

Love Turned

An Update on the Use and Hazards of the Drug Known as Ecstasy

Throughout history, humans have tried in various ways to escape physical and emotional pain and to alter reality in a search for joy and peace. Unfortunately, the methods used to transcend reality have often involved intoxicating or psychoactive chemicals. This is of special concern to teachers and educational administrators because research indicates that young people begin to use alcohol and illicit drugs in adolescence. For example, studies conducted by University of Michigan researchers in their Monitoring the Future Study show that more than half of America's high school seniors have used an illicit drug and about 80 percent have used alcohol. The study also reveals that more than 40 percent of American high school seniors have used an illicit drug in the past year, with the majority of 12th graders reporting being drunk in the last year.¹

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By Tania L. Gainza and Duane C. McBride

A relatively new drug has joined the pharmacopoeia of substances used—Ecstasy, also known as the “love drug,” ingested for its euphoric effects.² First discovered in 1912, Ecstasy is referred to by scientists as MDMA due to its chemical composition (3,4-methylenedioxymethamphetamine).³ Because it had no specified uses in treating diseases, MDMA disappeared from the public eye for some years. However, psychotherapists “rediscovered” it about 1978, prescribing it to enhance the effectiveness of psychotherapy.⁴

Beginning

What made MDMA unique and successful in psychotherapy were its psychological effects. It not only seemed to make people happier, but also broke down social and psychological barriers, allowing patients to open up more quickly to their therapists and others in group therapy. Because of its success and few known side-effects, an illegal market soon developed. In Europe, it spread like wildfire

Sour

Picture Removed

through underground parties that became known as “raves.”⁵ It was not long until similar all-night dancing events began occurring across the U.S.⁶

During the 1980s, a host of legal issues arose in relation to MDMA. The U.S. Government placed it on Schedule I in 1985, making it completely illegal, even for medical purposes.⁷ This occurred because MDMA was initially confused with methylenedioxyamphetamine (MDA), which has been shown to produce severe neurotoxic effects.⁸ Although researchers now have a clearer understanding of the nature of MDMA, it remains a Schedule I drug at the federal level. However, at the state level, policies vary widely. Some states have not passed any laws regarding Ecstasy, while others have followed the federal example.⁹

Use Trends

Despite its widespread illegality, Ecstasy has become the new hot drug. The 2001 Monitoring the Future Study found that Ecstasy use among 8th, 10th, and 12th graders had increased significantly in the previous five years. In 1997, 3.4

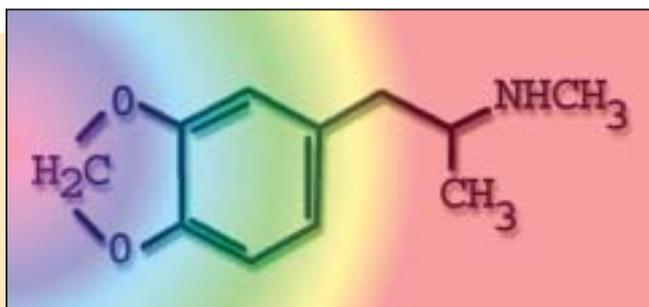


Figure 1
Chemical Structure of MDMA (Ecstasy)

