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Research Article

Why Do Amphetamines Cause the Most Drug-Induced Psychiatric Disorders?

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Abstract

Amphetamines are essential drugs used in the management and treatment of different kinds of psychiatric disorders including psychosis. These drugs are used in different psychiatric facilities all over the world. However, they also present various challenges that should be discussed. Evidence suggests that they are highly addictive and are prone to abuse. Prolonged use of these drugs often leads to psychiatric disorders. This research study explores some of the drug- induced psychiatric disorders that are caused by long-term use of amphetamine. The primary objective is to investigate and discuss why amphetamine causes the most drug-induced psychiatric disorders compared to other substances like cocaine and cannabis. It also explores the prevalence of these amphetamine-induced psychiatric disorders among different races. The study reviews secondary sources for data. The major finding is that amphetamines cause most drug-induced psychiatric disorders because it works by inhibiting the transportation of dopamine directly into the synaptic cleft. It is also determined that the Native White are more likely to suffer from amphetamine-induced psychiatric disorders than any other race.

Keywords: amphetamines; psychiatric disorders; psychosis.

Introduction

Psychiatric disorders remain a major health challenge that continues to puzzle scholars in the field of psychiatric health (Flaum & Schultz, 2016; Snyder, 2017). Treating these kinds of illness require an effective strategy that addresses not only the psychological aspects of the individual but also biological and social components (Abi- Dargham et al., 2014). Psychosis and other psychiatric conditions often require medications as part of the treatment plan (Poole & Brabbins, 2016). One of the widely used drugs in the treatment of various psychiatric disorders is amphetamines. However, evidence suggests that these drugs may induce various symptoms of psychosis that are grave as those of schizophrenia. For instance, Bell (2017) finds that amphetamine-induced psychiatric conditions may differ in intensity and manifestation from one patient to another, depending on various factors including the length of use among others. According to Bell (2017), the risk of experiencing amphetamine-induced psychiatric conditions is high when treating schizophrenia and schizophrenia, schizotypal personality patients. This research paper seeks to critically examine why amphetamine causes the most drug-induced psychiatric disorders among psychiatric patients.

Methodology

This paper takes an evidence-based practice approach to obtain relevant and accurate data. This qualitative study will review different scholarly kinds of literature on the relationship between amphetamines and drug-induced psychiatric disorders. As Angrist, Sathananthan, Wilk, and Gershon (2015) argue, using an appropriate methodology is crucial in obtaining relevant data that can be analyzed to explain a research phenomenon and respond to different research questions. The literature reviewed in this study is current and of great credibility. The decision to use secondary sources was made due to various reasons. First, there are substantial amounts of reports and research findings in this area. Several empirical studies have been conducted in the past toexplore and understand the connection between amphetamine and other psychiatric drugs such as methamphetamine and the disorders they cause after prolonged use.Second, this methodology is convenient and effective because of the nature of the variables that this study focuses on. The North American population that the study analyzes is quite wide and might be expensive to investigate through primary research. Secondary data are readily available and easy to obtain.

Findings

First, it is necessary to point out that amphetamine-induced psychiatric condition presents symptoms that are different from primary psychiatric disorders (Snyder, 2017; Srisurapanont et al., 2016). Some of the common amphetamine-induced psychiatric conditions that are often experienced after prolonged use of amphetamine drugs include:

- Amphetamine-induced anxiety disorder
- Amphetamine-induced sleep disorder
- Amphetamine-induced psychosis
- Amphetamine-induced depressive disorder
- Amphetamine-induced intoxication delirium
- Amphetamine-induced sexual disorder

Clinically, the duration taking for the symptoms to show is a primary concern in distinguishing primary psychiatric disorders from amphetamine-induced psychiatric conditions. Amphetamines work by prolonging wakefulness and enhancing focus and perceptions about a feeling of energy. They can help reduce fatigue among patients. At the same time, they often bring some euphoric feelings and induce anorexia among other feelings that bring comfort to many psychiatric patients. In most cases, these drugs are often used by psychiatrists to treat conditions such as attention deficit/hyperactivity disorder and narcolepsy. However, AbiDargham et al. (2014) explain that they come with different adverse side effects such as aggression, anxiety, tachycardia, and changes in the physical activities in an individual's body.

