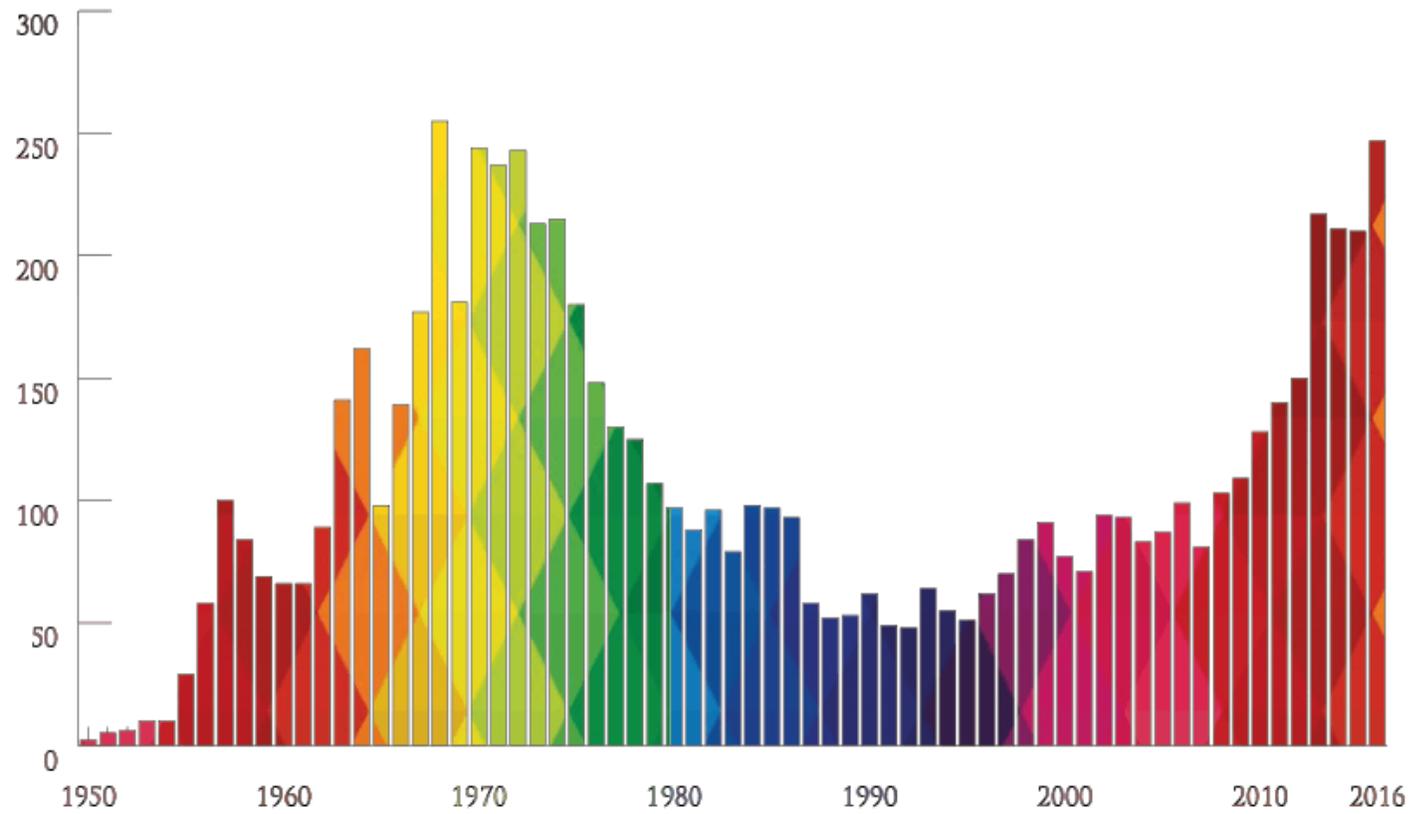
# The Psychedelic Renaissance

Reassessing the Role of Psychedelic Drugs in 21st Century Psychiatry and Society SECOND EDITION

