MDMA/Ecstasy Use Among Young People in Ohio: Perceived Risk and Barriers to Intervention†

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Abstract—In the past several years, the use of MDMA (Ecstasy) has increased substantially in the United States and in many countries around the world. Although this increase has been associated with the dance club and rave scenes, Ecstasy use has expanded into new settings. At the same time, the diversity of people using the drug has also grown. Given the increasing, although unclear, evidence that MDMA has the potential to cause neurotoxicity and various psychological problems under certain conditions among humans, understanding how active users perceive the risks associated with Ecstasy use can help to inform prevention and intervention approaches. Based on audiotaped focus groups and individual interviews conducted with 30 Ecstasy users in Dayton and Columbus, Ohio, this article explores these and other issues. Results demonstrate that beyond the risk of obtaining something potentially deadly instead of MDMA, most users do not associate risks of neurotoxicity or psychological problems with Ecstasy use. Active users look to harm-reduction approaches for answers to using Ecstasy safely; prevention messages like, "just say no to drugs" are largely ignored. Because Ecstasy is commonly used among small groups of friends, peer leader or other social network intervention approaches may be promising.

Keywords—Ecstasy, MDMA, prevention, qualitative methods, risk

The use of 3,4-methylenedioxymethamphetamine (MDMA, Ecstasy) has increased substantially in recent years in the United States, Europe, Canada, Australia, and other nations, perhaps fueled in part by media attention and

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the global rave phenomenon (Heilig 2002; Landry 2002; Community Epidemiology Work Group 2000; National Institute on Drug Abuse 2000 a, b). In the United States, increases in Ecstasy use are most commonly reported among young White people in high school and college or college-age young adults. Increases in Ecstasy use have been related to the increasing diversity of settings in which the drug is being used. Although no longer limited to use in dance club and rave settings, little is known about patterns of Ecstasy use in different venues or why the phenomenon is taking place.

Understanding of Ecstasy use by young people in the United States is based largely on previous sociobehavioral research conducted in the late 1980s (e.g., Beck & Rosenbaum 1994). Little is known about current patterns of polysubstance use among young people who use Ecstasy in the United States. Furthermore, with the exception of a limited number of studies conducted mainly in Europe and Australia (Parrott, Sisk & Turner 2000; Topp & Hando 1999; Schifano et al. 1998; McGuire, Cope & Fahy 1994), little is known about the epidemiology of psychological problems among Ecstasy users. However, these and other studies (Parrott 2001; Morgan 1999, 2000; McCann, Slate & Ricaurte 1996; Allen, McCann & Ricaurte 1993) suggest that Ecstasy use may under certain circumstances be associated with neurotoxicity, memory deficits, and a range of psychological problems including, but not limited to, sleep disorders, cognitive disorders, panic attacks, depression, flashbacks, paranoia and psychosis.

Given the increasing evidence of a range of potential problems associated with Ecstasy use under certain conditions, there is a need to better understand how people evaluate the apparent risks associated with using the drug. This information is vital to informing interventions that are consistent with how young people view their drug use.

This article describes the increased use of Ecstasy in diverse settings as well as the increasing diversity of users, perceived risks, and barriers to prevention among young people in Dayton and Columbus, Ohio. Initiation to Ecstasy use and polysubstance use patterns are also discussed. The preliminary study is based on qualitative data collected through two focus groups conducted with 16 young people and individual interviews conducted with 14 other people who all self-reported Ecstasy use at least once in the previous 12 months.

METHODS

A total of 30 people were interviewed. Two focus groups were conducted with 16 people in Dayton and Columbus, Ohio, in the spring of 2001. In addition, audiotaped individual interviews were conducted with 14 people in Columbus in the spring and fall of 2001 and in the winter of 2002. Participants were recruited using convenience and snowball sampling methodologies (Biernacki & Waldorf 1981).

To be eligible, participants must have self-reported using Ecstasy in the previous 12 months, be at least 18 years of age, and not currently be participating in drug abuse treatment. Informed consent, approved by Wright State University's Institutional Review Board, was administered to all participants, who were compensated $20 for their time. Focus groups and individual interviews lasting one to two hours were conducted in field offices by the first and second authors.

Data Analysis

The focus group and qualitative interviews were transcribed verbatim and entered into a Folio Views 4.2 infobase, a text management software that was used to code the individual interview and focus group transcripts (Buchignani 1996). The software enables instantaneous searching of all words and research codes, insertion of notes, highlighting of text, and hypertext links that allow an analyst to link related segments of text throughout a data base.

