

# Marijuana and Psychosis

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Home on the Hill Lecture Series

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# Objectives

Discuss definitions and concepts relating to psychosis

Review demographics and effects of marijuana use

Discuss the association between marijuana use and psychosis

# What is Psychosis

Loss of contact with external reality as manifested by

Delusions

Hallucinations

Disorganized thought

# Diagnoses associated with psychosis

Medical Causes (eg. brain tumour, hormonal conditions, infection)

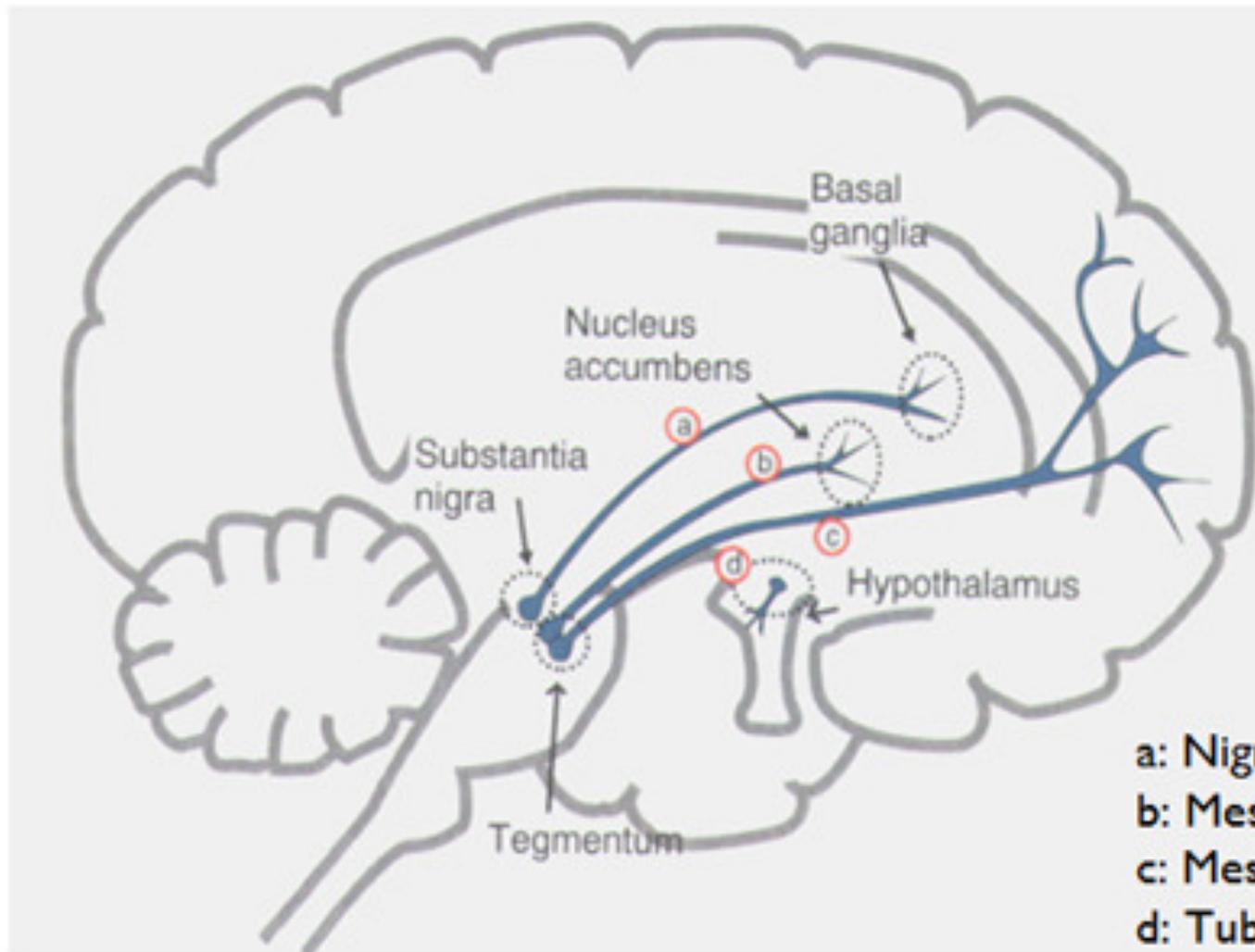
Drug-related (illicit drugs, medications)