Ben Sessa



NUMBER OF SCIENTIFIC ARTICLES PUBLISHED ABOUT LSD



# The Psychedelic Renaissance

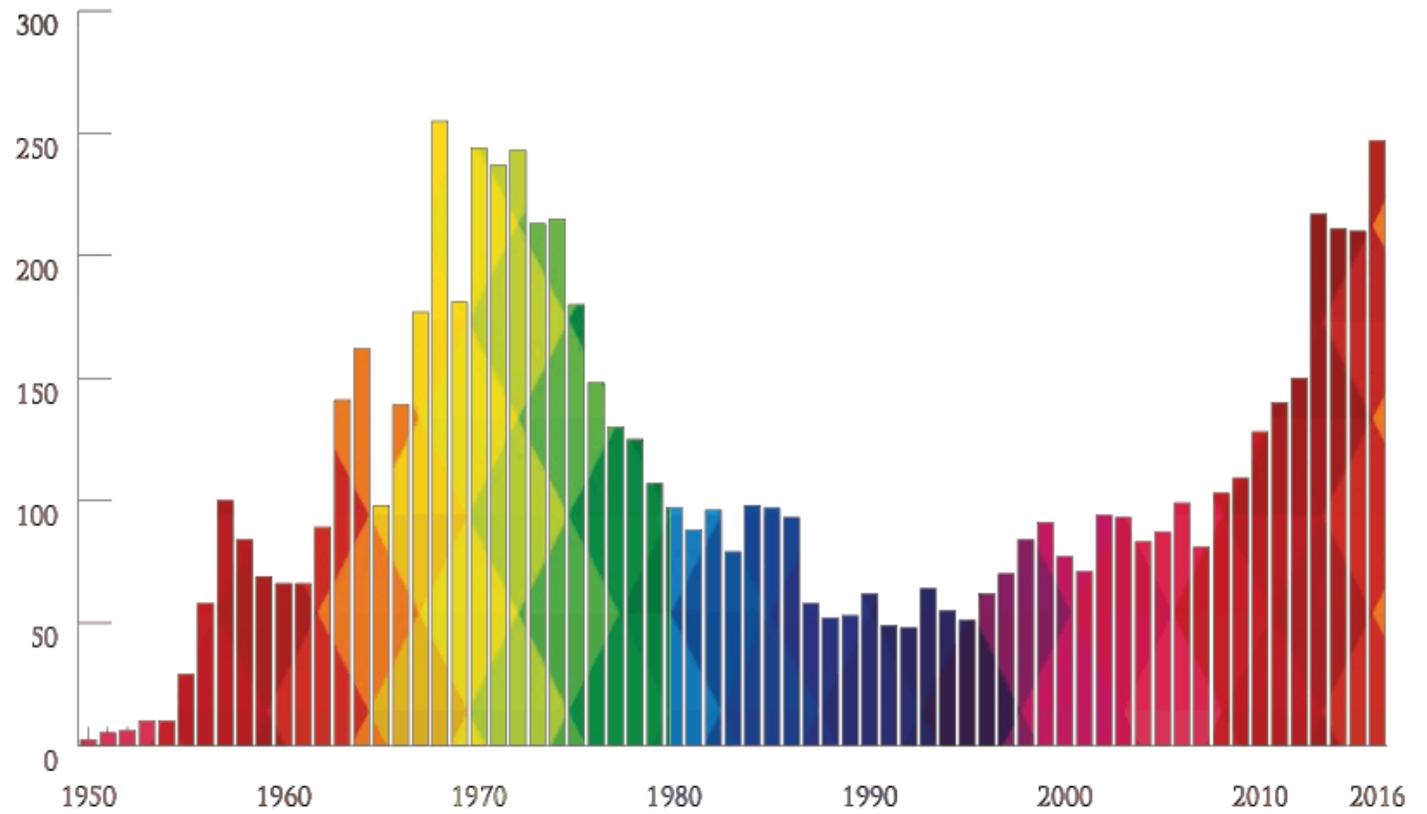
Reassessing the Role of Psychedelic Drugs in 21st Century Psychiatry and Society SECOND EDITION

Ben Sessa



# ← Shameless plug!

NUMBER OF SCIENTIFIC ARTICLES PUBLISHED ABOUT LSD



# Contemporary Clinical Psychedelic Research Published

- MDMA Therapy for PTSD: Pilot study and LTFU (Mithoefer et al. 2010 and 2013)
  - MDMA Therapy for PTSD in War Veterans, USA
  - MDMA Therapy for PTSD for Boulder, USA
  - MDMA Therapy for PTSD Israel
  - MDMA Therapy for PTSD Canada
- MDMA Therapy for Social Anxiety in Autism (Danforth et al 2015)
- Psilocybin Therapy for Obsessive Compulsive Disorder (Moreno et al 2006)
- Psilocybin Therapy for Anxiety in end-stage cancer (Grob et al 2010)
- Psilocybin Therapy for Anxiety in end-stage cancer (Ross et al 2015)
- Psilocybin Therapy for Smoking Cessation (Johnson et al 2015)
- Psilocybin Therapy for Alcohol Dependence (Bogenschutz 2015)
- LSD Therapy for Anxiety in end-stage cancer (Gasser 2010)
- Ketamine Therapy for Opiate addiction (Krupitsky et al 2007)
- Ibogaine Therapy as a treatment for Opiate Addiction (Brown 2017)
- Ibogaine Therapy as a treatment for Opiate Addiction (Knoller 2017)
- Ayahuasca Therapy for Depression (de Arujo – IN PRINT)