The transcripts were verified by comparing the audio tape to the text. Simultaneously, research codes for predefined and emergent categories were generated to index segments of text that refer to specific themes. This process is called "open coding" in the grounded theory approach to the analysis of qualitative data that was adopted in this study (e.g., Fielding & Lee 1998; Strauss & Corbin 1998; Glaser & Strauss 1967). Open codes provide an index to the text that is grounded in the interviews. Open codes on topics relevant to this article were searched, compared, and text concerning specific themes was summarized.

RESULTS

The age of all participants ranged from 18 to 31, with an average age of 22.4 years. Fifty percent of the participants were women. All participants were White, and all were heterosexual. Ecstasy use has been largely confined to young White people in central Ohio, although evidence from the Ohio Substance Abuse Monitoring Network suggest increases in Ecstasy use among African Americans and other ethnic groups (Wright State University 2001). Almost half (48.3%) of the participants were college undergraduates, about 21% had a high school degree, and 10.3% were currently in high school. In addition, two people had obtained a GED, one had obtained a bachelor's degree, one was in graduate school, and two people had obtained a master's degree.

Length of Ecstasy use ranged from six months to four years. Occasions of Ecstasy use ranged from two to over 150 times, and the number of tablets used per occasion ranged from 1/2 to eight. The typical dose per occasion was one to 2.5 tablets, with cost per tablet averaging about $25. Frequency of Ecstasy use varied from about once a week to once every one to six months. In addition, all

participants could be described as "recreational" Ecstasy users, rather than people who were using it for therapeutic or spiritual reasons (Beck & Rosenbaum 1994).

The drug use history of the participants varied substantially. Use of alcohol was universal and often extremely high, even among those who had little experience with illegal drugs besides Ecstasy. It was not uncommon for men, and even some women, to report consuming 12 or more 12-ounce cans of beer at a single setting. Marijuana use was also very common and it was often smoked to help "come down" after taking Ecstasy. More than half of the participants, particularly college students, reported a history of psilocybin and LSD use.

Nine of the participants had used other club drugs, most commonly including ketamine and/or GHB. Only one person mentioned using Rohypnol and methamphetamine, that use being more than one year ago. Experience with DXM (dextromethorphan), Xanax (alprazolam), OxyContin (oxycondone timed-release) was uncommon, but present. In addition, three participants who were not in college injected heroin regularly. Finally, it is important to note that although all of the participants could be classified as current polysubstance users, most learned not to use other drugs when taking Ecstasy as a means to maximize the experience and to minimize the potential for adverse consequences. For example, although one of the participants regularly drank 12 or more beers at a single occasion, he usually limited himself to one to two beers when he used Ecstasy. Several people said they would not drink any alcohol when using Ecstasy but would smoke marijuana to help "come down" after using the drug.

Initiation to Ecstasy Use

As commonly reported in previous research, these participants were almost always introduced to Ecstasy by friends, and boyfriends introducing to girlfriends was a common pattern (Hansen, Maycock & Lower 2001; Beck & Rosenbaum 1994). Two participants indicated that they heard a lot about Ecstasy in high school but were reluctant to try it. Upon moving away from parental supervision and attending college, things changed. A 22-year-old man commented, "I never even tried MDMA before college. I had heard of it, but I didn't even think about using it before college."

Peer influence on initiating Ecstasy use is sometimes subtle, as the following quote from a 20-year-old woman illustrates: "It makes you sad if you're at a club and you see everybody else is having all this fun [using Ecstasy] and you're not. If all the people are doing it, it makes you want to do it." In other cases, peer influence is more direct, as indicated by a 24-year-old man: "Up to six months ago I was totally against all drugs, even pot. I was always against it, and then my friends just kept talking about it [Ecstasy], talking about it, and I finally worked up the testosterone to do it, and I did it at my friend's house one night, and I loved it." Peer pressure to use Ecstasy is potentiated by the desire to feel part of a scene or not to be left out among a small circle of friends.

Although some people might just decide to try Ecstasy because they are curious about the good experiences that others report from using the drug, other people may decide to try it because they are sensation seekers or have a general interest in experiencing the effects of a wide range of psychoactive substances. This would appear to be the case among this study's participants who had wide-ranging drug use histories and among those who began using other club drugs after first beginning to take Ecstasy.

