

The Agony of Ecstasy: Responding to Growing MDMA Use Among College Students

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The recent increase in ecstasy use among college students has left prevention workers feeling anything but euphoric. Although the use of alcohol and most other drugs has remained steady over the last 5 years, ecstasy use has more than doubled.¹ This dramatic increase, coupled with the unique characteristics of this substance, warrants a concerted prevention effort specific to this drug. In the present article, we outline the history and current epidemiology of MDMA, more commonly known as *ecstasy*, *X*, *E*, or *XTC*, and provide directions to equip readers to respond to this growing problem.

- Ecstasy is unlike any other drug in terms of its effects and the myths surrounding its use.
- Students who use ecstasy fit a very different profile from students who use other drugs.
- Recent scientific studies reflect growing concern about the possibility of long-term neurological damage as a result of recreational use of MDMA.
- Current drug prevention efforts seem to have failed with ecstasy users. Although rates of other illegal drug use

by young adults have remained stable, the use of ecstasy has risen in nearly every age group.

History and Myths

Ecstasy is a drug like no other. This simple statement is borne out in the somewhat unusual history of ecstasy and in the myths surrounding its use and effects. “Pure” ecstasy is MDMA (3,4-methylenedioxymethamphetamine)—not a difficult substance to make. However, most ecstasy purchased on the street or in clubs is nothing close to pure. Other chemicals, such as ephedrine, codeine, caffeine, and ketamine (a general anesthetic) are frequently added or passed off as ecstasy. (“Herbal” ecstasy, which can be purchased legally, is mostly ephedrine and caffeine, and contains no MDMA.)

The pharmaceutical company E. Merck in Germany first developed MDMA in the early 1900s. It is chemically related to both hallucinogens and stimulants in the way it induces euphoria and enhanced self-awareness, but it does not seem to produce psychotic effects or visual distortions. As a serotonin agonist, it works on the same system as antidepressants such as fluoxetine (Prozac™), paroxetine (Paxil™), and sertraline (Zoloft™), with which it is sometimes taken in combination. Whereas these substances influence mood through inhibiting the reuptake of serotonin, MDMA substantially boosts serotonin release, producing many times the effect.

Before MDMA was scheduled as a Class 1 illicit substance in 1985, ecstasy was prescribed by some psychiatrists and psychotherapists as an adjunct to therapy because

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of its reported ability to facilitate communication, acceptance, and fear reduction. After the Food and Drug Administration criminalized the use of the drug, MDMA “went underground” and began to be used in the same settings as other hallucinogenic drugs, such as LSD and, more recently, “club drugs,” including date rape drugs GHB (gamma-hydroxybutyrate) and Rohypnol (flunitrazepam) known on the street as “roofies.”²

What makes ecstasy unique? First, no drug has ever been characterized in quite the same way as ecstasy. Individuals almost universally describe its effects as “euphoric,” “blissful,” and “love inducing.” The drug experience appears to be greater for women,³ and the ecstasy experience can be amplified by such factors as room temperature, overcrowding, and dancing.² These qualities make ecstasy distinct from other substances sold on either licit or illicit markets. The positive effects, coupled with its wide availability, seem to ensure ecstasy’s continued use by young people. It is also readily taken in combination with other medications, such as fluoxetine (ProzacTM), sildenafil (ViagraTM), herbal and caffeinated “energy” beverages (Red BullTM), and alcohol, which may further enhance or change its effect.

In addition to the euphoric and carefree feeling ecstasy produces, belief in the “cleanness” of the substance appears to be another reason for its continued use. The myths surrounding ecstasy use—especially those promulgated on Internet Websites and chat rooms—are that it can make an individual more social and energetic without the intoxication, side effects, and risk of overdose that accompany other drugs. Users admit some drawbacks of ecstasy, including increased sweating, jaw clenching, and reduced sexual functioning. In addition, some side effects, such as deteriorated mood and energy,² are apparent in the first few days following use. However, these immediate consequences seem to be relatively minor compared with those related to most other drugs. Furthermore, the scare factor of overdose that is present with other illegal drugs does not appear to be an issue for ecstasy users. In fact, among those few persons admitted to an emergency room following ecstasy use, the vast majority are treated for dehydration, hyperthermia, or toxicity of other drugs that have been passed off as ecstasy, all of which are unattributable to MDMA per se.