# Ten Years of UK Psychedelic Research



Bristol Psilocybin Pilot  
Study Group 2009



European MAPS Training MDMA  
Academic Group 2014



Eleusis LSD Creativity  
Group 2015



Beckley-Imperial  
Psilocybin MEG-fMRI  
Study Group 2013



Beckley-Imperial  
LSD Group 2014



Cardiff University MDMA  
Study Group 2015



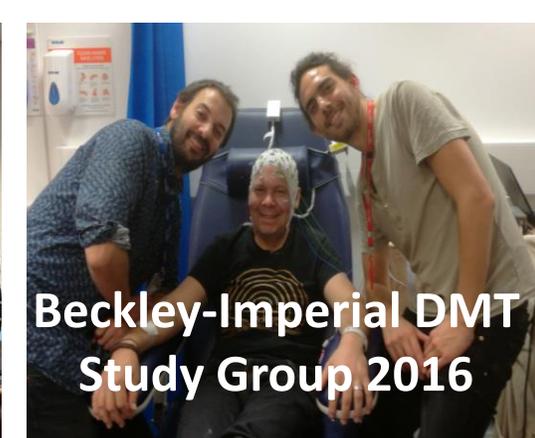
Bristol-Imperial MDMA  
Study Group 2015



UK/International DMT  
Study Group 2015

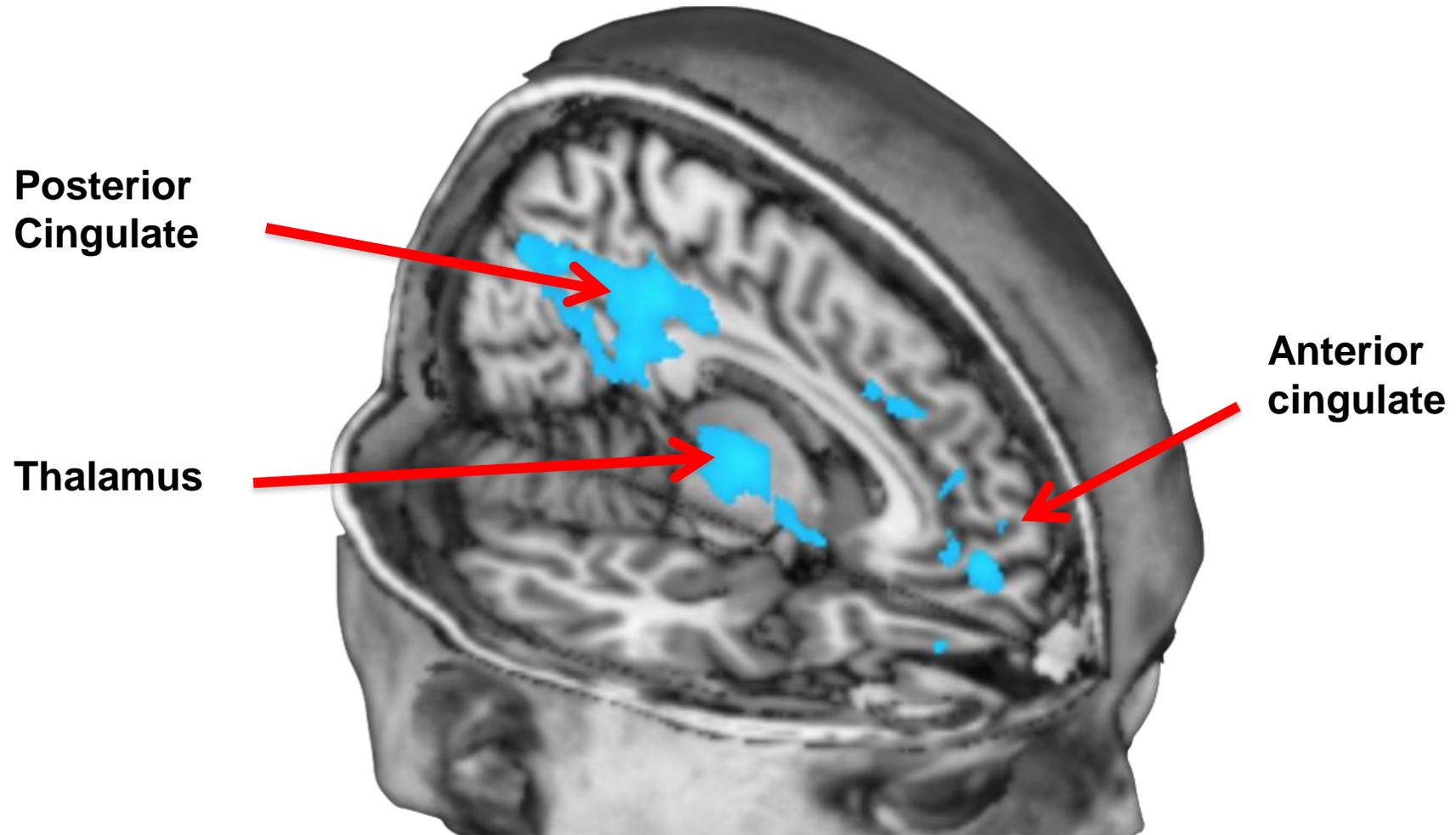


Beckley-Imperial-  
Psilocybin-Study Team  
2014



Beckley-Imperial DMT  
Study Group 2016

**Psilocybin fMRI: ONLY DECREASES** in brain activity + regionally specific



# Mood and wellbeing

- Users often report enduring effects