Expansion in Diversity of Ecstasy Users and Settings of Use

Use of Ecstasy is most commonly associated with dance clubs and rave settings, and the present participants were not atypical in this regard (McElrath & McEvoy 1999; Sherlock & Conner 1999; Solowij, Halle & Lee 1992). Among the college students in particular, going to a club and using Ecstasy was highly valued as a means to celebrate, dance, interact with friends and meet new people. Some people only use Ecstasy in this setting. As a 22-year-old male college student said, "I don't go to dance club unless I'm rollin' [high on Ecstasy]." Other participants were quick to point out, however, that use of Ecstasy in dance clubs is not limited to college students.

Participating in the dance club scene can be relatively expensive. A 27-year-old man explained, "Last time I did Ecstasy at a club, for me and my girlfriend, it was 200 bucks. Spent a hundred on X [four tablets of Ecstasy @ $25/tablet], and then the rest to get in the club, pay for drinks for both of us, and a taxi to get home." Spending large sums of money, even if only occasionally, is an integral part of going to a dance club—particularly for men in college. A 21-year-old man commented, "I'm rich that night, when I'm rollin' at the club. I don't mind payin' $9 for a martini. I don't mind, you know; I like goin' somewhere nice." Frequent attendance at a dance club is not something the typical college student can afford to do every weekend.

Using Ecstasy was often perceived as a "time out" from the normal routine and stresses of daily life, a time to dance and to feel close to others—others who may be more difficult to interact with intimately during the normal course of everyday working life (e.g., Hinchliff 2001; Beck & Rosenbaum 1994). As a 23-year-old man said, "Taking Ecstasy is like kind of... like taking a vacation for a whole day. I mean for that one day I don't worry about work, I don't worry about my mortgage payment, my car; I don't worry about anything except having that good time."

Attending raves can also be expensive, when entrance fees are added to the cost of alcohol and other drugs, water, paraphernalia (such as glowsticks), and, sometimes, the cost of traveling to distant cities. Four of the participants preferred using Ecstasy in rave settings, often

traveling to events in Cleveland, Cincinnati, Indianapolis, and even Chicago. Sometimes, traveling long distances to attend a rave is a matter of choice. However, the local rave scene is undergoing substantial change. Due to media attention and law enforcement, it has become increasingly difficult for organizers to rent space in empty buildings and hold raves, particularly in Columbus, Ohio (Aho 2001). As a rave organizer said, "There's essentially no legal way to have a rave [in Columbus]. It's very sporadic nowadays. There used to be what could be called a scene. Now I wouldn't even call it that" (cited in Marshall 2001:1).

Although going to typical dance clubs might be portrayed as mainstream, going to all-night dance parties at raves was perceived by some participants as "alternative" or "counter-culture." Participants drew a sharp distinction between "club heads" and people who are into the rave scene. As a 23-year-old woman in college described, "It's more like a different style. They [rave attendees] dress kinda alternative. 'Seattle grunge,' whatever, that's how they look, just real grungy, but with the glow sticks." In addition, raves appear to be more popular among younger Ecstasy users, particularly among high school youth who are often referred to as "Candy Kids." Similarly, ravers described "club heads" as a distinct and very different category of Ecstasy user. As a 19-year-old female raver explained, "Yeah, club heads are more like, I don't know, most of them are in college. They're like tryin' to go and get their X or K [ketamine] and get drunk, and then they're tryin' to get girls. They go there for women. Raves are more underground; you go to, like, meet new people and get new connections."

The expansion in settings in which Ecstasy is being used is associated with an increasing diversity of users. According to a 22-year-old woman, "Before, X was mainly a dance club drug. Now there are different groups of people who are becoming aware of it. It's more mainstream." Although Ecstasy has been fairly restricted to use among White people, increasing evidence suggests that it is crossing ethnic boundaries. A 20 year-old man said, "Everybody does it; it's just, I mean, there's just as many Asians as White people that use it. I do know a couple Black guys that use it. They're not really into it, but I know a couple that do, and they like it." For some people, the cost of going to a dance club or rave may prohibit frequent use of Ecstasy in those settings—although these may be preferred—thereby contributing in part to use in a wide range of other places.

