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A Psychedelic Drug Passes a Big Test for PTSD Treatment

A new study shows that MDMA, known as Ecstasy or Molly, can bring relief when paired with talk therapy to those with severe post-traumatic stress disorder.

By Rachel Nuwer

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In an important step toward medical approval, MDMA, the illegal drug popularly known as Ecstasy or Molly, was shown to bring relief to those suffering from severe post-traumatic stress disorder when paired with talk therapy.

Of the 90 people who took part in the new study, which is expected to be published later this month in Nature Medicine, those who received MDMA during therapy experienced a significantly greater reduction in the severity of their symptoms compared with those who received therapy and an inactive placebo. Two months after treatment, 67 percent of participants in the MDMA group no longer qualified for a diagnosis of PTSD, compared with 32 percent in the placebo group.

MDMA produced no serious adverse side effects. Some participants temporarily experienced mild symptoms like nausea and loss of appetite.

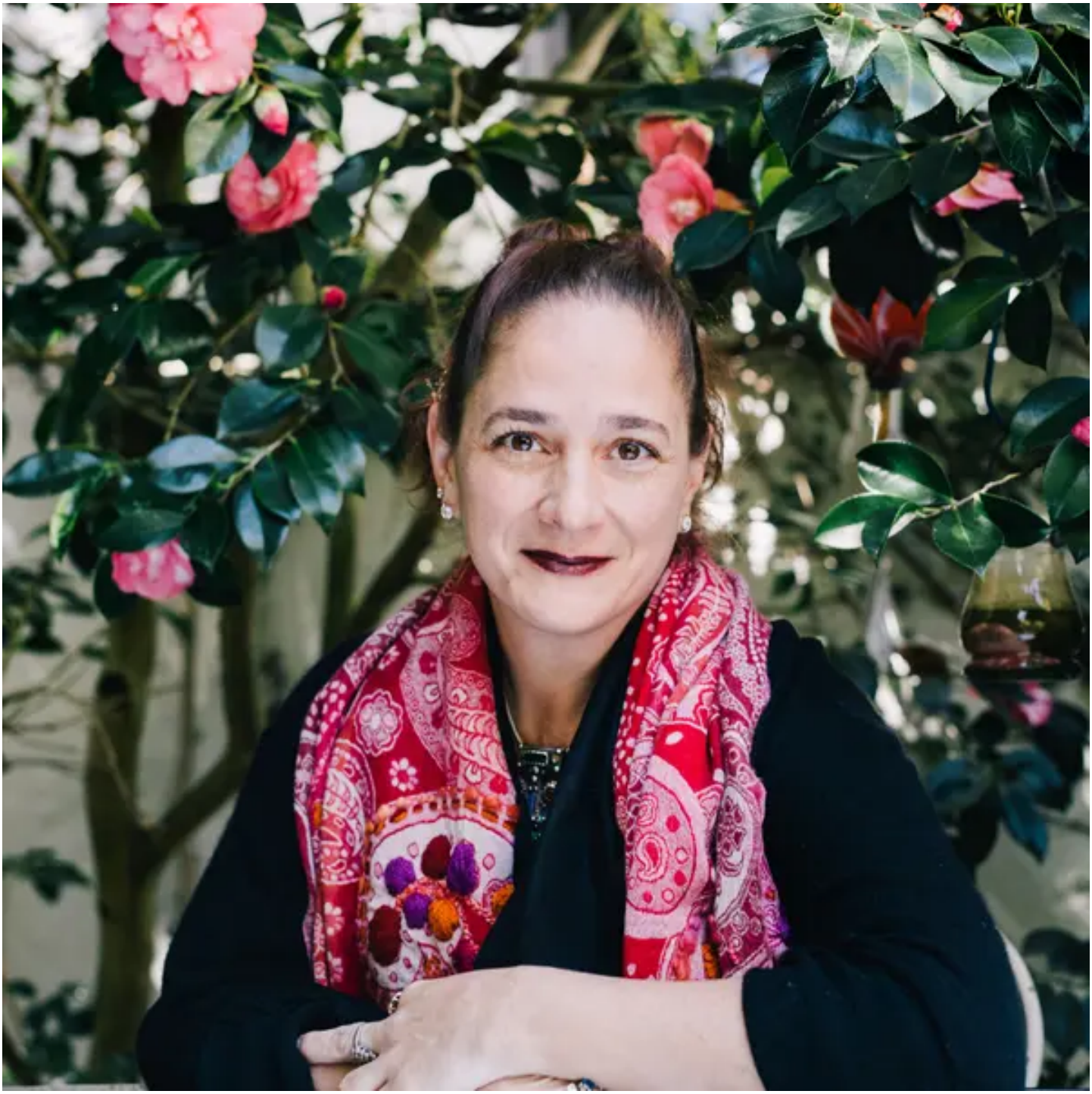
“This is about as excited as I can get about a clinical trial,” said Gul Dolen, a neuroscientist at Johns Hopkins University School of Medicine, who was not involved in the research. “There is nothing like this in clinical trial results for a neuropsychiatric disease.”

