

**Mental Health in Montana and Marijuana**

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### **Mental Health in Montana and Marijuana**

With the relatively recent approval of marijuana for medicinal and recreational use in Montana, it is increasingly necessary to understand the effects marijuana can have on the parts of our population that suffer from mental disorders. To further the understanding of how using this drug will affect the population of the state, it is important to have a scientific understanding of its impact on this section of our population. This is an examination of the neurological effects of marijuana on those who suffer from bipolar disorder and schizophrenia specifically. Having a better understanding of the effects of delta-9-tetrahydrocannabinoid (THC) and cannabidiol (CBD) will allow medical professionals, family, and the individuals who suffer with these disorders make an informed decision as to the validity of a regimental marijuana treatment and a better understanding of potential side effects if they choose to use the drug, considering their diagnosis.

#### **History**

On January 1, 2022, marijuana became legal for adult use for both medical and recreational purposes in the state of Montana (Montana Department of Revenue, n.d.). However, this product has been federally illegal since 1970 under The Controlled Substances Act, which because of the supremacy of federal law over state law in the American constitution means that marijuana is still illegal as affirmed in 2005 by the U.S. Supreme Court. The reason legal enforcement of the federal laws regarding marijuana distribution and use are not being enforced in states that allow medical and/or recreational use of the drug are because of policy statements the U.S. Department of Justice has issued informing the states there would be no intervention (Block, n.d.).

Although the State of Montana has allowed the usage of medical marijuana, it has provided no guidelines for its medicinal application. According to the Department of Labor and Industry's website (n.d.), "The Montana Board of Medical Examiners (BOME) does not hold a position on the suitability of marijuana in the treatment of medical disorders." Also noteworthy, is there is no reference to the

Centers for Disease Control and Prevention for medical information, or to the applicable federal statutes that could apply to possession, distribution, or production of marijuana that could affect the user.

Our current state law allows for the consumption of marijuana in any situation recommended, not prescribed, by a doctor. A recommendation is a suggestion of treatment, versus a prescription which is a series of treatments that must be followed. This may seem like a semantical difference, but where marijuana is a Schedule 1 drug and is deemed to have no medicinal value and has an elevated risk for abuse (United States Drug Enforcement Administration, n.d.), a prescription would put the doctor under unwanted scrutiny and possibly the risk of revocation of their medical license (Lakewood Medical Clinic, 2019). This recommendation allows a doctor to suggest marijuana for any purpose and among these has been the treatment of mental health issues including bipolar disorder and schizophrenia.

#### **Delta-9-tetrahydrocannabinol and cannabidiol**

There have been two major components of marijuana that have been examined for medical purposes, delta-9-tetrahydrocannabinol (hereafter referred to as THC) and cannabidiol (hereafter referred to as CBD). Both THC and CBD can bind to cannabinoid receptors in the human brain, because of their similarity to a naturally occurring chemical in the brain called anandamide. Anandamide in the brain affects “areas that influence pleasure, memory, thinking, concentration, movement, coordination, and sensory and time perception” (National Institute on Drug Abuse, 2020).

Even though THC and CBD have the same number of the same atoms, their chemical structure is arranged differently, thus giving the two chemicals different effects on the brain (DiLonardo, 2021). THC’s structure creates a psychoactive effect on the brain which impairs the ability to think, learn, and perform complicated tasks because of how it disrupts the function of the cerebellum and basal ganglia. CBD in contrast will reduce autonomic arousal when the brain is under physical or emotional stress without the hallucinogenic effects (Sadaka, et al., 2021). Both THC and CBD do come with notable side effects such as dizziness, digestive issues, mood changes, and memory loss (DiLonardo, 2021). Because

of these side effects and CBD's tendency to interact with other medications, the Food and Drug Administration will not allow any part of the marijuana plant that contains THC or CBD to be added to any food supplement that will be consumed by humans (Food and Drug Administration, 2023).

### **Bipolar disorder**

The Mayo Clinic (n.d.) defines bipolar disorder as “a mental health condition that causes extreme mood swings that include emotional highs (mania or hypomania) and lows (depression).” This is a lifelong condition that can be controlled with behavioral therapy and medications as needed according to the severity. The manic or hypomanic (less extreme) part of the cycle has the patient feeling of prolonged periods of energy that can interfere with the sleep cycle, euphoric emotions, and occasionally unusual to extreme irritability. The depressive aspect of the cycle follows usual depressive symptoms of sadness, hopelessness, and a general loss of interest in pleasurable activities and occasionally major aspects of the patient's normal life. Both aspects of this cycle can affect the patient's judgment, behavior, sleep cycles, and activity levels. The symptoms of both parts of the cycle have the potential to be dangerous to the individual because of poor decision-making and being easily distracted in the manic phase, while the depressive phase can lead to suicidal ideation and/or attempts.

According to Lauren Kuhns et al. (2021) in their study of cannabis use and mood disorders, observed THC has a direct effect on bipolar disorder, stating it “point[s] towards a path . . . from cannabis use to the onset of [bipolar disorder] and manic symptoms.” This initiation of a manic/hypomanic phase of a bipolar cycle is completely distinct regarding marijuana use before or after the diagnosis of the disorder. The study also noted that the longer the individual went with untreated bipolar disorder, the more likely the person was to start to use marijuana. In another study, Smadar Tourjman, MD, et al. (2022) found, “cannabis use was associated with [a] worsening course of symptoms . . . in bipolar disorder [and] increased severity of depressive, manic and psychotic symptoms” which included an increased risk of suicide and decreased cognitive functioning. The results for a

manic/hypomanic phase conclude that marijuana use increases the risk of an episode and an increase of severity of the bipolar cycle.

