

Marijuana behavior, but the drug has been shown

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Marijuana & LSD : Should These Drugs be Legalized Carlos

Nieves Psychology 489: Drugs and the Brain Professor Shiflett Wednesday,

December 13th, 2017 The convictions for making numerous drugs illegal are often associated with the conception that the particular drug is addictive, dangerous, and (or) causes some individuals to behave in an antisocial manner. In correspondence with maintaining a safe and habitable atmosphere, these reasons are not unreasonable. However, in theory these convictions have not been applied to drugs that have been known to be problematic.

For instance, alcohol has been shown to be addictive as well as cause a variety of health problems and can be attributed to violence. By the same token, cigarettes may not cause acts of antisocial behavior, but the drug has been shown to be highly addictive and undoubtedly unhealthy. Granted, both alcohol and cigarettes are currently legal. LSD and marijuana, on the other hand, are drugs that are not known to cause any long-term effects in health, have not been shown to be addictive, and require an immense amount to cause an overdose. Currently, marijuana has been made legal to use both medically and recreationally in Colorado, California, Washington D. C, and a few other states. The reason to why marijuana was legalized corresponds to the previously noted conceptions, which resembles the criteria for schedule 1 drugs. In order for a drug to be classified as schedule 1 the drug (or other substance) has to have (1) no currently accepted medical use (2) a high potential for abuse and (3) a lack of accepted safety for use under medical supervision.

Subsequently, marijuana has been legalized in some states due to the inaccuracies of the criteria. In a like manner, LSD has also been shown to have equal inaccuracies. Even though many drugs have been shown to cause a variety of concerns drugs such as marijuana and LSD should be legalized because they have been shown to have accepted medical use, low potential for abuse, and accepted safety for use under medical supervision. Although both marijuana and LSD have been categorized as schedule 1 drugs, the specific biochemical interactions through which a pharmacological effect is produced differ between both drugs. The main active ingredient that can be found in marijuana is tetrahydrocannabinol (THC) which binds to and activates specific receptors known as cannabinoids.

Many of these receptors can be found throughout the brain and spinal cord. In particular, THC binds to two types of G-protein-coupled receptors, CB1 and CB2. CB1 receptors are predominately expressed in the brain and located in the basal ganglia, cerebellum, hippocampus, spinal cord, and peripheral nerves. Through antagonistic effects on the CB1 receptor, marijuana is able to induce mental and behavioral effects. The CB2 receptors are mainly found in the peripheral tissues on cells in the immune system, the hematopoietic, and in the spleen. These receptors may play a role in the immune-suppressive activity of cannabis. Both cannabinoid receptors, CB1 and CB2, are G-protein coupled and become activated through inhibition of the adenylate cyclase. The activation of these receptors causes an inhibition of the release of the neurotransmitters acetylcholine and glutamate while indirectly affecting GABA, NMDA, opioid, and serotonin receptors.

The cannabinoid receptors are predominantly located presynaptic rather than postsynaptic which means that cannabinoids modulate the neurotransmitter releases. Recent studies have shown that marijuana decreases the sensitivity to dopamine in the reward center in the brain, mainly the region in the mesolimbic dopamine system (Dopamine neurons are located in the midbrain and dopamine is the neurotransmitter responsible for the brain's pleasure and reward center). LSD, and other psychedelics produce most of their effects by acting as strong agonists or partial agonists of the serotonin receptor (5-HT). Many of these receptors can be found throughout the brain and the intestines. By acting as an agonist LSD, and others psychedelics, stimulate to a greater or lesser extent various subtypes of the 5-HT receptor. In particular, LSD binds to two G-protein-coupled receptors, 5-HT2A and 5-HT2B.

5-HT2A receptors are widely expressed throughout the central nervous system (CNS), notably near the serotonergic terminal rich areas (e. g. neocortex, various cell types of the cardiovascular system, fibroblasts, and neurons). It is suggested that through agonistic effects on the 5-HT2A receptor, LSD is able to induce hallucinogenic effects as well as behavioral. Similarly, the 5-HT2B receptors are also widely expressed through the CNS.

