

Ecstasy | Patterns of use and problems

PART 1

Ecstasy is an illegal drug and is the commonly used street term for the chemical Methylenedioxymethamphetamine (MDMA).

Ecstasy started to become popular in Australia in the mid-1980s and was made illegal in 1987. It continues to be used in a wide range of night-time settings, outdoor festivals, as well as in the home environment.

The number of school-based young people who have used the drug continues to be low. Among 18 to 24-year-olds use increases and ecstasy is the second most popular illicit drug after cannabis among this age group.

Ecstasy deaths are rare but they do happen.

Some of the reasons why ecstasy-related deaths, as well as multiple cases of serious acute illness occur include:

- **Adulterants** – drugs sold as ecstasy may contain little or no MDMA. Ecstasy may contain other substances, some of which may be more harmful than MDMA.
- **Heatstroke** – the use of ecstasy in a hot environment can cause body temperatures to rise to dangerous levels, resulting in death.
- **Water intoxication** – MDMA affects the kidneys, preventing the body from getting rid of fluids. Water is retained in the body and the pressure can lead to coma and death.

- **Heart failure** – the stimulant effects of ecstasy have caused death in vulnerable individuals, including those with an undiagnosed heart condition.
- **MDMA overdose** – the increase in the strength of ecstasy may have caused fatal overdoses among some users i.e., the ‘dose’ taken is ‘over’ the safe amount.

Teachers need to consider the following points around ecstasy should they be conducting any classroom activities or discussions in this area:

- **Ecstasy can cause harm, including death, due to either adulterants or MDMA**
- **Some people appear to be pre-disposed to ecstasy-related harm, even after taking only a small amount of the drug**
- **All young people, whether they choose to use ecstasy or not, need basic information on what to do in a drug-related emergency**

Explaining why deaths, as well as serious non-fatal reactions to the drug occur may prevent or at least modify behaviour. As such, teachers should consider raising the issue of ecstasy-related harm when delivering alcohol and other drug prevention messages.

Medical Disclaimer – the information provided on this fact sheet is provided for information purposes only. As such it cannot substitute for the advice of a medical professional

Background

Ecstasy is an illegal drug and is the commonly used street term for the chemical Methylenedioxymethamphetamine (MDMA). It is structurally similar to amphetamine but has quite different emotional effects.

Merck, a German pharmaceutical company, first synthesized and patented MDMA in 1912 in an effort to develop a blood-clotting drug. The drug remained inactive until the 1950s when the US military carried out secret tests on MDMA in search of a ‘truth serum’.

In the 1960s, an American research chemist Alexander Shulgin rediscovered the substance. He experimented with MDMA and found that it produced emotional openness and empathy, causing users to feel in tune with each other and facilitated communication. As a result, a number of psychotherapists began to use the drug in psychotherapy sessions. During the late 1970s and early 1980s, recreational use of the drug grew and the street name ‘ecstasy’ was coined. MDMA was placed on the Controlled Substances List in the US in 1985.

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In the late-1980s ecstasy and electronic dance music combined to produce the rave culture, initially in parts of Europe and then across the rest of the world. The first media reports of ecstasy in Australia appeared in 1984 and by the end of the decade the drug was attracting increasing attention as use within the nightclub and dance scene grew. MDMA was made illegal in Australia in 1987.

Like most places around the world, ecstasy has been primarily associated with electronic dance music in Australia. In the late 1980s and early 1990s the use of the drug was largely confined to inner city nightclubs and dance events. Since that time ecstasy is increasingly reported being used across a broader range of night-time settings, outdoor festivals, as well as the home environment. Today, more than one in ten Australians aged 14-years or over report ever having tried the drug.

The extent of use among young people

The number of school-based young people who report ever having used ecstasy continues to be low. Recent data, however, shows that almost one in ten 17-year-old school-based males and one in twenty females of the same age have used the drug. Once they have left school the use of ecstasy increases. Ecstasy is the second most popular drug after cannabis among those in their 20s.

Regular use is not the norm, with the vast majority of ecstasy users reporting only using the drug once or twice a year, or once every few months. Weekly use is rare.

What does the drug look like and is it getting stronger?

