

Physical and psychological harms of psychostimulant use

Shane Darke¹, Sharlene Kaye¹, Rebecca McKetin¹ & Johan Duflou^{1,2}

1. National Drug and Alcohol Research Centre, University of New South Wales, New South Wales,
Australia

2. Department of Forensic Medicine, Sydney South West Area Health Service,
New South Wales, Australia

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EXECUTIVE SUMMARY

Introduction

The current review aims to examine the epidemiology of psychostimulant use and the nature of the harms associated with the use of these drugs. The review focuses on methamphetamine and cocaine, the two drugs in this class of the greatest clinical concern. Specifically, the current review examined:

- i. The epidemiology of psychostimulant use;
- ii. The major physical health effects of psychostimulant use;
- iii. The major psychological effects of psychostimulant use; and
- iv. The risk factors associated with such harm.

Epidemiology of Psychostimulant Use

There are estimated to be 26 million methamphetamine users and 14 million cocaine users worldwide. In Australia, lifetime methamphetamine use is estimated at 9.1% and past year use at 3.2%. Lifetime cocaine use is estimated at 4.7% and past year use at 1%. Males are more likely to report both lifetime and recent psychostimulant use.

Polydrug use, psychostimulant use and harm

Polydrug use is common amongst psychostimulant users, and has direct relations to increased levels of risk. The concomitant use of cocaine and alcohol produces cocaethylene, an active metabolite of cocaine which increases the toxicity of cocaine. Whilst the combination of methamphetamine and alcohol does not produce a third substance, it does increase heart rate and blood pressure beyond that seen for methamphetamine use alone. The concomitant use of psychostimulants and opioids increases myocardial oxygen demand with a simultaneous respiratory depression due to opioids. Combined methamphetamine and cocaine use has been demonstrated to substantially increase the vasoconstrictive and cardiotoxic effects of each drug.

Harms Associated With Psychostimulant Use

Physical harms

Toxicity and Mortality

Psychostimulant-related deaths are typically caused by seizures, cardiac arrhythmias, or respiratory failure, with cardiovascular complications accounting for the majority of deaths. Toxic reactions can occur irrespective of dose, frequency of use, or route of administration. Deaths have been reported

with small amounts of cocaine, and on the first occasion of use. In Australia, there were 68 fatal methamphetamine toxicity cases during 2005 and 15 cocaine toxicity deaths. Such deaths typically occur among experienced, male drug users aged in their mid-30s.

Cardiovascular and cerebrovascular pathology

Cocaine and amphetamine are cardiotoxic, place heavy demands upon the cardiovascular system, and can cause myocardial ischaemia and infarction. Consistent with this clinical profile, chest pains, palpitations, tachycardia and hypertension are the most common complaints among psychostimulants users presenting to accident and emergency departments. In addition to acute risks, psychostimulants are associated with the premature and accelerated development of coronary artery atherosclerosis, which increases the risk of myocardial infarction. There is also an increased the risk of cerebrovascular accidents.

Dependence

Dependence on psychostimulants is a substantial risk associated with their use. Recent Australian research reported half of methamphetamine and cocaine users to be dependent. An increased risk of psychostimulant dependence is associated with route of administration (injecting or smoking), more frequent psychostimulant use and the use of more potent forms of these drugs (e.g., crystalline methamphetamine and crack cocaine).

Blood borne virus transmission

Among injecting drug users, cocaine use is strongly associated with more frequent needle sharing, increased sexual risk-taking and a higher HIV seroprevalence. In contrast, rates of needle sharing amongst methamphetamine users appear comparable to those seen amongst opioid injectors. The ability of psychostimulant drugs to increase libido enhances the risk of sexual disease transmission among this group.

Psychopathology

Psychosis

Unlike opioids, psychostimulant drugs can induce psychosis. Research has demonstrated that psychostimulant users have higher levels of psychosis than users of opioids and sedative drugs. In recent Australian research, 13% of methamphetamine users screened positive for psychosis, and

23% had experienced psychotic symptoms. Similarly, amongst Australian cocaine users 38% had paranoid symptoms, and 12% had recently experienced hallucinations. Psychotic symptoms are associated with longer term use, heavier use, dependence, injecting and a pre-existing history of psychotic symptoms.

Depression, suicide and anxiety

Depression and suicide attempts are common amongst psychostimulant users. A third of methamphetamine users have received a diagnosis of depression at some point in their lives, and 11% have been diagnosed with an anxiety disorder. A quarter of psychostimulants users have a history of attempted suicide compared to 3.6% of the general population. Higher levels of depression, suicide and anxiety are associated with longer psychostimulant use careers, more frequent use, dependence and injecting.

Violent behaviours

Violent behaviours appear to be common among psychostimulant users, particularly among people who inject these drugs. Recent Australian data indicated that 12% of methamphetamine users and 21% of cocaine users had committed a violent crime in the preceding year. The relationship between psychostimulant use and violent behaviour is complex, but these drugs do appear to increase the risk of violence in certain situations.

Summary

Psychostimulant use is associated with a number of serious negative health effects. High profile consequences, such as psychosis, are given prominence in the public debate, but the sequelae extend far beyond this. These are a class of drugs that cause serious heart disease, have serious dependence liability and high rates of suicidal behaviours. The current public image of these drugs does not adequately portray the extensive, and in many cases insidious, harm that they cause.