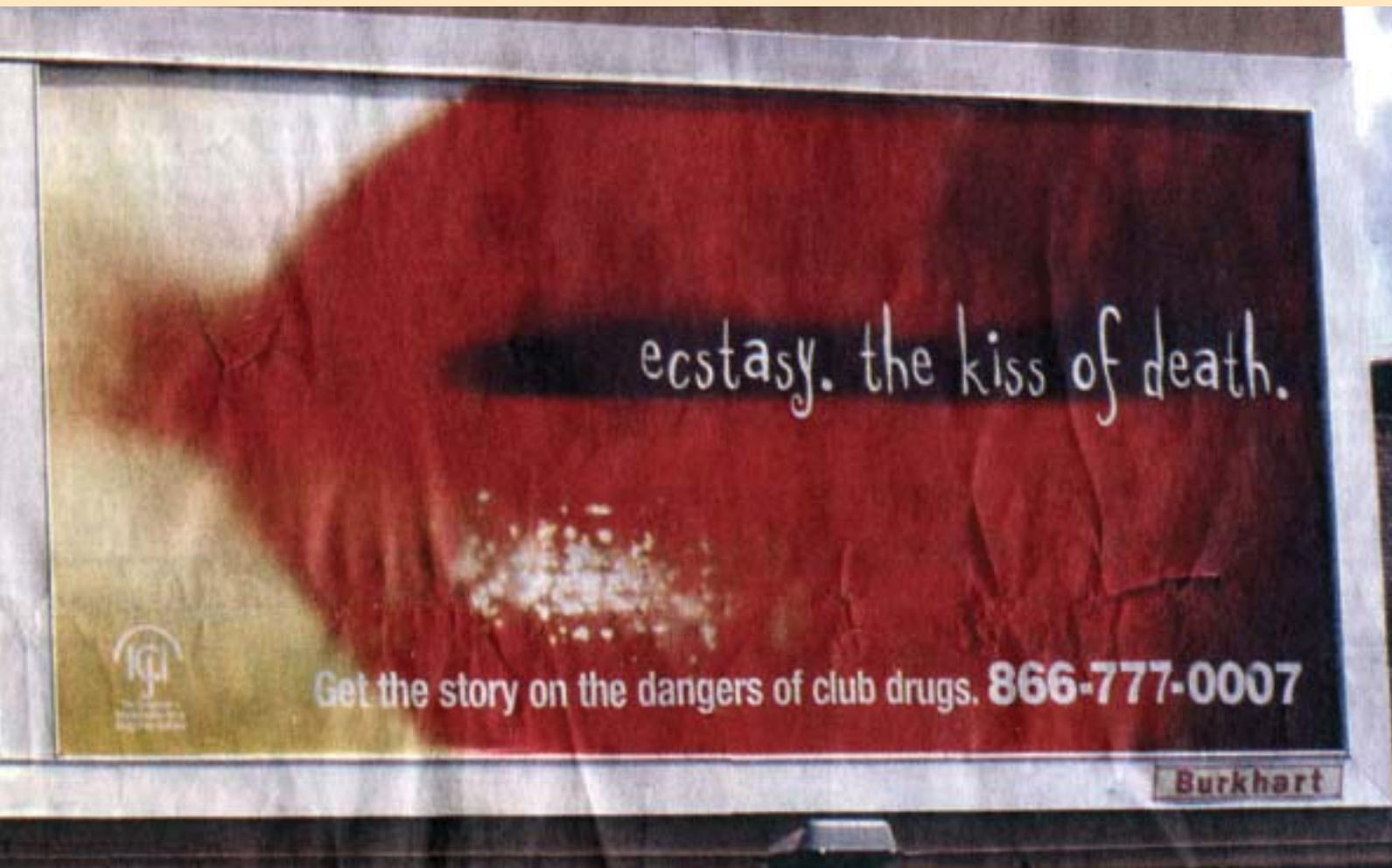
Source: *MDMA Basics, Dosage, Effects, Crash, Health, Chemistry*.
In Erowid MDMA Vault.

percent of 8th graders, 5.6 percent of 10th graders, and 6.1 percent of 12th graders reported having used Ecstasy at least once. By 2001, the rates had increased to 5.2 percent, 8 percent, and 11.2 percent respectively for these grade levels. The number of U.S. high school seniors who have tried Ecstasy has almost doubled in the past four years.¹⁰

Chemical Properties and Biological Mechanisms

What makes Ecstasy so attractive to young people is its effects on the nervous system. The reason for this becomes clearer when we examine its chemical formula, which shows it to be a cousin of the psychomotor stimulant amphetamine and the hallucinogen mescaline.¹¹ Its structural formula is shown in the above figure.

Rudnick's and Wall's animal studies found large amounts of serotonin traveling through the brain synapse about a half hour to an hour after ingestion of Ecstasy.¹² Van Aerts, Schwartz, and Kish theorize that this leads to a significant increase in serotonin receptor binding.¹³ As serotonin passes through the synapses, users experience a sense of euphoria



Source: Ecstasy tablet gallery. In: Erowid MDMA vault.

and openness. They also report relating positively toward everyone around them. Ecstasy is thus seen as the “perfect party drug” since it breaks down social barriers.¹⁴

Effects of Ecstasy

In addition to feelings of well-being, Ecstasy users also experience some serious consequences due to the excess movement of serotonin in their neural synapses. Some of these effects include depression,¹⁵ long-term memory impairment (as well as other kinds of memory decline),¹⁶ exhaustion, black-outs, nausea, jaw-clenching, eye-twitching,¹⁷ rapid heartbeat, and hypertension.¹⁸ Studies conducted by two groups of re-

searchers, led by Verkes and Cami, found psychomotor and cognitive performance to be lower for Ecstasy users.¹⁹