- Formal studies – Roland Griffiths John Hopkins – confirm this

Single high dose of psilocybin:  
Two-thirds of participants rated  
their experience as one of their top  
5 most meaningful life experiences  
(Griffiths et al. 2006)

- As did our subjects



Is this an antidepressant effect?

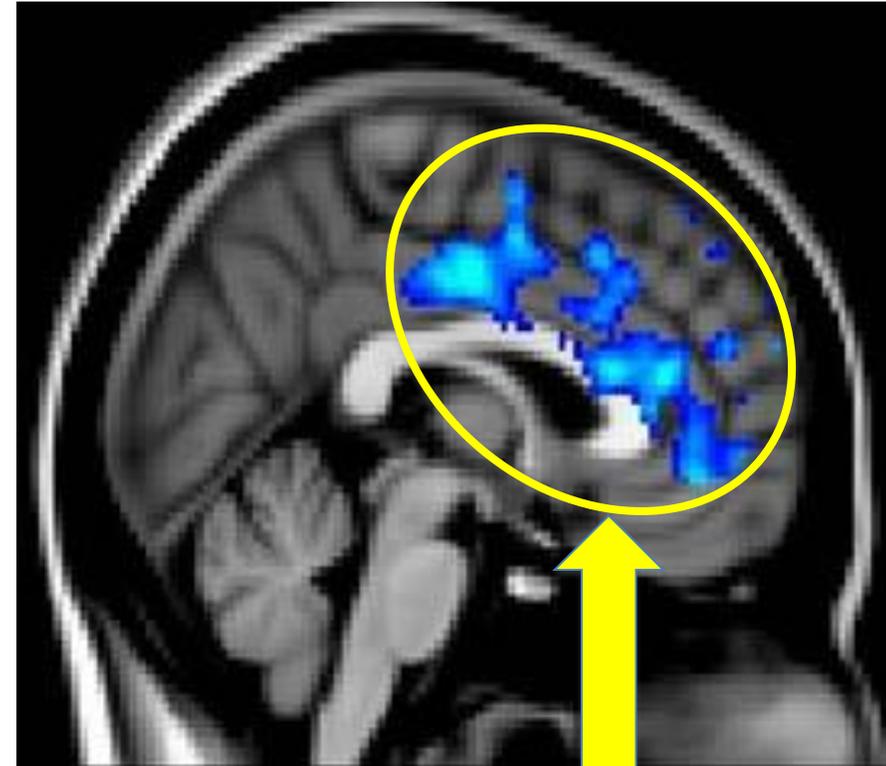
# Psilocybin attenuated mPFC activity

## Psilocybin attenuates activity in the brain region linked to depression

Carhart-Harris PNAS 2012

### As do treatments for depression:

- **SSRIs** Kennedy et al. 01
- **CBT** Goldapple et al. 04
- **Sleep deprivation** Gillin et al. 01
- **ECT** Bonne et al. 96
- **Placebo** Mayberg et al. 02
- **Deep brain stimulation** Mayberg et al. 05
- **Ketamine** Deakin et al. 08