As of this writing, ecstasy also has not been proved to be addictive. Patterns of use do not appear to follow the stereotypic addictive patterns of physical dependence, drug-seeking behavior, and withdrawal after one stops using it. However, some evidence of tolerance has been noted. It appears that as the positive effects of ecstasy diminish, the negative effects increase when the drug is taken more frequently. “The majority of people who have taken more than 5 individual doses of MDMA state that the good effects of the drug change with successive doses. As stated by one college student, “freshmen love it; sophomores like it; juniors are ambivalent, and seniors are afraid of it.”^{4(p191)}

These factors have led many students to believe that ecstasy can be used with relative impunity. However, despite this common belief, new evidence suggests the pos-

sibility of deleterious effects from recreational or even a single use. Recent studies have indicated that regular use of ecstasy can produce small but detectable deficits in attention, memory, reasoning, impulse control, and sleep⁵ and that the effects may persist long after the individual has stopped using the drug.⁶ For example, memory deficits have been seen in moderate users with an average lifetime ecstasy use on 10 to 20 occasions.⁷ A recent article about studies of memory in MDMA users concluded, “While the neurotoxic effects of MDMA on [serotonin] neurons in the human cortex may be reversible, the effects of MDMA on memory function may be long lasting.”⁸⁽¹⁹¹⁾ This study is the first to examine MDMA users who have abstained from using the drug for at least 1 year.

In addition, several animal studies have shown brain damage after a single dose or after repeated moderate doses. In one such study, rats that were given a single large dose of MDMA had more difficulty than untreated rats in learning to complete a maze, even after 80 days.⁹ Although these animal findings may not be directly applicable to humans, they offer some early evidence that MDMA may have subtle long-term consequences even for one-time users. Such results must also be viewed in light of surveys (discussed below) that show that ecstasy users do not differ from other students in grade point averages (GPAs). Nonetheless, what does seem certain is that many of the positive myths about the safety of this drug will be proved to be inaccurate over the next decade.

Current Ecstasy Use

National surveys show that rates of ecstasy use have risen sharply in recent years. The *Monitoring the Future 2000* study first suggested that use of the drug appears in younger age groups each year. For instance, among eighth-grade students, the data show an increase from 1.7% of those who had used ecstasy in the last 30 days during 1999 to 3.1% in 2000. Similarly, 30-day prevalence over this period increased from 4.4% to 5.4% among tenth graders, and from 5.6% to 8.2% among twelfth graders.¹⁰

Data from the Harvard College Alcohol Study (CAS) revealed an increase in annual ecstasy use in college students from 2.8% in 1997 to 4.7% in 1999, an increase of 69%.¹ The CAS, the first study to examine epidemiologic information specific to ecstasy among college students, also provided important information about behavioral and lifestyle factors associated with using this substance. The investigators found that ecstasy users were not the academic underachievers one might associate with other illicit drug use. In fact, ecstasy users did not differ from other students in terms of GPA and the importance they placed on community service. Of 8 demographic factors associated with MDMA, marijuana use was the variable that far outweighed all others (92.1%). Other factors that were more common in ecstasy users than among other students were (1) binge drinking, (2) more time spent socializing and less time studying, (3) having more sexual partners, (4) smoking cigarettes, (5) rating arts and parties as more important than

academic pursuits, and (6) viewing religion as less important. Because ecstasy is primarily used in group settings, it is not surprising that users were more likely to attend a residential college, hold memberships in fraternities or sororities, and spend larger quantities of time engaging in social activities than were non-using students.

Prevention

College students' increased use of ecstasy and scientific evidence suggesting that occasional MDMA use may have long-term consequences present a challenge to college health providers. Because prevention programs are still in their infancy, one of us (BF) conducted an informal telephone survey of staff involved with alcohol and drug services at 9 public and private institutions across the US and 1 institution in Canada in July 2001. Among this group, only 2 schools were currently developing prevention materials for ecstasy, and none had any programs or materials in use at the time. One campus was using a harm-reduction model and the other used a social-norms model, both popular strategies adapted from existing high-risk drinking prevention programs.

In what direction is prevention of ecstasy use heading? We know that educational campaigns sometimes disseminate the latest research to parents and administrators. Many universities already relay information about high-risk drinking to parents through admissions material and orientation programs, and ecstasy may also warrant this approach. In terms of reaching students directly, offering safer social alternatives to all-night "raves" may be one way to limit exposure to the substance. Because the effects of regular use are more subtle and long lasting than the effects of using other drugs, the myths about the safety of ecstasy have persisted. Thus, creative media campaigns and peer education programs might be ways to raise awareness of the potential consequences.

Finally, if it can be confirmed that even a single use of MDMA has long-term repercussions in humans, this will undoubtedly influence the programs that are offered. If ecstasy is indeed in a class by itself, prevention programs must weigh the benefits of creating a safe environment for ecstasy use against the risks that may be inherent in any use at all.

Although increasing numbers of students are using ecstasy in high school, the number of students who use ecstasy for the first time while attending college is still very high. Thus, peer and media influences may well have an effect on students before they try ecstasy for the first time. As college health providers, our challenge to correct beliefs that ecstasy won't hurt you is enormous, and it will require creative thoughts on prevention and intervention. In our opinion, this is a challenge that must not go unnoticed or unattended.

NOTE

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