According to Srisurapanont et al. (2016), amphetamines work by constraining the reuptake of dopamine in the body. It does this by interacting actively with the dopamine transporter (DAT) which allows it

to promote the amount of dopamine that is left in the synaptic cleft (Srisurapanont et al., 2016).

Second, it also engages the vesicular monoamine transporter 2 (VMAT2). This also enables to enhance the concentration of dopamine in other regions such as the cytosol. This ultimately leads to an increased chance of neurotoxicity of amphetamines, especially in the serotonergic and noradrenergic neurons (Snyder, 2017). A study conducted by Yui, Ikemoto, Ishiguro, and Goto (2016) further found out that amphetamines become highly addictive because of this dopamine regulation mechanism in the body of psychiatric patients. The scholar explains that this drug operates directly on the mesolimbic dopaminergic "reward system." The euphoric effect it creates when it enhances the concentration of dopamine in the synaptic clefts makes it a highly addictive drug. It is noted that abuse of this drug is widespread not only among the psychiatric patients but also in the overall populations. Doctors and other healthcare professionals have become victims of amphetamine abuse in many instances (Yui et al., 2016).

Among the psychiatric population, the group that is more likely to abuse this drug is psychotic patients. Evidence from a study conducted by Poole and Brabbins (2016) indicated that patients who have schizophrenia and other serious psychiatric disorders are more likely to manifest symptoms of amphetamine-induced disorders after prolonged use of the drug. Amphetamine-induced psychiatric disorders are intoxications experienced after long-term use or after withdrawal from amphetamines. According to Poole and Brabbins (2016), these disorders tend to be self-limiting in some patients. However, they may also last for several weeks or even months after the patients have ceased taking the drugs.

Different studies have been conducted to explain the increased comorbidity associated with drug use disorders. Findings from Bell (2017)'s study to evaluate the psychiatric effect amphetamine have on healthy subjects revealed important insights that are worth discussing. The researcher administrated amphetamine on high doses between 100 mg and 300mg to different subjects to determine the impact they could have in causing drug-induced psychiatric disorders (Bell, 2017). It was noted that a large fraction of the subjects exhibited symptoms of psychosis just after six days. The researchers concluded that amphetamine drugs are highly influential in causing different drug- induced psychotic disorders. They lead to challenges such as hallucinations and delusions after prolonged use or when taken in relatively high doses. Another study by Debra and Batki (2015) determined that amphetamine causes drug-induced psychiatric disorders in about 8-12% of regular users. The scholars argue that it may not be possible for most clinicians to identify the drug-induced psychiatric disorders in the early stages because they may manifest just like the primary psychiatric disorders for which a patient may have been admitted. This lack of diagnosis makes the disorder grow stronger with time leading to even greater risks. However, the variation noted in the study is caused by different factors such as gender, the demographics of the population studied, method and duration of administering amphetamine among others. The result may also depend on the instruments that are used by the researchers to assess psychiatric disorders. For instance, self-assessment and diagnostic tools may bring different results.

Observably, most symptoms of psychiatric disorders that are induced by amphetamines, especially psychosis, tend to be similar to those of schizophrenia spectrum disorder. Some of the likely challenges that an individual may experience in both cases include lack of concentrations, delusions, enhanced motor activity anxiety and paranoia among others (Klawans & Margolin, 2015). In their discussion, Klawans and Margolin (2015) examine various similarities and differences between primary psychiatric disorders and amphetamine-induced psychiatric disorder with specific attention to psychosis. Besides sharing symptoms such as hallucinations and delusions, psychosis induced by amphetamines and primary psychosis also exhibits differences. First, primary schizophrenic psychosis does not have a fast recovery as that which is induced by amphetamines. Amphetamine-induced psychiatric disorders tend to varnish once the patient begins to abstain from the drugs.

However, this form of recovery may be incomplete and may reappear at some time later in life. A study conducted in Japan showed that amphetamine-induced psychosis might take longer durations, sometimes even years before one attains full recovery. In their study, Klawans and Margolin (2015) illustrated ways in which spontaneous psychotic relapse can continue to be experienced even after abstinence from the drugs.

