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Psychedelics: A Window to Mental Illness

PSILOCYBIN AND DEPRESSION

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INTRODUCTION

Drug abuse is characterized by improper repeated use of drugs to seek outcomes such as pleasure, stress relief and an altered reality.¹ It can lead to addiction, a severe form of substance use disorder (SUD) in which a person's drug habits worsen and they become unable to control the impulse to use drugs despite knowing the negative consequences.¹ In addition to drug seeking behavior, brain function also changes affecting the natural inhibition and reward centers. Use of and addiction to alcohol, nicotine, and illicit drugs costs the Nation more than \$740 billion a year related to healthcare, crime, and lost productivity.¹ Whether a person will abuse drugs or become addicted is influenced by multiple factors; the more risk factors a person has, the greater the chance. Risk factors can be either environmental or biological such as mental disorders.¹ Mental disorders affect a significant amount of people and have a large impact on public health. These disorders impair an individual's normal function and make it difficult to complete daily activities generally by causing negative changes in mood, thought or behavior. Substance use disorders often co-exist with mental illnesses such as depression. Sometimes SUD precede mental illness or vice-versa. The approximate percentages of adults who use illicit drugs are higher among those with mental illness (86.1%) compared with those without any mental illness (15.7%).² Three pathways contribute to the comorbidity between SUD and mental illnesses.³ One main pathway is through common risk factors namely genetic and epigenetic vulnerabilities, problems in similar brain areas, early exposure or trauma that can cause both SUD and other mental illnesses.³ Secondly, individuals with mental disorders often use drugs to self-medicate in order to alleviate the negative symptoms of their mental illness and by doing so develop an SUD. Lastly, drug use in people with an underlying predisposition of a mental illness

can produce changes in brain structure and function that may cause them to develop that mental illness.³

PSYCHEDELICS, THE BRAIN AND HEALING

Hallucinogens (“all-arounders”) or Psychedelics (“mind manifesting”) include substances that produce alterations in perception, sensations of space and time and emotional states, in other words, they alter a person’s awareness of their surroundings as well as their thoughts and feelings.⁴ Throughout history numerous cultures have used these substances for religious rituals to facilitate spiritual experiences and more recently, people report using them for social or recreational purposes. In the 1950s and 1960s, LSD-lysergic acid diethylamide- was researched and achieved major breakthrough treatments in the field of psychiatry.⁵ Albert Hofmann, a swiss chemist, first synthesized LSD in 1938 while doing a research program that was searching for medically useful ergot-alkaloid derivatives.⁶ Five years later, Hofmann discovered its psychedelic properties while accidentally ingesting the chemical.⁶ In his 1979 autobiography, *My Problem Child*, Hofmann describes how he became restless and dizzy when he accidentally ingested LSD while making it and “perceived an uninterrupted stream of fantastic pictures, extraordinary shapes with intense , kaleidoscopic play of colors” for approximately two hours.⁷ The next day he intentionally ingested 0.25 milligram of the acid to confirm that it caused the symptoms he had experienced.⁷ Interest in psychedelic substances for their medicinal and transformational benefits first arose when the profound effects of LSD on the human psyche led neuroscientists to realize that there was a connection between chemistry and behavior.⁶ After the discovery of LSD, within a few years serotonin was discovered in the brain. By looking at those two structures,

researchers realized that LSD had a similar chemical template as serotonin, which was found in the brain and since LSD produced dramatic behavioral changes, they realized maybe there was a relationship between brain serotonin and behavior. This neuroscience research paved the way for the selective serotonin reuptake inhibitors [SSRIs] we use now for treating depression.⁶ Leading scientists in psychedelic research provide data that some psychedelic medicines when administered by proper protocols and informed by research can cause altered states of consciousness that facilitate brilliant creativity and psychophysical healing.⁶ What is the connection? Three known monoamine neurotransmitters exist in the brain: dopamine, norepinephrine and serotonin. There are fifteen different types of receptors known for serotonin whereas for dopamine and norepinephrine there are far less. The serotonin neurons project into all parts of the cortex and higher areas of the brain. They are involved in emotions such as anger, rage, hunger, sex drive, cognition, depression, mood and more. All of the psychedelics interact or activate the serotonin 5-HT_{2A} receptor.⁶ Currently, serotonergic psychedelics, particularly psilocybin (active compound in “magic mushrooms”) are being researched as potential treatments for different psychiatric disorders.⁷

PSILOCYBIN AND DRUG ABUSE

Psilocybin mushrooms contain the psychedelic compounds psilocybin, psilocin and baeocystin. Upon oral administration, psilocybin is metabolized into psilocin (4-hydroxy-N,N- dimethyltryptamine) which acts as a 5-HT agonist and has high affinity for the 5-HT_{2A} receptor subtype responsible for the psychotropic effects. After ingestion a person might feel effects like a sense of euphoria, alterations in thinking, visualizations, altered sense of time, synesthesia and spiritual experiences. According to The National

Institute on Drug Abuse (NIDA), the potential for magic mushrooms to produce long-term detrimental effects is not fully known.⁸ Under the influence of psilocybin an individual's logic and reasoning abilities are compromised, therefore, set and setting are crucial factors in the experience as the individual can pose a threat to him or herself and others. Negative experiences known as "bad trips" can have lasting effects on the user such as developing hallucinogen persisting perception disorder. These people may suffer from flashbacks or re-experience the psilocybin intoxication even when they have abstained from magic mushroom use for a long period. Unlike other drugs of abuse, long-term psilocybin use does not lead to physical dependence or withdrawal symptoms, but chronic users may develop tolerance which means that they need increased doses of psilocybin to achieve the level of intoxication they are seeking.⁸

PSILOCYBIN AND DEPRESSION

Amanda Fielding, founder of the Beckley Foundation and known researcher of psychedelic medicine, conducted a study using psilocybin in the treatment of chronic depression which showed that 67% of participants, who had been depressed for eighteen years on average and had been unresponsive to every other form of treatment, experienced significant improvement in their symptoms one week later. Three months later 42% remained depression free, a remarkably high success rate.⁶ Another study recorded how two experiences with psilocybin improved depression scores for weeks, and in some people, years,⁹ positioning it as one of the most powerful therapeutics for treatment-resistant depression.⁵ In most studies, the psychedelic is given just once, in some twice or three times over weeks, as part of an ongoing psychotherapy course, in complete contrast to currently available medications, most are given at least daily, often

with limited therapeutic support.⁵ This breakthrough treatment offers the possibility to access and remedy underlying biopsychosocial causes of depression unlike standard antidepressants that just treat the symptoms by protecting against the stressors that lead to and perpetuate depression. In contrast, psychedelic therapy via the effects of the drugs is able to facilitate insight and emotional release and with psychotherapeutic support, a subsequent healthy revision of outlook and life- style .¹²

CONCLUSION

Despite the notion by people of psychedelics as troublesome drugs of abuse, present studies demonstrate remarkably beneficial effects that deserve further research.⁶ By taking advantage of the medicinal benefits of psilocybin instead of seeing it solely as a drug of abuse, we can produce groundbreaking treatments to treat mental disorders than commonly contribute to and lead to drug abuse itself. We would be addressing underlying causes that need much attention.

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