Before MDMA-assisted therapy can be approved for therapeutic use, the Food and Drug Administration needs a second positive Phase 3 trial, which is currently underway with 100 participants. Approval could come as early as 2023.

Mental health experts say that this research — the first Phase 3 trial conducted on psychedelic-assisted therapy — could pave the way for further studies on MDMA’s potential to help address other difficult-to-treat mental health conditions, including substance abuse, obsessive compulsive disorder, phobias, eating disorders, depression, end-of-life anxiety and social anxiety in autistic adults.

And, mental health researchers say, these studies could also encourage additional research on other banned psychedelics, including psilocybin, LSD and mescaline.

“This is a wonderful, fruitful time for discovery, because people are suddenly willing to consider these substances as therapeutics again, which hasn’t happened in 50 years,” said Jennifer Mitchell, a neuroscientist at the University of California, San Francisco, and lead author of the new study.



Jennifer Mitchell, a neuroscientist at the University of California, San Francisco, is a lead author of the new study. In people with PTSD, she said, MDMA combined with therapy seems to help the brain process painful memories and heal itself. Anastasiia Sapon for The New York Times

But some mental health experts urged restraint. Allen James Frances, a professor emeritus and the former chair of psychiatry at Duke University, who was not involved in the new study, warned that new treatments "are never as wonderful as first they seem."

"All new treatments in medicine have always had a temporary halo effect by virtue of being new and by promising more than they can possibly deliver," Dr. Frances said.

Unlike traditional pharmaceuticals, MDMA does not act as a band-aid that tries to blunt symptoms of PTSD. Instead, in people with PTSD, MDMA combined with therapy seems to allow the brain to process painful memories and heal itself, Dr. Mitchell said.

Critically, MDMA taken in isolation, without therapy, does not automatically produce a beneficial effect.

"It's not the drug — it's the therapy enhanced by the drug," said Rick Doblin, senior author of the study and director of the Multidisciplinary Association for Psychedelic Studies, a nonprofit research group that sponsored and financed the clinical trials.

For this process to work, a person must be primed to engage with their trauma. Participants first undertook preparatory sessions with two trained therapists. Then in three sessions of eight-hours each, spaced a month apart, they received either an inactive placebo or MDMA. Neither the participants nor the therapists knew which. While most participants correctly guessed whether they received a placebo or MDMA, this did not undermine the study's results or its methodology, which was agreed to in advance by the F.D.A.

Scott Ostrom, who participated in the study, had suffered from PTSD since returning home from his second deployment in Iraq in 2007. For more than a decade, he experienced debilitating nightmares. “Bullets would dribble out of the end of my gun, or I’d get separated from my team and be lost in a town where insurgents were watching me,” he said.

Mr. Ostrom’s days were punctuated by panic attacks, and he dropped out of college. He pushed friends and family away, and got into an unhealthy romantic relationship. He was charged with assault and attempted suicide. Therapy and medication did not help.

But after participating in the trial, he no longer has nightmares. “Literally, I’m a different person,” he said.

During his first of three sessions in early 2019, lying on a couch with eye shades, and in a lucid dreamlike state, Mr. Ostrom encountered a spinning, oily black ball. Like an onion, the ball had many layers, each one a memory. At the center, Mr. Ostrom relived the moment in Iraq, he said, that “I became the person I needed to be to survive that combat deployment.” Over the next two sessions, Mr. Ostrom engaged with “the bully,” as he calls his PTSD alter ego, and asked permission for Scott to return.

Mr. Ostrom, 36, now works steadily as an HVAC specialist and owns a home near Boulder, Colo., which he shares with his girlfriend, Jamie Ehrenkranz, and his service dog, an English lab named Tim.

“The reason I like calling this medicine is it stimulated my own consciousness’s ability for self-healing,” Mr. Ostrom said. “You understand why it’s OK to experience unconditional love for yourself.”

"It's not the drug — it's the therapy enhanced by the drug," said Rick Doblin, director of the Multidisciplinary Association for Psychedelic Studies, a nonprofit research group. Tony Luong for The New York Times

Merck pharmacists invented MDMA, which is short for 3,4-methylenedioxy-N-methylamphetamine, in 1912. But the compound was largely forgotten until 1976, when Alexander Shulgin, a well-known psychedelic chemist, synthesized MDMA and tried it himself. Realizing that his discovery could have therapeutic value, Dr. Shulgin shared MDMA in 1977 with Leo Zeff, a psychotherapist who introduced it to other mental health professionals. Over the next eight years, hundreds of therapists and others administered an estimated half a million doses of MDMA. Some reported that, in just a few sessions with the medication, patients achieved an amount of progress that normally took years.