The manifestation of symptoms in a depressive phase of a bipolar episode are very similar to that of a major depressive disorder, and marijuana's effects are very similar in both. Although there is testimonial evidence (self-reported) from people going through a depressive episode of bipolar that their depression is lessened, clinical testing indicates the contrary. "Cannabis use is also associated with the worsening of mood disorder symptoms [e.g., bipolar] . . . [and] might negatively impact the development and course of mood disorders" (Kuhns, et al., 2021). This is especially concerning because according to Dr. Tourjman, et al. (2022), "the lifetime prevalence of cannabis use was 52%-71% in bipolar disorder," and their "cannabis use was associated with increased suicidality and decreased function."

In addition to worsening symptoms, there is a notable change in the age of the initial onset of symptoms with frequent marijuana use. "The average age of [bipolar disorder] onset for individuals who used cannabis between 0 and 10 times was 23.2 years, decreasing to 20.5 years for [more than] 10 times and 18.6 years for those with [a] lifetime [of cannabis use]" (Kuhns, L., et al., 2020). This information indicates that the younger a person is when they initially begin to use marijuana and the more often they consume the drug, the sooner symptoms can manifest and the worse those manifestations will be.

There were studies that referenced the experimental treatment of bipolar disorder with an oral dose of CBD by Dr. Maria Scherma, et al. (2020), and Jerome Sarris, et al. (2020). Both studies came to the same conclusion, where the only improvement shown by the patients was when they were treated with CBD and another drug. However, when the patients were moved to being treated with only CBD there were no symptom improvements, regardless of the dosage.

## Schizophrenia

The Mayo Clinic (n.d.) defines schizophrenia as, “a serious mental disorder in which people interpret reality abnormally, [and] may result in some combination of hallucinations, delusions, and extremely disordered thinking and behavior.” To understand the severity of this disorder, to meet the DSM-5 diagnosis criteria, two or more symptoms must be manifest for a significant time for one month, and one or more symptoms must be present for six months (Patel, et al., 2020). This is also a lifelong disorder that requires lifelong treatment in the form of medication and behavioral therapy to help the individual and their family to identify the onset of symptoms. Symptoms generally begin in the mid to late 20s, but rarely can be diagnosed in people over 45. Depending on the severity of the symptoms, people suffering with schizophrenia can become dangerous to themselves, up to and including suicide. These delusions/hallucinations can also cause an inability to function in normal daily behaviors. Schizophrenic symptoms tend to cycle in the individual, having times of more severe symptoms and remissions. Early detection and treatment can help relieve severe and uncontrolled manifestations of the illness.

It is well understood that schizophrenia is a psychotic disorder. It is also well understood that “THC produces acute psychotic-like symptoms in healthy volunteers” (Nia, 2019), and “that individuals who had used cannabis had a significant, 1.4-fold increased risk of any psychotic outcomes. . . [and have found] a dose-response effect, with even greater, 2.1-fold risk in individuals who used cannabis most frequently” (Miller, 2020). Where THC is producing the delusions and inability to appropriately interact with reality, similar to those schizophrenia is associated with, it is easily understood how the combination of the two could potentially have a synergistic effect. This would enhance the symptoms schizophrenia is creating in the individual and this enhancement would create more frequent

possibilities for manifestation. “Cannabis-induced psychosis is a part of the schizophrenia spectrum that eventually convert to schizophrenia (Patel, et al, 2020).”

Patients with schizophrenia have been treated with CBD in laboratory settings. Clinical studies compared a placebo to a daily oral dose of CBD and found the side effects were similar between the placebo group and the CBD group except for unwanted sedation which was more prevalent in the CBD group (Hoch, et al., 2019). The groups treated with CBD, over multiple tests, have shown mixed results. Some have reported an improvement in patient symptoms (Nia, 2019), some have reported no improvement over the placebo group (Scherma, et al, 2020), and others have reported a worsening in symptoms (Patel, et al., 2020). However, among the improvement groups it is consistently noted that an improvement observed is less than that of current medicinal treatments.

### **Conclusion**

It is generally accepted in the scientific community that if someone is predisposed to bipolar disorder or schizophrenia and they consume marijuana, they are increasing their risk of the onset of symptoms, and if those symptoms manifest, they will likely be worse than if they had not taken the drug. It is also understood that the younger an individual is when they first use marijuana, the earlier symptoms of bipolar disorder and schizophrenia are likely to appear in their lives. The evidence is clear that THC should not be used by anyone with a predisposition to bipolar disorder or schizophrenia because of the increased risk of harming themselves or others. It is also clear that the CBD present in marijuana has no significant effect on bipolar disorder. Though CBD by itself may have a potential benefit to those with schizophrenia, the presence of THC in marijuana tends to negate any beneficial effects and can enhance unwanted symptoms.

The potential dangers present with the use of marijuana by people suffering from bipolar disorder or schizophrenia strongly suggest no one with these conditions should consume marijuana. If an individual has a family history of bipolar disorder or schizophrenia, they should only consume

marijuana if they understand how it could potentially cause a manifestation of one of these disorders and understand the increased severity of that manifestation.



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