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 What Causes Only Some People to Become Addicted to Certain Drugs?

 Addictions can range from cell phone usage to hard illicit drug consumption. Though these differ because drug use affects the functioning of the brain and the body, whereas being on a cell phone for too long affects personal habits. Many people have addictions they may not be aware of, although, it should become evident when one starts to lose control over a substance or activity. What exactly is an addiction? According to Mara Tyler, it is a chronic dysfunction of the brain system that involves reward, motivation, and memory. It’s the way your body craves a certain substance, thing or activity, especially if it causes a compulsive or obsessive pursuit of “reward” and lack of concern over consequences (Tyler, 2016). Millions of people around the world use drugs on a daily basis, but what is it that causes only a fraction of these people to become addicted to certain drugs? Aside from the chemical and biological factors, there are several non-scientific factors that influence substance addiction such as stress, mental illness, and trauma.

 It is commonly known that drugs alter the brain and body. One might have seen obvious side effects of drug use such as bloodshot eyes, slurred speech, or poor physical hygiene. But how are these drugs interacting with the body? There are many consequences of using illicit drugs that poorly effect parts of the human body such as the lungs, bones, heart, liver, and brain.

 Some people are of the mindset that addiction is a brain disease, while others reason with science that addiction is a learned behaviour from reinforcing properties that drugs contain. Thus, is it what properties drugs carry that make people addicted or is it just their minds? Addictions are formed due to the personal habits and behaviours as well as the chemical properties that are carried in addictive substances.

 Drug abuse affects not only the user’s personal relationships and life but also the people around the user. Evidently, not all illicit drug users are addicted or committing crimes, though societies become more prone to dangerous change as drug abuse increases. This may leave one to wonder, how does drug abuse affect a community? Drug usage negatively impacts civilization due to four main factors; it costs everyone, it monopolizes health care resources, disturbs the family unit, and it may result in crime.

**How Do Drugs Affect the Human Body?**

 What is a drug? A drug is any chemical that when consumed, injected, inhaled or somehow introduced into the body affects the way the body and brain work (“How Do Drugs Affect Your Brain?” n.d.). Alcohol, caffeine, nicotine and even aspirin are all drugs. A drug must be able to pass from the body into the brain. So, how exactly do drugs affect the human body? Once inside the brain, drugs can change the messages the brain cells are sending to each other, and to the rest of the body. They do this by interfering with the brain's own chemical signals like neurotransmitters that transfer signals across synapses. Different types of drugs affect the body in different ways, and the effects associated with drugs vary due to several factors including body size, general health, the amount and strength of the drug, and whether any other drugs are in the system at the same time (“How Do Drugs Affect Your Brain?” n.d.). Genetics also play a major part in how the body and brain react to a particular drug. They can speed up or slow down the way an addiction develops.

 When drugs are first consumed, the brain releases a chemical called dopamine that gives a euphoric feeling and want for the drug, and over time the mind gets so used to the extra dopamine that the body cannot function normally without it. DeCapua says that when one first consumes a drug, everything about them will begin to change, including their personality, memory, and bodily processes that some take for granted (DeCapua, n.d.).

 According to DeCapua, there are four main types of drugs: depressants, hallucinogens, stimulants, and opiates. Depressants slow the function of the central nervous system and the messages going to and from the brain. In small quantities, depressants can cause a person to feel relaxed and less inhibited, whereas when in large amounts they may cause vomiting, unconsciousness, and death. Depressants affect concentration and coordination and slow one’s ability to respond to situations (DeCapua, n.d.). Common substances like alcohol, cannabis, and heroin are examples of depressants. Also, DeCapua states that injecting drugs can result in collapsed veins and infections in your heart valves, and some drugs can even stop your bones from growing properly. Using drugs over a long period of time will also eventually damage the kidneys and liver. One may also become prone to infections if they are sharing needles to inject certain drugs that can transmit diseases such as hepatitis C, hepatitis B, and HIV. It is also possible to spread common colds, the flu, and mono from sharing pipes or bongs. Hallucinogens distort your sense of reality and, if consumed, may cause one to see or hear things that are not really there, or see things in a distorted way. Other effects can include emotional and psychological euphoria, jaw clenching, panic, paranoia, gastric upset, and nausea. Ketamine, LSD, 'magic mushrooms' and cannabis are examples of hallucinogens. These differ from stimulants which speed the central nervous system and speed up messaging to and from the brain. This can cause increased heart rate, blood pressure, and body temperature, reduced appetite, agitation, and sleeplessness. In large amounts, stimulants may cause anxiety, panic, seizures, stomach cramps and paranoia (DeCapua, n.d.). Commonly known examples of stimulants are caffeine, nicotine, cocaine, and ecstasy. Opiates are powerful painkillers that quickly produce feelings of euphoria. They’re highly addictive and can have lasting effects on the brain. Examples include heroin, morphine, opium and other prescription painkillers (Cherney, 2018). Although, some of the example drugs have been listed several times thus have the ability to provoke the symptoms of several types of drugs, as drugs affect everyone differently.