Discussion

Past studies have shown different risks factors that make individuals vulnerable to various drug-induced psychiatric disorders when they use amphetamine. One of the factors that cause amphetamine to have high chances of causing drug-induced psychiatric disorders is sensitization. According to Flaum and Schultz (2016), the development of super dopaminergic sensitivity precipitates the emergence of amphetamine-induced disorders among users. Flaum and Schultz (2016) note that this creates different effects in the central nervous system because of increased dopaminergic supersensitivity precipitates. As identified in the previous section, the resultant neurotoxicity of amphetamine leads to the development of different kinds of psychiatric disorders including sleep disturbance, mood changes among others. In the long-term, this may lead to serious cases of drug-induced disorder such as psychosis. Concisely, amphetamine sensitization creates a great impact on the uptake and transportation of dopamine along the synaptic cleft. This causes neurotoxicity which ultimately leads to the development of drug-induced psychiatric disorders.

Race and ethnicity is a primary issue that should be discussed when exploring the topic of amphetamine-induced psychiatric disorders. A study by Niemi-Pynttäri et al. (2017) revealed that cases of drug-induced disorders after long-term use of amphetamine is high among the native whites compared to other races. This happens because of the difference in drug choice and socioeconomic status. For instance, white natives in North America are more likely to acquire amphetamine because of their high financial status compared to blacks and hispanics. The table below shows the reflection of amphetamine-induced disorders among different race.

Disorder	Whites	Blacks	Hispanics
Risk of amphetamine induced disorder risk 4	46%	44%	10%
Primary psychiatric disorder risk	38%	32%	30%

Table 1: Amphetamine-induced psychiatric disorders by race

Moreover, studies have also shown that various groups of psychiatric patients, especially those with a history of schizophrenia and schizotypal personality traits have high chances of experiencing drug-induced psychiatric disorders when they use amphetamine. Other risks factors that are likely to precipitate the cause of drug-induced psychiatric disorders include overdose or abuse of the drug, pre-existence of primary psychiatric disorders, cognitive dysfunction among others (Janowsky & Risch, 2014). Available evidence further suggests that family history and prolonged consumption of alcohol and use of drugs such as marijuana, opiates, and benzodiazepines among others puts one at an even greater risk of experiencing the disorders.

Amphetamine compares with other substances like cocaine and cannabis in different ways as far as inducing psychiatric disorders is concerned. Many studies have shown that amphetamines have a high likelihood of causing psychiatric disorders because of the direct interaction it tends to have with dopamine transporters and other substances in the body (Bell, 2017;

Janowsky & Risch, 2014). On the other hand, while cocaine and cannabis also induce psychiatric disorders like schizophrenia and psychosis, the prevalence of such conditions are not as high as in the case of amphetamine. Bell (2017) notes that cannabis drug induces psychiatric disorders by activating the endocannabinoid (eCB) in the central nervous system. The study mentions that the association of cannabis and psychiatric disorders is mediated by dopamine dysfunction that is initiated when the endocannabinoid (eCB) is activated.

The inhibition of dopamine reuptake in the case of cannabis is done using an entirely different mechanism which involves CB1 and CB2 receptors.

Moreover, it is worth noting that the same mechanism is used in cocaine to induce psychiatric disorders. Moreover, cannabis and cocaine-induced psychiatric disorders are associated with frequent relapses, pronounced symptoms cognitive impairments among other more adverse consequences compared to amphetamines. The table below illustrates graphically ways in which amphetamine compares with other drugs in causing psychiatric disorders:

Amphetamine	**Cannabis and other drugs**
Inhibition of dopamine reuptake is by targeting dopamine transporters	Works by activating the endocannabinoid (eCB) system to control dopamine reuptake
Shorter latency period	Longer latency period
Have temporary effects and can varnish on their own upon recovery cessation	May have serious long-term impacts requiring treatment

Table 2: Comparison of Amphetamine with other drugs in inducing psychiatric disorders.

Conclusion

The use of amphetamine to treat and manage various psychiatric conditions continues to remain popular across the world. Amphetamines provide euphoric feelings that are necessary for the management of different kinds of disorders including psychosis. However, these drugs come with various side effects that if not monitored properly may cause significant health challenges. While there are several other substances including cannabis and cocaine that similarly induce psychiatric disorders after prolonged use, amphetamines seem to present much greater effects. The study above has critically examined why amphetamine is more likely to cause drug-induced psychiatric disorders. It has also illustrated and explained why such cases are more prevalent among certain races or ethnic groups than others.

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