What about long-term neurological damage? Summarizing the research to date, Baggot and Mendelson conclude that animals exposed to MDMA show long-term changes in the brain. These changes include decreases in

the concentration of serotonin and metabolites. Ecstasy also decreases the level of tryptophan, a brain enzyme that works with serotonin, and causes long-term changes to the axons and cell bodies of the brain. However, it is not known if these axons are permanently lost or if the brain adapts to the drug. More research needs to be done on the long-term consequences of Ecstasy use.²⁰

Men and women seem to experience somewhat different effects from the use of Ecstasy, with women seemingly being more sensitive to the subjective effects of the drug.²¹ Liechti and associates found that female subjects showed significantly higher increases in positive basic mood, depersonalization,

and altered perception of space and time. Women were more likely to experience all the psychological effects (including thought disturbances and hallucinations) more frequently and to a higher degree. Consumption of Ecstasy has also been tied to psychological effects such as flashbacks, psychosis,²² and the onset of panic disorder.²³

Studies have also shown adverse effects on users' sleep patterns and on the babies of women who ingested Ecstasy during pregnancy.²⁴ A follow-up of babies exposed to Ecstasy before birth showed a significantly increased risk of congenital defects, especially cardiovascular and musculoskeletal anomalies. Eleven of the 127 women in the study miscarried.²⁵

Other concerns involve the effects of combining Ecstasy with other drugs and alcohol, as well as the likelihood of buying an adulterated product. Pills sold as Ecstasy may be a mixture of MDMA and other substances, or may contain other drugs entirely. MAPS and Baggott found that half or less of the tablets/capsules sold as Ecstasy may actually contain MDMA. Both of the studies found additives and other substances in the samples they tested. The most common additive was dextromethorphan (DXM), a cough suppressant. Other common additives were caffeine, 3, 4-methylenedioxethamphetamine (MDE), and other MDMA analogues.²⁶ (MDE and other analogues have similar effects to MDMA.²⁷)

Studies have shown that these other ingredients can have “an unrecognized role in adverse reactions attributed to MDMA.” This is especially true of DXM, since the amount usually found in Ecstasy tablets is “considerably higher than the usual therapeutic dose of 15 to 30 mg (taken up to 4 times daily).” These high doses can contribute to the effects associated with Ecstasy consumption, such as rapid heartbeat, rapid eye movement, and psychosis.²⁸

Context of Use

The context of consumption can alter the consequences of Ecstasy use. Since the drug is often used at raves, many of the effects are exacerbated by dehydration, increased body temperature resulting from dancing for hours, and mixing of the drug with other illegal substances that are sold at the raves.²⁹ This may lead to impaired blood clotting and hyponatremia (drinking a large amount of water to compensate for dehydration, which produces an abnormal electrolyte balance).³⁰ The 2000 annual report put out by Drug Abuse Warning Network (DAWN) on Club Drugs showed that these symptoms have led to emergency room visits and even death in extreme cases.³¹

Another important concern about Ecstasy is whether it produces a loss of self-control leading to unwanted sexual behavior or even rapes. Unlike excessive consumption of alcohol and ingestion of other drugs like rophynol, Ecstasy use

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does not produce a loss of consciousness or of self-control because the user remains aware of his or her surroundings. However, abuse of Ecstasy is associated with high-risk sexual behaviors among gay and bisexual men.³²

Assessing Damages

According to the DAWN report on Club Drugs, between 1994 and 1999, 5,620 U.S. emergency room (ER) visits were connected to the use of Ecstasy. Such visits went from 250 in 1994 to 2,850 in 1999, almost an 11-fold increase. The DAWN report also states that 27 deaths were conclusively linked with

MDMA ingestion between 1994 and 1998. The report showed that ER visits had increased significantly in 1998 and 1999.³³

Some laws have been passed as the result of several Ecstasy-related deaths. The Illinois General Assembly recently passed statute HB126, known as “Kelley’s Law,” in remembrance of Kelley Baker, who died from an Ecstasy overdose. One of the most sweeping laws thus far passed in the U.S., HB126 toughens the penalties for possession of MDMA or any of its derivatives.³⁴

Despite the severe physiological and psychological consequences of taking Ecstasy, many people continue to consume it and to consider it relatively safe. However, it is “safe” only in the sense that no violence accompanies its distribution and trafficking³⁵ and because, unlike alcohol and other drugs, it rarely causes loss of consciousness. Users assume that Ecstasy will make them feel good without significantly affecting their health. Because use can be discreet and easy, this makes it more attractive to potential users. They can ingest the drug without leaving a social event or using needles or other drug paraphernalia.