Ecstasy is sold as a tablet, capsule, powder and in crystal form. The strength of MDMA can vary enormously, as does the content of tablets, capsules, powders and crystals sold as ecstasy. Currently, there is no reliable and easily available method of determining what individuals are actually taking.

Until a few years ago tablets were the most common form used. Today, capsules and ecstasy crystals seem to be the most popular. This change is probably due to the decline in the purity of tablets coupled with uncertainty around the actual drugs being taken and a perceived rise in purity of capsules and crystals. Users increasingly

differentiate between lower quality 'ecstasy' tablets (often referred to as 'pills' or 'pingers') and high quality 'MDMA' capsules and crystals, which are often referred to as a 'pure form' of the drug.

There is evidence that ecstasy in the form of capsules and crystals as well as tablets is getting stronger, i.e., there is a greater amount of MDMA present. It is important that users understand, however, that the form of the drug is no guarantee to its strength and purity. There are instances when MDMA capsules and crystals will be low strength MDMA or a different substance altogether. Similarly, ecstasy tablets can contain high-strength MDMA.

Why do people take it?

Many users report experiencing an initial 'rush', followed by a combination of energy and 'calmness'. Empathy with other people and an enhanced sense of communication are commonly reported. Some users also report a heightened sense of their surroundings, greater appreciation of music and heightened sensual awareness.

How does ecstasy work?

Ecstasy works by increasing levels of a number of neurotransmitters in the brain. One of these is serotonin, sometimes referred to as the 'feel-good' neurotransmitter. At the same time as causing the release of serotonin, ecstasy blocks receptor sites in the synapses in the brain. This prevents the chemical from being re-absorbed. As a result, serotonin levels in the synapses increase, producing the feeling of wellbeing and calmness associated with ecstasy.

Problems

Some users have bad experiences with ecstasy. This may include feeling confused, anxious and panicky. This is more likely if users take high doses of ecstasy, consume alcohol and other drugs at the same time or are already feeling anxious before taking the drug.

Many people talk about having 'mid-week blues' following ecstasy use. Animal studies indicate that ecstasy can reduce levels of serotonin that helps control moods, impulses and a range of other behaviours. Other research, however, casts doubt on this explanation of mood swings. Some believe a range of factors including lack of sleep, poor diet and

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alcohol and other drug use during the course of the weekend may be the cause of the midweek blues.

Regular ecstasy use may lead to sleep problems, lack of energy, dietary problems and feeling depressed or anxious. While physical dependence is highly unlikely, psychological dependence on the feelings associated with ecstasy and the dance culture can develop, i.e., users start to believe that they can't have a 'good time' without using the drug.

The longer term cognitive, behavioural and emotional changes in users, and their severity, are unclear. Some research suggests that prolonged ecstasy use, particularly at high doses, can cause memory difficulties and depression. It is unclear, however, what dosage over what time period would cause these types of problems.

Serotonin syndrome

In medicine, 'serotonin syndrome' is used to describe the acute effects of a wide range of medications and street drugs taken alone at high doses or in combination with other serotonergic drugs. Mild symptoms may consist of increased heart rate, shivering, sweating, dilated pupils and rise in body temperature – all of which may be familiar to ecstasy users. Indicators of potentially fatal serotonin syndrome include agitation, delusions, fast heart rate, elevated body temperature, muscle twitching, seizures and convulsions.

This condition can be caused by excessively high levels of serotonin related to high doses of MDMA, as well as by using ecstasy in combination with other serotonin-elevating drugs, including medications such as some antidepressants and antihistamines.

Deaths explained

Ecstasy deaths are rare but they do happen. In Australia and the UK, the number of ecstasy-related deaths has increased in recent years. The reasons why deaths and multiple cases of serious acute illness happen are not always easy to explain.

Adulterants

Drugs sold as ecstasy may contain little or no MDMA. Tablets and powders may contain a range of substances, some of which may be more likely to cause harm than MDMA. For example, PMA is notable for its high toxicity resulting in a relatively small amount potentially causing significant harm,

including death. PMA also takes longer to take effect, resulting in some users taking more, believing that the drug they took was not working.