Mood disorders (major depression, bipolar disorder)

Schizophrenia — likely more than one illness, likely multifactorial causes (multiple genes, prenatal/perinatal factors)

# Dopamine Pathways in the Brain

## -salience hypothesis and psychosis



- a: Nigro-striatal pathway
- b: Meso-limbic pathway
- c: Meso-cortical pathway
- d: Tubulo-infundibular pathway

# Marijuana

Cannabis Sativa

Used by humans as early as 4000 BC

First used for medicinal purposes in 2737 BC

Association between mental illness and cannabis use  
noted in 1895

# Survey 2013

7th graders: 1.7% used cannabis at least once in past 12 months

8th graders: 39.2% used at least once in past 12 months  
1% used daily in past 4 weeks

# Chemistry and Composition

Hundreds of compounds — THC and CBD are best studied

THC: creates high; side effects of anxiety, paranoia

CBD: ?counteracts side effects of THC, antianxiety, antipsychotic effects, other medicinal benefits

Recreational strains have become higher in THC content and lower in CBD content

# cannabis and psychosis neurobiology

Endocannabinoid system is involved in dopamine regulation

Endocannabinoid system regulates neurodevelopment

Exposure to cannabis may disrupt these processes

# Cannabis and Psychosis

Cannabis intoxication is associated with transient psychosis

Regular cannabis use can be associated with psychosis which persists beyond period of intoxication

Cannabis use is associated with earlier age of onset and worse outcomes in patients with schizophrenia (causation may go both ways)

Controversy: Can cannabis use cause schizophrenia?

# Some possible reasons for marijuana use in people with schizophrenia

Provides a social network

Relieves boredom

“Self-medicating”

Denial of illness

# Does Cannabis use cause Schizophrenia: Longitudinal Studies

Andreason et al (1987), 45,570 Swedish Conscripts over 15 years

Hammit et al (2002), 50,087 Swedish Conscripts over 27 years

Arseneault et al (2002), 1037 New Zealand subjects, over 15 years

van Os et al (2002), 4104 Dutch subjects, over 3 years

Bergusson et al (2003) 1265 New Zealand subjects over 3 years

Henquet et al (2005), 2437 German subjects, over 4 years

Lanrique-Garcia (2012), Swedish conscripts, over 35 years

# Schizophrenia?

Longitudinal studies show higher incidence of schizophrenia with frequent marijuana use prior to age 18.

Unlikely that marijuana use alone causes schizophrenia but likely causes earlier onset and more severe course in vulnerable individuals. At this time, there is no ability to identify in advance who is vulnerable.

# RISK FACTORS FOR ADDICTION in Youth

alcohol or other drug problems among family members

or school performance

mental illness

family conflicts, chaos

stress

having friends who drink or use other drugs

not fitting in socially

emotional, physical, or sexual abuse

## Addiction

Having a positive adult role model

Strong attachment to family, community, school

Having goals and dreams

Being involved in meaningful and well-supervised activities (eg. sports, music, volunteer work)

# Responding to Someone with an Addiction

Express your concerns with the person and let him or her know you are available to listen

Avoid arguing

Provide factual information

Avoid judging

Be positive and encouraging

Find out about available treatment programs and tell the person about them as a patient. Don't push. He or she has to be the one to make the change

# Summary

Marijuana use is common among adolescents and young adults

Marijuana use may worsen or trigger psychosis among vulnerable individuals

Individuals who suffer from psychosis are more likely to use marijuana and other drugs

Education and prevention is the best strategy