Methods of Ingesting Ecstasy

Because it is sold in pill form, Ecstasy is usually ingested orally. However, a few users have consumed it either by inhalation or injection.³⁶ The drug is hard to identify, as the pills vary in size, shape, and thickness and come in many colors with a variety of logos. It is usually produced in bright colors ranging from red to purple but may also be beige or white. Logos range from Mitsubishi automobile symbols to popular cartoon images. Several Web sites show the varying appearance of Ecstasy pills currently being sold.³⁷ (See picture on page 26.)

Research conducted by Carlson has revealed that Ecstasy tablets sell for \$10 to \$50 each. The average dose ranges from one to two and a half tablets (50 mg to 150 mg).³⁸ In the beginning, most users were white, middle-class males, but now many ethnic groups have joined in.³⁹ Typically, users are in their late teens or early twenties.⁴⁰

Dependence and Preventative Measures

Tolerance to Ecstasy consumption builds quickly. Thus, to

get the same effects, users need to ingest higher doses. As larger amounts of Ecstasy are consumed, more negative physical consequences occur. Although addiction is so rare that most of the literature fails to mention it, users may need to be treated for psychological dependence.⁴¹ Treatment methods are similar to those employed for amphetamine and cocaine addiction—detoxification, substitution with other drugs, and various types of psychotherapy.⁴²

The usage trends and risks of Ecstasy use suggest that it may soon become an epidemic. Currently, the drug seems to be replacing cocaine in popularity.⁴³ Consequently, efforts to prevent and diminish the use of Ecstasy have become a major agenda topic for U.S. health-care agencies. Many states have passed new laws. Other agencies, organizations, and states are using different types of media, including Web sites, to inform people about the dangers of the drug.⁴⁴ On page 26 is an example of a billboard put up by local counties.⁴⁵

A Global Picture

Ecstasy is not just a U.S. problem. Many other countries are experiencing similar difficulties with its use.⁴⁶ According to Sterk, it is the second-most-used drug in Europe after marijuana.⁴⁷ Australia has also had many deaths as a result of Ecstasy ingestion. Dr. Rodney Irvine, in his presentation at the 2001 MDMA conference in Bethesda, Maryland, cited the 1998 Household Survey for Australia, which showed that 2.4 percent of the population had used Ecstasy in the past 12 months, out of 22 percent of people who reported using illicit drugs.⁴⁸

Health-care professionals and scientists are only beginning to learn about Ecstasy and its effects. Additional research should be done to investigate MDMA's effects, toxicity, and to develop effective interventions for both the general population and for ethnic minorities.⁴⁹ However, while researchers continue to search for additional proof of harm, Ecstasy will continue to wreak havoc on young people.

Our Role as Educators

Ecstasy and many other illegal drugs are harmful, not only to the physical body, but also to the cognitive, personal, and spiritual dimensions of our students' development. Abstinence should be the strong focus of all discussions concerning use of Ecstasy or other illicit drugs, as well as harmful though legal substances like alcohol and tobacco.

Lonely children, as well as those who are easily influenced by peers and are desperate to be part of the "in group," may be tempted to use Ecstasy and other drugs.

Every human being needs love and happiness. Ecstasy seems to promise love, happiness, and acceptance with few risks. The people who attend raves have a motto: peace, love, unity, and respect.⁵⁰ Whoever enters receives all of these, with no questions asked. It does not matter what you look like or where you are from. You are loved and accepted as you are. Sadly, this superficial acceptance is usually short-lived, and

many young people reap serious consequences from using Ecstasy even once.

Our schools need to take the place of those raves. Love, acceptance, unity, and respect should be part of the school culture, not reserved for a few students who are perceived as having "earned it." One way to do this is to create a sense of community in our schools. The article by Gary Hopkins and Tim Gillespie on page 30 offers some ideas for accomplishing this goal. ✍

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