Caffeine addiction

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 Caffeine, as a stimulant, is known to be very addictive and habit-forming, which can easily lead to dependency. Caffeine exists naturally in plants such as guarana, tea, cocoa and coffee plants. However, it is also manufactured synthetically to meet the high demand for in the market. Globally, more than 70% of the population consumes products that have caffeine in them. Caffeine is classified as psychoactive substance because of its effects on the nervous system, primarily the brain. Once ingested, caffeine is absorbed into the bloodstream from the stomach and finds its way into the brain. It works by blocking adenosines, neurotransmitters responsible for relaxing the brain and making an individual feel tired. By doing this a person is able to stay alert and focused (Striley, Griffiths, & Cottler, 2011). Additionally, caffeine increases the levels of blood adrenaline. Despite not being classified as an addictive substance as per DSM-IV regulations, caffeine use causes intoxication, dependency, tolerance and other health-related risks.

**Determining if Caffeine presents Much Good than Harm**

 According to a publication by the Journal for Nurse Practitioners, most soft drinks and energy drinks that people guzzle upon to kick off sleepiness contain caffeine levels way beyond the accepted limits by the Food and Drug Administration (FDA). Energy drinks are released in hundreds annually into the market, with the selling point being that they increase attention, weight loss, endurance and enhance performance. However, with the short-term benefits of caffeine, there come serious health challenges as a result of excessive consumption (Satel, 2006). Caffeine meets all the criteria for classification as a drug which are dependency, addiction and withdrawals. Excess intake of caffeine causes caffeine intoxication, which manifests itself through symptoms such as vomiting, sleep disturbances, nausea, headache and nervousness. Caffeine intoxication happens one exceeds intake of up to 250mg but depends on an individual's pre-existing condition.

 Caffeinism results from excessive consumption and addiction to caffeine. A person with caffeinism syndrome will exhibit symptoms like twitching, sensory disturbances, irregular heartbeat, rapid breathing, excessive urine production and occasional trembling. In severe cases, a person may suffer from depression and anxiety. In most cases, an individual will not know that they are suffering from caffeine withdrawal because it is not considered addictive in the first place. However, a person can suffer withdrawals from caffeinism and the assistance of a medical practitioner is very crucial for a proper diagnosis together with the person's caffeine history. Caffeine withdrawal symptoms include severe headaches, depression, tiredness, mood swings, muscle pains, difficulty concentrating and decreased productivity (Pohler, 2010). In order to ease the adverse effects of withdrawal, a person who is addicted to caffeine should reduce their daily intake gradually to a point where they can cope without it.

 In a publication by the Journal of Caffeine Research, several individuals from different age groups and health conditions were assessed in research to determine caffeine use and dependency. The total number of the sample size was 167, all of whom must have used caffeine within the last week. Additionally, all of them reported to have used nicotine, alcohol or other illicit narcotics. The results were very shocking as they revealed 35% of the participants exhibited dependency according to DSM criteria, some of the participants heavily depended on caffeine to function, a significant number suffered from withdrawals, some continued use of caffeine despite harmful effects and some expressed desire to reduce use. A sizeable number admitted to having contacted a professional regarding their caffeine problem. Participants who were nicotine and alcohol users led the group in caffeine dependency with those using nicotine the worst affected.

 Although it is arguable that if taken moderately, caffeine has benefits, it is far from the truth because it exposes individuals to health concerns such as sleeplessness, pregnancy risks, high blood pressure, anxiety disorders and heart problems. Studies have also established that caffeine use plays a role in users developing specific flavor preference, which then impacts what brands containing caffeine they will use. The brand preference is further reinforced when caffeine users exhibits alleviated withdrawals symptoms. Another drug-like characteristic exhibited by caffeine is tolerance. Tolerance is defined as a condition of reduced responsiveness of a drug or substance as a result of prolonged exposure. In humans, high caffeine intake will lead to tolerance, whereas lower intake will not result in tolerance. According to a study by Kendler and Prescott, around 15% of caffeine users have reported symptoms matching those of tolerance as per DSM-IV-TR.

 A fundamental property of psychostimulant drugs is the stimulation of dopamine (DA) release and their transmission. Also, caffeine as a stimulant enhances Acetylcholine (ACh) release through interaction with the adenosine A1 receptors. A research was carried on to find out the effects of caffeine on dopamine and Acetylcholine levels in brains of freely-moving rats. Furthermore, the relationship between caffeine tolerance and changes in dopamine and Acetylcholine was investigated. Two methods were used to administer caffeine in the rats, namely intravenous and intraperitoneal, to compare the findings with those that have been done previously using the intraperitoneal method. The results were that caffeine induced in both ways did stimulant the transmission of dopamine in the prefrontal cortex but not in the nucleus accumbent shell or core (Keast & Riddell, 2007).

