**Colleague Matthew Q post to week 3 discussion 1**

**Issues Regarding Addictive Drug Use**

Despite drug illegal psychoactive, addictive drugs have been sometimes used in ceremonial settings and recreationally since before recorded history. These drugs still are illegal at the federal level for possession and distribution, importation, manufacture, and not approved by the FDA. There are many reasons why drug addiction and use has become a bigger problem in the past 150 years. The reasons that these drugs have become a more serious problem are many.

**Why is the Drug Problem so Bad**

Some of these factors that have caused drug use to increase are, the moral decay of society, globalization of the world, where it is far easier to import drugs from far away places where they are grown, changes in technology enabling the creation of designer synthetic drugs and the increase of potency and purity, increases in mental illness rates, increases in crime and poverty, and the rush to legalize these drugs of intoxication and addiction. Is it not a bigger problem that so many people feel the need to put themselves in a drug-induced altered state of reality on illegal addictive drugs and alcohol, instead of being able to be happy with life on life’s terms? For the purposes of limiting the length of this discussion, marijuana will be discussed only because it is the most widely used addictive drug.

**Pharmacological issues, Pharmacokinetics, Administration Routes, Dosage**

**Absorption**

There are two active ingredients are tetrahydrocannabinolic acid (THCa) and cannabidiolic acid (CBDa). When the plant is smoked or dried these are converted to THC and CBD by the process of decarboxylation (Advokat et al., 2018). The active ingredient in marijuana is, delta-9-tetrahydrocannabinol (THC) (Advokat et al., 2018).

Marijuana is usually smoked. When it is smoked approximately one-fourth to one-half of the THC is actually available (Advokat et al., 2018). After the smoke is inhaled, usually the person holds the smoke in the lungs for an extended period of time, where between 5 and 60 percent of the THC is absorbed into the body. The potency of marijuana has gone from 3% in the 1980s to in excess of 14% in 2014 and now in excess of 28% currently (Advokat et al., 2018) (Stuyt, 2018).

Drugs can be administered in a number of different routes. The most common routes are but not limited to insufflation, inhalation, digestion through the gastrointestinal tract, and intravenous. In the case of Marijuana (i.e., THC) it is most commonly inhaled by smoking or ingested through the gastrointestinal tract (Advokat et al., 2018).

**Distribution**

After a drug is absorbed,  it is distributed in the body. After the THC is absorbed by the body,  THC is distributed to the varied organs of the body, particularly those that have high concentrations of fatty material, such as the brain (Advokat et al., 2018). After distribution THC is metabolized.

**Metabolism**

Metabolism is the next stage of pharmacokinetics, after distribution. The metabolism of THC is principally hepatic, by the liver, by cytochrome P450 (CYP 450) isozymes CYP2C9, CYP2C19, and CYP3A4. THC is mainly metabolized to 11‐hydroxy‐THC (11‐OH‐THC) and 11‐carboxy‐THC (11‐COOH‐THC), which undergoes glucuronidation (Lucas et al., 2018). After metabolism, the drug and metabolites are eliminated.

**Elimination**

Elimination of the metabolized drug is the final stage. The estimates of the elimination half‐life of THC vary (Lucas et al., 2018). A study was done with a population pharmacokinetic model that has described a fast initial half‐life (i.e., approximately 6 min) and long terminal half‐life (Lucas et al., 2018). The THC metabolites are excreted through the feces and urine.

**Pharmacodynamics**

Pharmacodynamics is what a drug does to the body. Briefly, THC is a partial agonist at the CB1 and CB2 receptors in the endogenous cannabinoid system. THC exerts its psychoactive and pain modulatory effects via CB1 agonism. Not all the pharmacodynamics of THC and CBD are fully understood at this time. THC and CBD have some pain-relieving properties, anti-inflammatory properties, can induce relaxation, euphoria, as well as many others both positive and negative (Advokat et al., 2018).

**Risk-Benefit Analysis of Using Psychoactive Drugs**

The definition of a risk-benefit analysis is to analyze whether the benefits outway the potential risks, costs, or potentially harmful effects. There will be a discussion now of these benefits and risks.