 Despite several significant factors, the National Institution on Drug Abuse states that drug addiction involves a biological process; the ability of repeated exposure to a drug to induce changes in a vulnerable brain making one dependent to a drug. As displayed in the image to the left from the National Institution on Drug Abuse, the basal ganglia, the extended amygdala, and the prefrontal cortex are parts of the brain that drugs can alter, while these areas are necessary for life-sustaining functions (Nation Institution on Drug Abuse, 2018). The basal ganglia plays an important role in positive forms of motivation, including the pleasurable effects of activities like eating, socializing, and having sex, and are also involved in the formation of habits and routines. These areas form a key node of the brain's "reward circuit." Drugs overly trigger this circuit, producing the euphoria of the drug high, but with repeated exposure, the circuit adapts to the presence of the drug, diminishing its sensitivity and making it hard to feel pleasure from anything besides the drug. It was also stated by the National Institution on Drug Abuse that the extended amygdala plays a role in stressful feelings like anxiety, irritability, and unease, which characterize withdrawal after the drug high fades and thus motivates the person to seek the drug again. This circuit becomes increasingly sensitive with increased drug use. Over time, a person with substance use disorder uses drugs to get temporary relief from this discomfort rather than to get high. The prefrontal cortex powers the ability to think, plan, solve problems, make decisions, and exert self-control over impulses. This is also the last part of the brain to mature, making teens more vulnerable to drug addiction than adults (Nation Institution on Drug Abuse, 2018). Damaging or simply altering the stress, reward or pleasurable circuit of the basal ganglia and extended amygdala makes a person with a substance use disorder seek the drug compulsively with reduced impulse control. There are other parts of the brain affected by other drugs, such as the brain stem, which controls basic functions critical to life, such as heart rate, breathing, and sleeping. This explains why overdoses can cause depressed breathing and death (Nation Institution on Drug Abuse, 2018). 

**Is It What Properties Drugs Carry That Cause Addiction Or Is It Just The Mind?**

Aside from the non-scientific factors that contribute to addiction, the investigation of the chemical properties of addictive drugs have been found to be at the very core of addiction studies. It was stated by Med Mark that when receptor-active drugs such as opioids are ingested, their molecules look just like natural molecules in the brain. Agonist drug molecules bind to certain receptors in the human brain, causing it to activate and trigger a response in the cell. With opioids, these agonists are of specific opioid receptors, triggering feelings of happiness when they bind together. These drugs are structured so that they mimic natural agonists to create a natural feeling, like joy, but in a much stronger way. This explains the “high” feeling that some drugs give (Med Mark, 2018).

A good analogy for this given by Med Mark is to imagine a key and a lock. The natural agonists in your brain are the “master keys” to the cells in your brain, which are the locks. Natural agonists are commonly present in the body, so when one is content, those keys naturally fit into the locks and open the door to a natural happy feeling. Agonist drugs are a “spare set” of keys. They are just like the master key, only slightly irregular and they will still open the “door” of the cell to create the same feelings of happiness, although unnaturally, and often much more intensely (Med Mark, 2018). When these agonists are in action in the brain, they slowly begin to change the way the brain works, especially because of the way the reward pathway of the brain is impacted. Med Mark also states that our brains instinctively want and need to ensure that we are repeating life-sustaining behavior on a day-to-day basis. This goes down to a very basic level of eating, sleeping, bathing, and so on. One might find most of these actions to be tedious and simple, but for the body, they are allowing humans to survive, thus maintaining a normal level of feeling contentment in the brain. Every time humans do something that satisfies these instincts, the brain remembers that function and urges them to continue doing the habits to maintain that level of happiness (Med Mark, 2018). Since addictive drugs stimulate those very same receptors and brain circuit, the brain will begin to tell the body that it needs to use more drugs to continue satisfying the need to feel content. This is the brain's motivation to continue using the substance, similar to peers who might encourage one to use illicit drugs. One might also choose to use illicit drugs due to stress – an improper method to relieve tension or worries.