Therefore, despite the ability to create dependency and tolerance in users, caffeine cannot be categorized as an addictive drug because it does not induce abnormal behaviors like other drugs. Drugs with reinforcing and addictive properties are known to increase dopamine in the nucleus accumbens shell. This characteristic is the main biochemical reaction that is used to characterize the addictiveness of a psychostimulant drug (Keast & Riddell, 2007). Stimulation of DA and ACh in the prefrontal cortex is a result of caffeine's psychostimulant characteristics.

 In the USA, more than half of soft drinks are produced with caffeine as an ingredient in the guise of taste additive. It is established that caffeine creates dependency and withdrawals when a user suddenly stops taking it. More than 15% of caffeine consuming people were classified as dependent by three different studies, whereas the rest exhibits mild withdrawal symptoms whenever they stop consuming it (Striley, Griffiths, & Cottler, 2011). The research was conducted using 30 highly trained tasters to determine whether caffeine plays any role in flavoring cola drinks.

It is natural for humans to determine flavor of any substance with the consequences of post-ingestion. However, caffeine may not exhibit any distinctive flavors depending on concentration, but its post-consumption effects such as arousal lead to dependence resulting in repeated consumption. Soft drinks that contain both caffeine and sweeteners like glucose have enhanced effects, especially in children and adolescents (Acquas, 2002). This is because they are consuming caffeine way beyond the required amount for psychoactive stimulation, which may result in dependency and repeated consumption.

 The findings from Striley, Griffiths, & Cottler (2011) demonstrated that the highly trained tasters were able to detect caffeine in very minute quantities in different sweet solutions. Still, they were unable to identify the same concentration of caffeine in soft drinks. The reason could be due to various chemicals in the soft drink that interacted with the taste of receptors of the receptors, making it hard to make any distinction. The concentration of caffeine used in this experiment is equivalent to that found in a 500ml soft drink. It is enough to cause psychoactive stimulation of the brain but it does not play any role in flavoring of the soft drink. Therefore, one can deduce that the only reason why soft drink companies use caffeine as an ingredient despite repeated reservations is to increase sales through repeated consumption resulting from dependency.

 In an article by Keast & Riddell (2007) published in the American Journal of Drug and Alcohol Abuse, she seeks to provide evidence that caffeine is not an addictive substance. In her argument, she states that there is a sharp difference between physical dependence that results from caffeine consumption and psychological dependence resulting from addictive drugs. Physical dependence it is characterized by tolerance and withdrawal but psychological dependence is characterized by compulsively engaging in self-destructive behaviors as per DSM-IV. Furthermore, the Association of Psychological Association (APA) does not categorize it as an addictive substance and its continued use for alertness and reenergizing is not medically harmful to the body.

Although there are mild withdrawal symptoms that result when a user abruptly halts caffeine consumption, she argues that there are great inconsistencies in that theory. Also, these mild withdrawal symptoms can easily be dealt with by reducing amount consumed. She argues that there exists not a strong compulsion to consume caffeine in users; hence labeling it addictive is farfetched and lacks justification. Lastly, caffeine does not cause any identifiable harm to any person nor society as a whole (Keast & Riddell, 2007).

**Conclusion**

 In conclusion, it is evident that caffeine is a psychoactive substance and this implies that it presents more harm than good to a person. When ingested, caffeine is absorbed into the bloodstream from the stomach and to the brain where it tampers with the functioning of adenosine neurotransmitters. Most people use caffeine for its tendency to make one alert and energized despite feelings of fatigue and sleepiness. Despite not being formally characterized as an addictive substance in the DSM-IV, it exhibits a lot of characteristics of an addictive substance; it does not matter whether psychological or physical. There is empirical evidence from research of caffeine users experiencing mild-severe withdrawal symptoms like headache, muscle pains, nausea, irritation and anxiety. To avoid experiencing these symptoms, one is forced to repeat consumption resulting in a dependence habit on caffeine. Consumption of caffeine has also been linked with several negative health problems such as obesity, increased risk of heart diseases, high blood pressure, sleeplessness and anxiety disorders. In addition, continuous consumption of caffeine results in tolerance whereby an individual stops to feel the stimulating effects of caffeine for the same amount he/she used to consume previously (Keast & Riddell, 2007). Therefore, one is forced to increase their intake to seek that feeling. All these are characteristics of an addictive substance and it does not matter if it is medically recognized by DSM-IV. The American of Psychological Association should consider categorizing it as such. It is my opinion that caffeine is addictive and regulations should guide its use, it is upon Food and Drug Administration (FDA) to come up with them, especially where children and people with pre-existing conditions are concerned.

Reference

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