

Fact sheets 2021

What are novel/new psychoactive substances?

The term 'novel/new psychoactive substances' (NPS) comprises a diverse range of substances that have made available and/or used from the early/mid-2000s for their psychoactive properties (Peacock et. al 2019).

They are often designed to mimic illicit drugs, such as cannabis, cocaine, ecstasy and LSD (ADF, 2019) and may pose similar public health threats.

NPS can be broadly classified in three main categories:

- > Synthetic cannabinoids: Indazolecarboxemides (e.g., ABCHMINACA), acylindoles (e.g., JWH-018), indolecarboxylates (e.g., PB-22) and gamma-carbolines (e.g., CUMYLPEGACLONE) (Darke et. al 2019).
- > Synthetic stimulants/hallucinogens: Phentylamines (NBOMe, 2C-x), piperazines, synthetic cathinones (mephedrone, MDPV), tryptamines, amphetamine analogues
- > Depressants: Carfentanyl, designer benzodiazepines (Darke, Lappin & Farrell, 2019)

NPS are developed quickly, trying to stay ahead of the law. They are sometimes called 'legal highs', although in most cases they are not legal (ADOH, 2019).

Toxicity and Overdose

It's very hard to know the effects of NPS, even if they've been taken before, as these products are constantly changing. The packaging of these drugs is often misleading and doesn't list all the ingredients or the correct amounts which can increase the risk of overdose, and many do not come with packaging at all. Negative side-effects and overdose are more likely when NPS are taken in combination with alcohol or other drugs. (ADF, 2019).

- > Some synthetic cannabinoids have been shown to have substantially greater potency than THC, with more severe and diverse effects - some synthetic cannabinoids exhibit cardiovascular and central nervous system effects more typically associated with psychostimulants such as methamphetamine
- > The acute toxic effects of synthetic stimulants/hallucinogens can be similar to other psychostimulants such as methamphetamine and cocaine
- > Fentanyl-analogue toxicity is typical of the opioids - signs of opioid toxicity include reduced consciousness, pinpoint pupils and depressed respiration

NPS

research chemicals, analogues, legal highs, herbal highs, synthetic drugs, designer drugs, bath salts

Categories of novel/new psychoactive substances

Synthetic cannabinoids

Synthetic cannabinoids are the most commonly used NPS in Australia and are substances that are functionally similar to the primary substance responsible for the psychoactive effects of cannabis. A range of different chemicals that vary substantially in potency and effects are sold as synthetic cannabis. These products are often labelled as cannabis, but exhibit effects more typically associated with psychostimulants.

The active substance is often applied to dried botanical herb mixes and sold in small packets (approximately three grams) under names such as 'Kronic' and 'spice' (Darke, Lappin & Farrell, 2019).

Synthetic stimulants/hallucinogens

Synthetic stimulants/hallucinogens are structurally similar to amphetamines and they are most commonly swallowed in pill form but may be insufflated or injected (Darke, Lappin & Farrell, 2019).

- > Phenethylamines refers to a class of drugs with psychoactive and stimulant effects
- > Cathinones are closely related to the phenethylamine family and typically have an amphetamine-type analogue (mephedrone is the most well-known of the synthetic cathinones)
- > Tryptamines are psychoactive hallucinogens found in plants, fungi and animals
- > Piperazines have been described as 'failed pharmaceuticals' and are frequently sold as ecstasy due to their central nervous system

Depressants

Central nervous system depressants include fentanyl-analogues and manufactured 'designer benzodiazepines'.

- > Designer benzodiazepines are produced to mimic the effects of benzodiazepines – 'designer benzodiazepines' include etizolam, diclazepam, flubromazolam and phenazepam (Darke, Lappin & Farrell, 2019)

Dependence and Withdrawal

- > Cannabis dependence syndrome is accepted and given the high potency of synthetic cannabinoids, it's likely some of these drugs are associated with dependence – there are case reports of both a dependence and withdrawal syndrome as well as demand for treatment
- > The only class of synthetic stimulants/hallucinogens for which there is evidence of dependence syndrome are synthetic cathinones, including mephedrone – these drugs display the fundamental symptoms of dependence syndrome: tolerance, craving and withdrawal
- > In the depressant class of NPS fentanyl-analogues and benzodiazepines are associated with dependence and withdrawal:
- > Fentanyl-analogues are a powerful opioid and opioids have the highest dependence liability of all illicit drug classes
- > Frequent and prolonged use of benzodiazepines is associated with a dependence syndrome, tolerance and withdrawal syndrome (Darke, Lappin & Farrell, 2019)



What are the risks?

- > Because NPS are not regulated or tested and change constantly there is not a lot of information about their effects and side-effects. It's hard to be sure what has been taken and how a person will react (ADOH, 2019).
- > Despite these complexities, certain NPS have been shown to have harmful effects (outlined below), although these will vary considerably across substances.
- > Cardiovascular problems
- > Memory and cognitive impairment
- > Psychiatric problems
- > Aggression and acute psychosis
- > Breathing difficulties
- > Fatigue
- > Headaches
- > Nausea and persistent vomiting
- > Abnormally fast heartbeat (tachycardia)
- > Seizures
- > Tolerance and dependence (AIHW, 2019)

Mental health

- > People with mental health conditions or a family history of these conditions should avoid using synthetic cannabinoids. The drug can intensify the symptoms of anxiety and paranoia (ADF, 2019)
- > Psychological conditions are among the most commonly reported adverse effects of synthetic cathinone use among people who require medical care
- > Withdrawal from benzodiazepine NPS is associated with numerous well-documented psychological adverse effects, notably anxiety, panic attacks, irritability, restlessness and agitation
- > Fentanyl-analogue use may be associated with the increased rates of mental health issues associated with opioids (Darke, Lappin & Farrell, 2019)

How many people use novel/new psychoactive substances?

According to the Australian Institute of Health and Welfare, the use of synthetic cannabinoids and other NPS among the Australian general population is low and declining. In 2019, 0.2 percent of the general population reported using synthetic cannabis in the previous 12 months. In 2019, only 0.1 percent of the Australian general population reported recent (past 12 months) use of other NPS such as mephedrone ('meow meow') and NBOMe (AIHW, 2019).

Emergency information

If you, or someone around you, is experiencing undesired or distressing psychological or physical symptoms from the intake of alcohol or other drugs please seek immediate medical attention.

If you need urgent help from ambulance services call Triple Zero (000). If a person has been mixing drugs with alcohol or other drugs, tell the paramedic exactly what has been taken.

Services

For free and confidential advice about alcohol and other drugs, call the National Alcohol and Other Drug hotline on **1800 250 015**.

The hotline will automatically direct you to the Alcohol and Drug Information Service in your state or territory.

More resources

The Illicit Drug Reporting System is an Australian monitoring system that identifies emerging trends of local and national interest in illicit drug markets.

The Ecstasy and Related Drugs Reporting System is an Australian monitoring system for ecstasy and related drugs that identifies emerging trends of local and national interest.

The Clinician's Guide to Illicit Drugs and Health examines the health effects of each of the major illicit drugs.

The Australian Institute of Health and Welfare collects information on alcohol and tobacco consumption, and illicit drug use among the general population in Australia.

The Australian Bureau of Statistics is Australia's national statistical agency, providing official statistics on a range of economic, social, population and environmental matters of importance to Australia.

Sources

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