fMRI BOLD image

# **The Imperial MRC psilocybin depression trial**

**Grant awarded 2012**

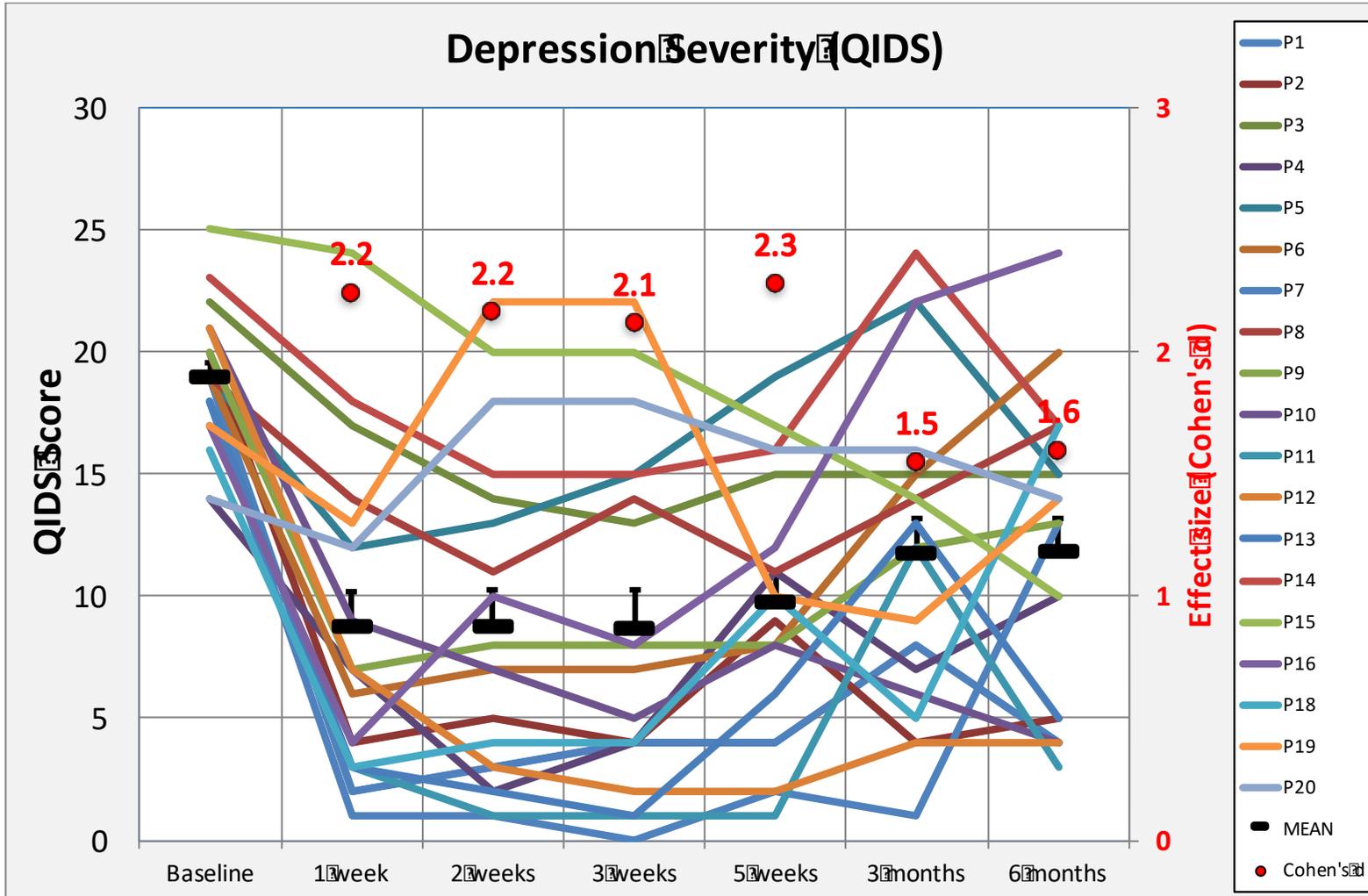
**Ethics – took 3 iterations – 1 year**

**Drug supply – 30 months**

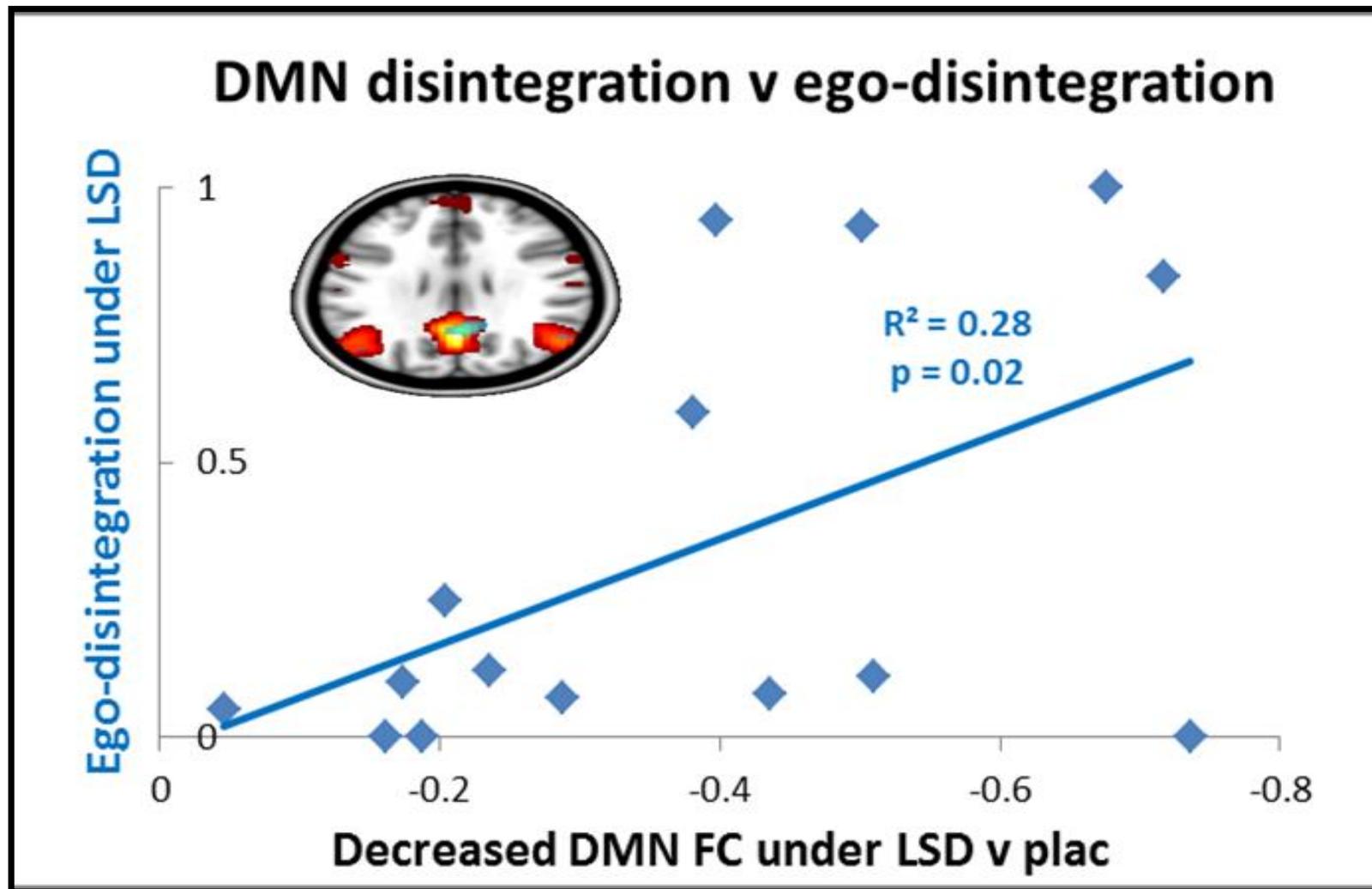
**Regulatory approvals – 32 months**

**Cost per dose = £1500!**

# Psilocybin for resistant depression

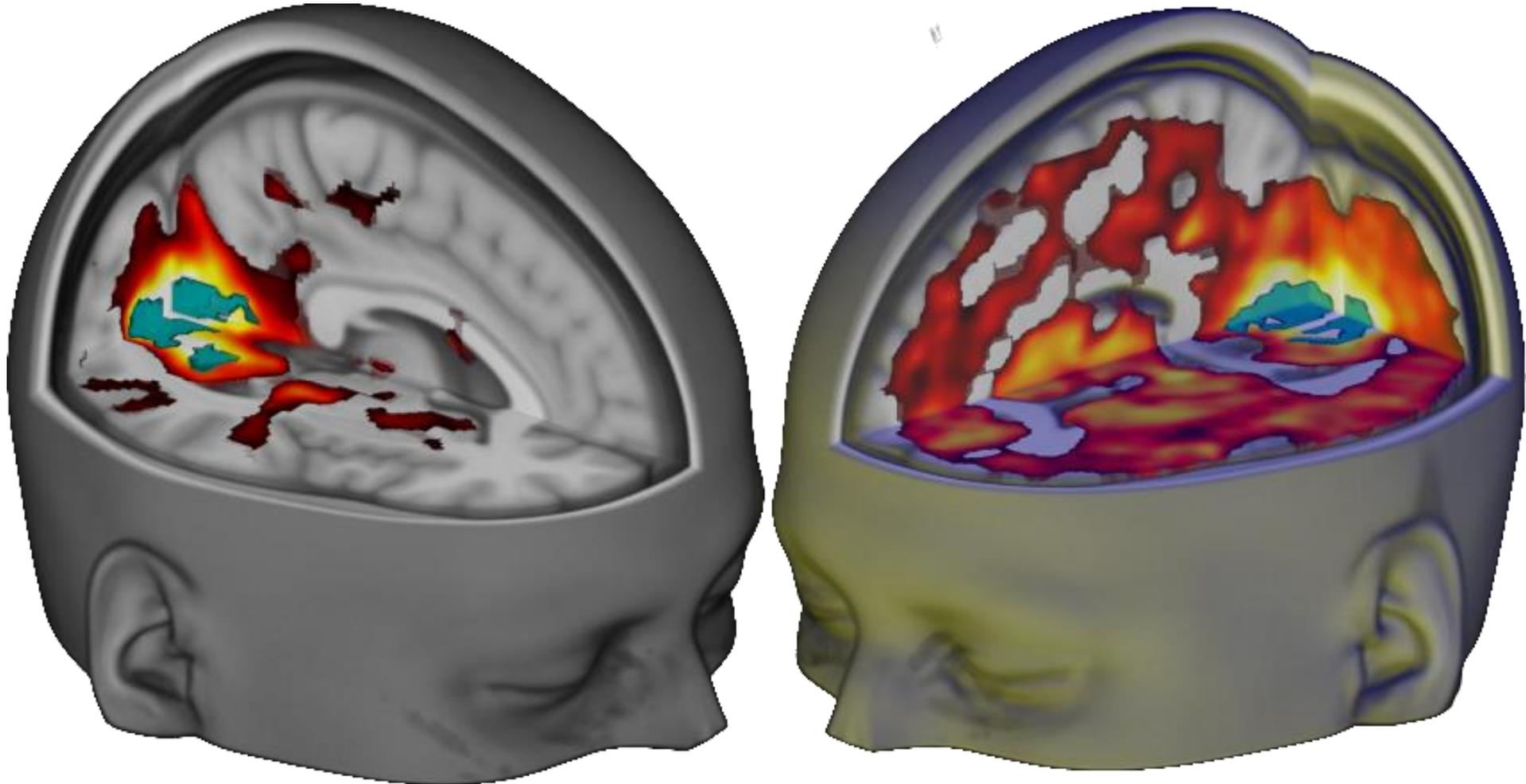