According to an article published by Psychology Today, “The learning theory of addictions is also backed up by neuroscience because addictive drugs activate dopamine-based reward systems that are designed by natural selection to strengthen naturally-rewarded behaviors such as feeding and mating”. Meaning that dopamine release from the brain occurs after pleasurable experiences, for example after food, sex or drugs. Drugs that artificially increase dopamine release in this way may cause a craving for more of the substance (“How Do Drugs Affect Your Brain?” n.d.). It is possible that some people may have a genetic tendency to make them develop drug addictions extremely rapidly. Since this chemical dopamine is released while doing things other than drugs, it proves that it is not only the properties in illicit drugs that cause addiction.

 **How Does Drug Abuse Affect The Community?**

 DeCapua states that the sociological effects of drug abuse negatively impact communities globally due to four main factors; it costs everybody, it consumes human services assets, it causes complications in families, and it results in corruption (DeCapua, n.d.). For decades, drug addiction and those suffering with it were maligned as morally weak people who made bad choices. This pure behavioral model, however, fails to account for the biological changes that addiction triggers in the body and brain. Furthermore, it overlooks the issue of comorbidity; people who are addicted to drugs may also suffer from mental health problems they often use drugs to self-medicate for those problems. Although the idea of drug addiction being a failure of will and sign of bad character is diminishing in most progressive areas of society, the idea does persist in many communities (DeCapua, n.d.).

According to “Addiction & Pop Culture”, an American site, drug and alcohol abuse together cost nearly $600 billion annually in America, because abusing drugs and alcohol comes with many side effects requiring support and resources from health care, lost revenue, and damages. The ripple effects of drug use include: sexual assaults, prison sentences, foster care placements, child abuse, and work-related injuries. The more society members abuse drugs, the more the community suffers as a whole (Sasha, 2018). Sasha also mentions that drug abuse on it’s own costs the American healthcare industry over $180 billion annually since it is responsible for rehabilitation programs and services, mental disorders and injuries related to drug abuse or addiction. Drug abuse also takes an extensive toll on families, resulting in a negative impact on society. Studies show the tendency of one family member to abuse drugs or alcohol causes many tensions amongst all family members. Sasha points out that if a parent is misusing drugs or alcohol, it creates strain in the spousal (if any) relationship, driving the spouse into frustration and fatigue, possibly resulting in a lack of effort at work, in parenting, in friendships or in the ability to care for himself or herself. A parent abusing drugs always leads to the children receiving inadequate care. This results in poorer childhood health, reduced academic performance, neglected emotional support and many other negative effects (Sasha, 2018). This also leads to less contribution to their involvement in society. In some cases, the emotional burden is too great, causing the affected children to turn to drugs or alcohol as a coping mechanism and recreating this process. This is similar to when a child in a family is addicted to or abusing drugs, as it affects everyone. Parenting efforts and financial resources tend to go toward helping the one child, neglecting the needs of the other seemingly stable kids in the family. The stable children are denied necessary parenting attention and fail to be pushed toward their potential that would lead to greater positive influence in society in their adulthood.

It is also stated by “Addiction & Pop Culture,” that over half of the American federal prison occupancies are accounted for by individuals with incarcerations related to drug abuse or addiction. Each year, drug-related incarcerations in state prisons cost taxpayers $45 billion as well as $144 million in federal prison incarcerations. (Sasha, 2018). More crimes are committed by individuals under the use of drugs and alcohol, costing society its resources, time, efforts and safety.

In summary, several significant elements trigger addiction, such as worry, severe mental or physical pain as well as psychological disorders. Although it is not only these factors that provoke addiction, as they are as equally effective as the chemical properties drugs have that slightly alter parts of the brain. This paper also discussed the four types of drugs and their effects on the body, the parts of the brain that are mainly affected by drug use as well as several dangers of continuous usage of illicit drugs, though what are the consequences of mixing different types of drugs?

Substance abuse affects many aspects of society, such as the healthcare industry, costing the community as a whole, disrupts families and results in further felonies. If one is or appears to be under the influence of drugs, it is crucial to seek help for them as the consequences of the risk of becoming addicted are treacherous. Is drug addiction treatable? People, places, and things have huge influences on people who decide to pick up drugs or alcohol, and it is important to become educated about illicit drug use and to know the consequences of it. It was stated that mental illness can lead to drug consumption though can drug addiction lead to other mental health disorders?

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