MDMA itself has been responsible for deaths over the years. These deaths tend to fall into the following categories:

Heatstroke

The use of ecstasy in a hot environment such as a club will increase body temperature. Combined with dancing it can cause body temperature to rise over the danger limit of 40°C. This can lead to very serious medical problems including convulsions, very low blood pressure and accelerated heart rate.

Death is caused by respiratory collapse resulting from disseminated intravascular coagulation. MDMA reacts with the chemicals that control blood clotting meaning that blood coagulates where it shouldn't, such as in the lungs; air cannot get through and the person dies.

Water intoxication

There have been a number of deaths caused by excess water intake, possibly due to a mistaken belief that drinking lots of water will offset any side-effects of the drug such as heatstroke.

This is known as dilutional hyponatremia. MDMA affects the kidneys by producing an anti-diuretic hormone that prevents the body from getting rid of fluids. Water is retained in the body, especially in the highly water-absorbent brain cells. Eventually the pressure shuts down breathing and heartbeat and leads to coma and death. Early warning signs include dizziness and disorientation.

Heart failure

MDMA causes significant rises in blood pressure and heart rate, which a fit young person can normally sustain. A small number of young people, however, have succumbed to these stimulant effects, sometimes as a result of an undiagnosed heart condition.

MDMA overdose

A cause of the rise in ecstasy-related deaths is likely to be MDMA poisoning or overdose i.e. taking too much or taking a 'dose' that is 'over' the safe amount.

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Research suggests that the acute lethal dose of MDMA is two grams (2000 mg), while the active dose of MDMA is considered to be about 80–100 mg. Theoretically, this means that there is a relatively large difference between the lethal and active dose. However, more susceptible individuals, including women, those of lower weight, and those with less efficient livers can and have died from using much lower doses of the drug

While the increase in strength of ecstasy may have contributed to some deaths, many questions remain unanswered. It is unclear as to why one person may die after taking an ecstasy pill or capsule while many others who took exactly the same drug had no adverse effects at all. It would appear therefore that some people may be predisposed to ecstasy-related harm.

Implications for health teachers

Engaging students in drug education activities aims to assist them to make healthy and safe choices; identify risky situations and develop strategies to prepare them for challenging situations. Although most activities conducted in schools aim to prevent drug use, students in many Australian schools are also provided basic harm reduction information, particularly around alcohol.

As more underage dance events are rolled-out and increasing numbers of students are coming into contact with ecstasy from the age of 18, it is important for schools to examine what role they should play in preparing young people for a safer nightlife experience in relation to ecstasy and the dance culture.

Health teachers can help to improve knowledge and awareness on the risks associated with ecstasy. Explaining why deaths, as well as serious non-fatal reactions to the drug occur is important. Doing so may actually prevent use or at least modify behaviour. With that in mind, it is suggested that the following messages be incorporated into alcohol and other drug prevention activities delivered in their classroom:

- **Ecstasy can cause harm and has caused deaths**
- **Deaths can be caused due to drug adulteration**, i.e., users inadvertently consume a particularly dangerous substance other than MDMA that may be sold as ecstasy

- MDMA is not a 'safe' drug and can cause harm, including death
- Some people appear to be predisposed to ecstasy-related harm, including death, even after taking relatively small amounts of the drug
- All young people, whether they choose to use ecstasy or not, need basic information on what to do in a drug-related emergency. This should include discussing the importance of seeking help early, calling 000 and what happens when you do, teaching the recovery position and ensuring that they are aware that police do not routinely come to an illicit drug medical emergency

Ecstasy prevention lessons are important to ensure that students are aware of the risks associated with ecstasy and the dance culture.

This fact sheet is part 1 of a two-part series about ecstasy for teachers.

The **What teachers need to know about ecstasy Part 2: Responses – 'pill testing'** fact sheet includes information about pill testing that could assist teachers in classroom discussions on the issue.

Resources

Climate Schools: Psychostimulant & Cannabis Module: an online program designed for Year 9 and 10 students that is comprised of 6 lessons. Students work through a cartoon-based drama following a group of young people, learning about a number of drugs including ecstasy (MDMA). There is a cost involved for schools that wish to use the Climate Schools programs but is one of the few resources in this area that has been evaluated and found to be beneficial.

References

Campbell, A. (2001). *The Australian Illicit Drug Guide*. Black Inc; Melbourne.