5-HT2B has been shown to mediate many of the central and physiologic functions of serotonin. Both receptors, 5-HT2A and 5-HT2B, modulate the release of many neurotransmitters, including glutamate, GABA, dopamine, epinephrine, norepinephrine, and acetylcholine, as well as many hormones, including oxytocin, prolactin, vasopressin, cortisol, corticotropin. The

serotonin receptors influence various biological and neurological processes such as aggression, anxiety, appetite, cognition, learning, memory, mood, nausea, sleep, and thermoregulation. One of the first criteria of a schedule 1 drug states that there is a lack of accepted safety for use of the drug or other substance under medical supervision. Although the safety of using marijuana and LSD is still, in fact, questionable if legalized researchers can further analyze the drug and test whether or not it is safe.

By acting on the CB1 receptor, marijuana is able to alter the memory function, learning, perception, and mood. When marijuana is smoked, THC passes from the lungs into the bloodstream, which is then rapidly carried throughout the body and brain. The individual begins to experience effects almost immediately with many experiencing a pleasant euphoria and sense of relaxation. Other common effects, which may vary dramatically among different individuals, include heightened sensory perception (e.

g., brighter colors), laughter, altered perception of time, and increased appetite. If marijuana is consumed in foods or beverages, these effects are somewhat delayed (usually appearing after 30 minutes to 1 hour) because the drug must first pass through the digestive system. Eating or drinking marijuana delivers significantly less THC into the bloodstream than smoking an equivalent amount of the plant.

Due to the delayed effects, individuals may unintentionally consume more THC than they intend to. Nonetheless, the experiences associated with marijuana can be idiosyncratic. Instead of relaxation and euphoria, some individuals experience anxiety, fear, distrust, or panic. Individuals who have

taken large doses of marijuana may experience an acute psychosis, which includes hallucinations, delusions, and a loss of the sense of personal identity. Although detectable amounts of THC may remain in the body for days or even weeks after use, the noticeable effects of smoked marijuana generally last from 1 to 3 hours, and when consumed in food or drink may last even longer. On the other hand, the effects of LSD have remained unpredictable.

Typically, the effects of the drug are felt 30 to 90 minutes after taking it. The individual may experience extreme changes in mood, feel several different emotions at once, or swing rapidly from one emotion to another. If taken in large enough doses, the drug produces delusions and visual hallucinations. The physical effects include dilated pupils, higher body temperature and sweating, nausea and loss of appetite, increased heart rate and blood pressure, sleeplessness, dry mouth, and tremors.

The individual may also suffer impaired depth and time perception, with a distorted perception of the size and shape of objects, movements, color, sound, touch and own body image. As noted in Juliens Primer of Drug Action, “sensations may seem to cross over, giving the feeling of hearing colors and seeing sounds” (Pg. 253). Most important, the toxicity of LSD is low with the effective dose approximating 50 micrograms and the lethal does approximating 14, 000 micrograms, thus making LSD a virtually nonlethal compound. Likewise, marijuana also has a low toxicity and would require an immense amount to reach intoxication. Currently, no reports have been reported in regard to marijuana and safety. With this information in mind,

the criteria regarding the lack of accepted safety for use under medical supervision can be questioned, especially since the current legalization of marijuana (a drug that is still illegal in other states) has shown otherwise.

One of the second criteria for a schedule 1 drug states that the drug or other substance has a high potential for abuse. Almost all addictive drugs act on the brains natural reward system, changing the way an individual feels, acts and behaves as they become increasingly dependent on the substance. This is possible due to the drug's ability induce an influx of dopamine receptors. With an increased concentration of dopamine, the pleasure that is generated from brain creates a rewarding feedback loop that is most likely to enforce the act of taking the drug again in the future. In correspondence, as the drug becomes more frequently used tolerance begins to build.