# LSD disrupts default mode network



# The nature of complex hallucinations?

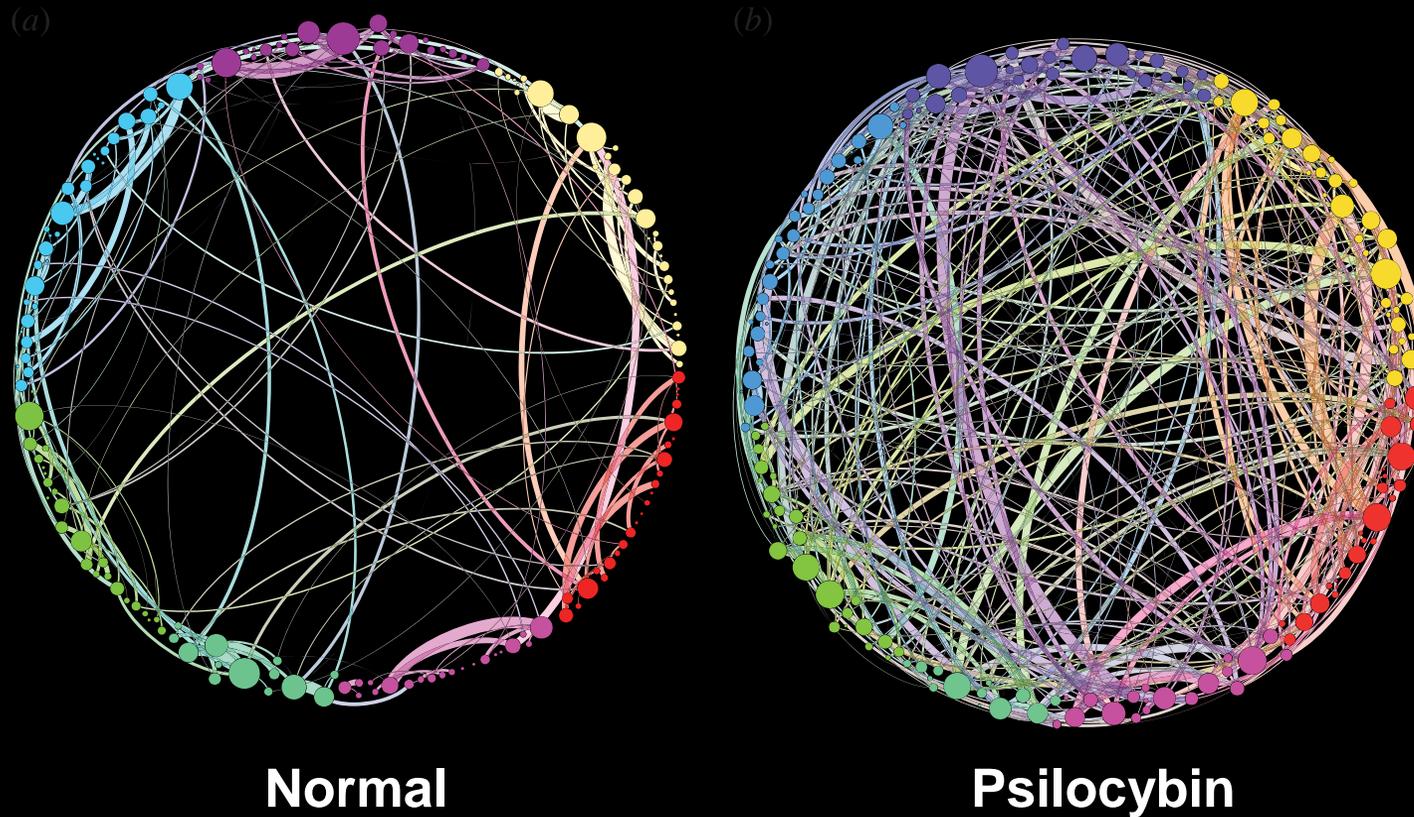
Increased V1 connectivity under LSD



Placebo

LSD

# By switching off the “control centers” psilocybin increases brain connectivity

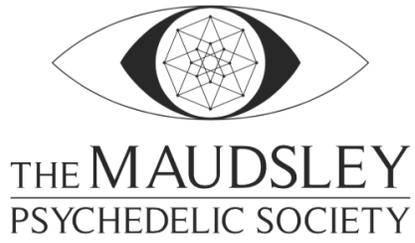


OPPORTUNITY

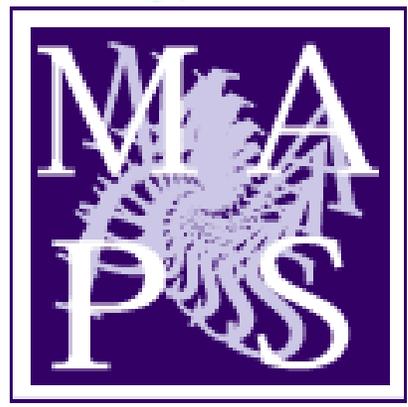
**Are You a Young Person  
Considering  
Working in Psychedelic Research?**

**Is it 'Career Suicide'?**





HARVARD  
UNIVERSITY



Imperial College  
London

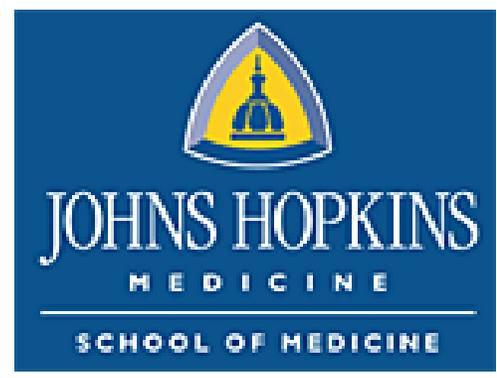


Yale University



THE  
LANCET

BMJ





#EndTheDrugWar

A wide-angle, fisheye photograph of a massive crowd of people gathered in a large, open square. The square is flanked by two grand, classical-style buildings with prominent columns and domes. The people are densely packed, many sitting on the ground in the foreground, and many have their arms raised in celebration. The sky is bright with scattered clouds. The overall atmosphere is one of joy and achievement.

Thanks

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