**Benefits**

To be totally blunt a so-called benefit for the use of illegal addictive drug use is for people that like getting high to be able to get high. If it was not,  these people would use standard prescription medications that have higher efficacy rates than THC or CBD. For most people getting intoxicated is a negative state. The fact there are some anecdotal stories of people it helped versus standard medication does not justify the risk of addiction or the many other risks. Reported benefits include relaxation, euphoria, pain-relieving properties, anti-inflammatory properties, anti-seizure, and anti-nausea (Advokat et al., 2018).

**Risks**

Using marijuana has many risks, too many to be covered here. However in marijuana smoke, “2575 different compounds are detected, of which, 670 and 536 (231 in common) are tentatively identified, and of these, 173 and 110 different compounds (69 in common) are known to cause negative health effects through carcinogenic, mutagenic, teratogenic, or other toxic mechanisms” (Graves et al., 2020). Intentionally ingesting 173-110 compounds that are carcinogenic, mutagenic, teratogenic, or other toxic mechanisms is a very large risk because it is totally unnecessary risk. There are numerous studies that show marijuana is a gateway drug to other harder more addictive drugs (Secades-Villa et al., 2015). One comprehensive study showed that 44.7% of marijuana users go on to use hard drugs (Secades-Villa et al., 2015). There is not one single legitimate empirical clinical study that proves conclusively that marijuana or other illegal drugs are more effective and safer than legitimate prescription drugs for treating medical or psychological problems. In fact, there are many studies that show marijuana does not work as well as traditional prescription drugs.  The vast majority of cases cited where these illegal drugs worked are cases that are antidotal.

Studies have shown, “to date, there has been only one randomized, double-blind, placebo and active-controlled trial evaluating the efficacy of smoked marijuana for any of its potential indications, which showed that marijuana was superior to placebo but inferior to Ondansetron (i.e., traditional prescription medication) in treating nausea” (Söderpalm et al., 2001 as cited in Wilkinson, 2013). Further, studies have shown,

reviews by the Cochrane Collaboration find insufficient evidence to support the use of smoked marijuana for a number of potential indications, including pain related to rheumatoid arthritis, dementia, ataxia or tremor in multiple sclerosis, and cachexia and other symptoms in HIV/AIDS. This does not mean, of course, that components of marijuana do not have potential therapeutic effects to alleviate onerous symptoms of these diseases; but, given the unfavorable side effect profile of marijuana, the evidence to justify use in these conditions is still lacking (Wilkinson, 2013).

There are studies showing that when using marijuana chronic pain patients have reduced the level of narcotic pain relievers they have used. This is a correlation and does not prove causation. The risks far outweigh the benefits of the use of marijuana.

**Ethical Considerations**

Pursuant to federal law Title 21 U.S.C. Part D § 841-865, today as this is being read, marijuana and all other Schedule I drugs are 100% illegal for manufacture, importation, distribution, and even simple possession in all 50 states and the territories of the USA (*21 U.S. Code Part D - Offenses and Penalties*, 2020). Pursuant Article VI Paragraph 2 of the U.S. Constitution, Supremacy Clause, federal law supersedes state law, so it does not matter if they are legalized at the state level. Therefore, regardless of these states that have undergone this massive social experiment of legalizing addictive and dangerous drugs, it is still in most cases a felony and federal offense  (*21 U.S. Code Part D - Offenses and Penalties*, 2020). Schedule I drugs, make no mistake, can still very much lead to arrest, prosecution, and/or prison. This is true for the manufacture, importation, distribution, simple possession, and/or conspiracy to commit any of these crimes  (*21 U.S. Code Part D - Offenses and Penalties*, 2020).

According to the American Psychological Association Ethical Principles of Psychologists and Code of Conduct specifically states, “in the process of making decisions regarding their professional behavior, psychologists must consider this Ethics Code in addition to applicable laws and psychology board regulations (American Psychological Association, 2017, p. 3).

Because the risks clearly outweigh the benefits of using illegal psychoactive drugs and the fact that is both a federal crime and prohibited by the APA it is clearly unethical to use or recommend that someone else uses these drugs including marijuana.

Some of the many reasons that addictive psychoactive drugs have become a more serious problem. It is true these drugs have been used for thousands of years and likely will be used for thousands of years more. The legalization of these types of drugs will likely lead to more addiction, more crime, more health problems, and more poverty in the future. Hopefully, it will not be too late to undo the damage that will likely be done.

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