In regard to marijuana, if used chronically users can build tolerance quite rapidly due to the high concentrations of THC constantly binding to cannabinoid receptors. With constant interaction the cannabinoid receptors become downregulated, meaning that the cannabinoid receptors are decreasing. As a result, users will consume the drug more often to induce the associated effects. Be that as it may, research has shown that significant upregulation of CB1 begins within two days of abstinence and continues over four weeks (Ranganathan & D'souza, 2006). On the other hand tolerance for LSD can develop even faster due to its potency, however, it does not produce the compulsive drug-seeking behavior associated with other drugs (e.

g. cocaine and heroin). This finding is significant because, in most cases, repeatedly abuse is what typically causes a drug to eventually become addictive.

Since tolerance is developed very quickly many individuals often stop taking the drug for a while in order to let the resistance diminish, thus avoiding the repeated and compulsive drug abuse that is synonymous with addiction. This is not to say that because LSD is non-addictive it is safe to abuse. Many issues could occur while an individual is abusing a drug (even if it is marijuana) that can lead to other dangerous results, but the tolerance caused by the drug can be seen as helpful to the to the individual. With this in mind, both marijuana and LSD can have high abuse potential but the rate in which it may occur is relatively low. Currently, there have been no reports suggesting that the abuse potential has risen in any of the states since the legalization of marijuana. And as previously noted, marijuana and LSD both have low toxicity, which requires immense doses in order for an individual to overdose.

Nevertheless, the chances in which either drug were to be abused are not as high compared to other drugs such as heroin and cocaine (which are notably two of the many most abused drugs). With this in mind, the characteristics that entitle marijuana and LSD to be classified as schedule 1 drugs should be reevaluated. Lastly, one of the third criteria of a schedule 1 drug states that the drug or other substance has no currently accepted medical use in treatment in the United States. Of course, if a drug were to be illegal (i. e., LSD) to conduct experimental research on, it would be difficult to tell (unless

it was already done so in the past) if the drug has any accepted medical use in treatment.

Nonetheless, both marijuana and LSD have been shown to have therapeutic benefits. In particular, marijuana has been used to relieve various symptoms associated with a variety of conditions and diseases such as chronic pain, glaucoma, cancer, multiple sclerosis, obesity, epilepsy, and anxiety. By way of example, researchers found that the cannabinoid receptors can safely and effectively reduce the frequency of seizures without the experience of a being high (Devinsky et al., 2014). Equally, LSD has been shown to treat psychoneurotic patients (Einser & Cohen, 1958), and lower rates of serious psychological distress (Krebs & Johansen, 2012). In a most recent study conducted in 2014 researchers found that LSD paired with psychotherapy alleviated severe anxiety in patients suffering from terminal illnesses (Gasser et al.

, 2014). Likewise, another study conducted in 2012 found that patients who were administered LSD showed reduced levels of alcohol misuse (Krebs et al, 2012). Accordingly, all of the research conducted so far has shown that marijuana and LSD does in fact have therapeutic benefits, thus making the classification inapplicable. Indeed, while the outcomes of legalizing a drug may be unclear, marijuana and LSD should be legalized because they do not meet the criteria as schedule 1 drugs. As noted the criteria for the schedule 1 describes the drug as having a high potential for abuse, no currently accepted medical use in treatment, and a lack of accepted safety for use under medical supervision. Research has shown that marijuana has a low

abuse potential (not as addictive as alcohol), has various accepted medical uses in treatment (i. e.

, reducing seizures), and has been shown to be safe under medical supervision. In fact, on June 18th, 2010 the Hawaii Medical Association passed a resolution stating that marijuana should not be classified as a schedule 1 drug since it does not fulfill any of the three criteria (all of which are required) to maintain its current restriction. In a like manner, research has also shown that LSD has a low abuse potential (no compulsive drug-seeking behavior), has accepted medical uses in treatment (reducing alcohol misuse and alleviating severe anxiety), and has been shown to be safe under medical supervision (paired with psychotherapy).

Despite the research, marijuana and LSD still remain illegal in many states and drugs such as alcohol and cigarettes, which have been shown to have a higher potential for abuse, no accepted medical treatments, and a lack of safety (increase rate of death) are currently legalized. As such, these drugs should be reevaluated and legalized so that further research can be conducted to show that the drugs can in fact be of no harm to the general population. REFERENCES Advokat, C. D., Comaty, J. E., & Julien, R.

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