

## Faces of Pot: The psychiatrist

**CAMH expert Dr. Romina Mizrahi is looking into the connection between marijuana and schizophrenia.**



Dr. Romina Mizrahi uses PET scans to study psychosis and schizophrenia. She's looking into the connection between marijuana and schizophrenia.

**By:** Isabel Teotonio Living reporter, Published on Thu Jan 16 2014

When a patient checks into the youth psychosis prevention clinic at the Centre for Addiction and Mental Health, Dr. Romina Mizrahi asks a series of standard questions. One is: “Do you smoke marijuana?”

Often, the answer is: “Yes. Regularly.”

Mizrahi is a psychiatrist studying schizophrenia, a mental disorder characterized by delusions, hallucinations, distorted thoughts and odd behaviour.

At the clinic she is trying to catch the disease before it advances. The research scientist is also trying to pinpoint why cannabis triggers schizophrenia in some individuals. She's at the helm of potentially groundbreaking research studying molecular changes in one of the brain's neurochemical systems.

“We know that marijuana does change structure and connectivity in the brain, but we don't understand much,” says Mizrahi, also an assistant professor of psychiatry at the University of Toronto.

In the last decade, various epidemiological studies in the general population have shown teenagers who use marijuana daily when their brain is still developing — before age 16 — increase their risk of schizophrenia. But it's still unclear why this is. After all, many young people smoke a lot of pot and never develop schizophrenia.

Marijuana doesn't cause schizophrenia but in vulnerable individuals it can trigger the disease, which usually develops in late adolescence and early adulthood. Other risk factors include stress, having a family member — siblings or parents — who suffer from psychosis, a personal history of childhood maltreatment ranging from neglect to abuse, or having suffered socially stressful experiences such as immigration.

For teens, who are even slightly vulnerable, heavy use of marijuana puts them at risk. That's why Mizrahi urges them to stop smoking pot.

Marijuana is composed of more than 480 ingredients, more than 60 of which are cannabinoids, or chemicals only produced by the cannabis plant. Two of the most well-researched cannabinoids are Tetrahydrocannabinol (THC) and Cannabidiol (CBD), which have opposite effects.

THC is responsible for psychoactive effects, and provides that euphoric high feeling, whereas CBD has antipsychotic, anti-anxiety and antistress effects.

It's possible that one day the marijuana high in CBD will be used to treat psychosis, says Mizrahi. But for now, many growers create strains high in

THC because pot smokers want that feeling of being high. When those vulnerable to mental illness consume high THC strains it can mess with the wiring of their brain.

The amount of THC in marijuana is much higher and more potent now than it was in 1960s, says Mizrahi. It's become such a mental health issue that in the Netherlands, cannabis with more than 15 per cent THC has been reclassified as a hard drug, and isn't allowed to be sold in their weed-selling coffee shops.

About one third of Mizrahi's 80 patients with schizophrenia smoke pot, despite her warnings. Some tell her they feel paranoid and think others can read their thoughts when they're high so they only smoke alone. If they refuse to give up marijuana, she urges them to, at the very least, try a different strain.

Others patients, however, don't report any adverse effects believing it relaxes them and makes them feel better. Yet a study she's currently doing suggests otherwise.

Mizrahi asked volunteers — healthy individuals, patients with schizophrenia, and those at-risk of developing the disease — to answer a series of questions throughout the day about how they're feeling. For instance, are they happy, sad, paranoid or hearing voices and, have they used marijuana in the last hour.

After smoking pot, healthy volunteers reported feeling more relaxed and experienced no hallucinations or delusional ideas; patients with schizophrenia experienced a significant increase in symptoms; and those at-risk experienced some abnormal perceptions.

So why do patients think it relaxes them when they're actually feeling more paranoid and detached from reality? Mizrahi suspects that some are social pot smokers, which makes the memory of the event seem more pleasurable than it really was.

She is now embarking on new research using positron emission tomography — or PET scans — to obtain images of how marijuana changes brain chemistry. Volunteers include healthy non-smokers and smokers, patients with schizophrenia and those at risk of developing the disorder.

She and her team will administer intravenously a specially-formulated dye that will light up on a PET scan part of the brain's endocannabinoid system. The body makes its own cannabis-like chemicals called endocannabinoids, which mimics some of the effects of THC and helps regulate pain, appetite, pleasure and stress.

Mizrahi is trying to figure out how the endocannabinoid system differs between healthy smokers and non-smokers, and patients. It could be that people self-medicate with marijuana because there's something wrong with their own endocannabinoid system. In other words, maybe they're trying to get from marijuana what their own body cannot produce, she says.

What drives Mizrahi is delving into territory that is largely uncharted.

"It's fascinating and it's completely unknown what marijuana is causing in the brain," she says. "We have the tools to investigate these things and that's something that pushes me to move forward ... I work with lots of young people who struggle (with schizophrenia) and it's a responsibility for me to try and understand it."

Also, the next time she counsels a teenager to not smoke pot — and they ask 'Why?' — She wants to have an answer.