In the early 1980s, however, MDMA escaped from the clinic to the dance floor, where it became known as Ecstasy. In 1985, the Drug Enforcement Administration criminalized MDMA as a Schedule I substance, defined as having "no currently accepted medical use and a high potential for abuse."

Some mental health professionals continued to administer MDMA-assisted therapy underground, but most stopped. The numbers of scientists who pursued studies with MDMA also dwindled. But a few individuals continued to push strongly on behalf of MDMA research, including Dr. Doblin, who founded his association in 1986 to focus on developing MDMA and other psychedelics into medications approved by the F.D.A. It took nearly two decades to overcome alarmist claims about Ecstasy's dangers, including that it ate holes in users' brains, to finally gain approval to begin studies. Research in animals and humans confirms that MDMA produces no neurotoxic effects at the doses administered in clinical trials.

Ecstasy or Molly, on the other hand, can be adulterated with other potentially dangerous substances, and users may take far higher doses than are safe. In 2011, MDMA accounted for 1.8 percent of all U.S. drug-related emergency department visits, according to a database maintained until that year by the Substance Abuse and Mental Health Services Administration. In Europe, MDMA was responsible for 8 percent of drug-related emergency visits to 16 major hospitals in 10 countries from 2013 to 2014.

Scientists still do not fully understand the source of MDMA's therapeutic effects. The substance binds to proteins that regulate serotonin, a neurotransmitter that can, among other things, lift mood. Antidepressant medications like Prozac bind to these same proteins and block their reabsorption of serotonin, but MDMA takes this process further, causing the proteins to pump serotonin into synapses, strengthening their chemical signal.

MDMA also elevates levels of oxytocin, dopamine and other chemical messengers, producing feelings of empathy, trust and compassion.

But its primary therapeutic effect may come from its seeming ability to reopen what neuroscientists refer to as a "critical period," the window during childhood when the brain has the superior ability to make new memories and store them. Evidence from a mouse study published in Nature in 2019 indicates that MDMA may return the adult brain to this earlier state of malleability.

An estimated 7 percent of the U.S. population will experience PTSD at some point in their life, and as many as 13 percent of combat veterans have the condition. In 2018, the U.S. Department of Veterans Affairs spent $17 billion on disability payments for over one million veterans with PTSD.

For the approximately half to one-third of people who do not find relief through treatment, PTSD can become chronic, lasting years or even a lifetime.

Nathan McGee was able to revisit a traumatic memory, assisted by therapists, while on MDMA. “This allowed me to accept myself and recognize who I am,” he said. Elliot Ross for The New York Times

The 90 participants who took part in the Phase 3 trial included combat veterans, first responders and victims of sexual assault, mass shootings, domestic violence or childhood trauma. All had severe PTSD and had been diagnosed, on average, for more than 14 years. Many had a history of alcohol and substance use disorder, and 90 percent had considered suicide. The trial included data collected by 80 therapists at 15 sites in the United States, Canada and Israel.

Albert Garcia-Romeu, a psychopharmacology researcher at Johns Hopkins University School of Medicine, who was not involved in the study, said that additional research is needed to explore the therapy’s efficacy for people of diverse races and ethnicities, because three-quarters of the trial participants were white. This limitation also underscores, he said, “the importance of accessibility of these types of treatments to people of color and folks with lower socioeconomic status, who already suffer from health disparities and high rates of trauma.”

But, overall, Dr. Garcia-Romeu said, the findings “make a clear case for medical approval,” something that “represents a sea change that could revolutionize health care.”

Nathan McGee, 43, is another example of a patient who benefited from the drug. Since he was a teenager, he has been in and out of therapy and on and off medications for depression and anxiety.

“I was always angry, without cause,” he said. In 2019, Mr. McGee was diagnosed with PTSD stemming from an event that happened when he was 4 years old.

As a trial participant, he first thought that he had received the placebo. But about an hour into his initial session at a study site in Boulder, Colo., a calm awareness settled over him and he felt himself moving inward.

Under the influence of MDMA, and guided by his therapists, Mr. McGee was able to revisit his traumatic memory through the eyes of his 4-year-old self, unclouded by stigmas, adult interpretations or heavy emotion.

“This allowed me to accept myself and recognize who I am,” he said.

Since taking part in the trial in early 2020, he is less easily angered and more able to enjoy the moment.

“I’m continually discovering new things and improving,” Mr. McGee said. “It’s made me really understand what the feeling of joy is.”