One of the most common new settings in which Ecstasy is used is referred to as "rolling parties." Rolling parties are sometimes planned months in advance and are often held in association with special occasions, like New Year's Eve, Christmas, the Fourth of July, birthdays, or other holidays. In addition, rolling parties are often designed to replicate the atmosphere of dance clubs, with loud music and special lighting. At the same time, participants also said it was common to find people high on Ecstasy at typical house parties and "keg parties." As a college student commented, "I think primarily your users are in, for sure, like, clubs, but I mean you see it around all the time where people are just—the random party and they're just, you know, 'rollin' [high on Ecstasy]."

In addition to house parties of various kinds, participants reported using Ecstasy in a range of other settings, including parks, during boating and other outdoor events, at concerts, while shopping in stores, and even just while out driving around. An 18-year-old woman in high school commented:

> I prefer it [Ecstasy] better at raves, but if I can't afford to go to a party one weekend, 'cause it costs maybe $25 to get in, we just go around town. Like, we go to [an all-night department store] and like play with the stereos, and buy glowsticks. You can go out on the weekend and run into people rolling everywhere you go.

All the participants believed that Ecstasy use was increasing among high school youth, who sometimes even use the drug before attending classes. As a 19-year-old woman said, "It's very popular in high schools. I rolled [used Ecstasy] at school before. In high school, every day it's like you play the game, 'guess what he's on?'" Most of the local dance clubs allow entrance to 18-, 19-, and 20-year-olds, although they are sometimes stamped on the arm indicating that they cannot purchase alcohol. As such, youth still in high school can attend some dance clubs.

As other researchers have noted (e.g., Hansen, Maycock & Lower 2001; Beck & Rosenbaum 1994), participants in this study most commonly used Ecstasy among a relatively small network of friends who work together to obtain the drug and who mentor each other during Ecstasy -taking occasions. Although Ecstasy is almost always used among friends, one participant preferred to take the drug at home, sometimes while being alone. "I prefer to roll at home, either by myself or with whoever. If you're really bored, you can turn on the cartoons, turn up the techno [music], and the cartoons can sometimes dance and match the beats of the techno," a 23 year-old man said. Using Ecstasy alone is rare, but apparently does happen.

Increases in the diversity of Ecstasy users and expansion in settings of use is revealed in the following case studies.

Case Study 1

"GG" is a 22-year-old woman with a bachelor's degree who is employed in the health field. She lives with her boyfriend and has used Ecstasy two times. She has never smoked cigarettes and drinks alcohol on the weekends (typically four to five beers on each occasion). GG smokes marijuana occasionally to "make her happy." She has never used LSD, but used psilocybin five to 10 times in college. She heard of a friend who had a seizure after using Ecstasy but otherwise was unaware of people who had experienced serious adverse consequences after using the drug.

Before taking Ecstasy for the first time, GG called her brother to ask him about it. He told her what to expect, to drink a lot of water, and that it was generally "okay." Before going out to a dance club, she took one tablet given to her by a boyfriend. She took another half tablet about half an hour later and in 20 minutes started to feel the effects. As she described it:

> It really made my heart race and feel all jittery, overwhelming, and I couldn't concentrate. I sat down with a friend for about 30 minutes to calm down, and I was scared. After that was over, it was a lot of fun though; I danced and was up quite a while. But to me it wasn't worth that awful feeling.

She decided to give Ecstasy one more try and took half a tablet two months later, but she never really felt the effects. She said: "I thought if I could ease in to it, it would be more fun, but I didn't want to have that overwhelming jittery effect. I don't think I'll ever use it again. Since I've been out of college, I've lost touch with it."

For GG, the intensity of the initial Ecstasy rush was overwhelming and, in her experience, not worth the trouble to continue using the drug. In addition, after graduating, she got a job and planned to get married. Given her changing life circumstances and her negative reactions to Ecstasy, she did not believe she would ever use it again.

Case Study 2

"CC" is an 18-year-old suburban high school student who "loves Ecstasy, marijuana, ketamine, and malt liquor." About a year ago, she overdosed on proprietary cold tablets and spent five days recovering in a hospital. She takes Ecstasy and other drugs in numerous places, including before going to school, at parks, stores, and house parties, but she prefers to use the drug at raves.

CC described Ecstasy use as increasing among classmates in her high school. "Besides marijuana, it's the most popular drug in our high school. The cheerleaders are all doing Ecstasy; they always ask me where they can get it, football players . . ." she said.

CC has used Ecstasy over 50 times and has had to increase her dosage to feel the effects. As she said, "My tolerance has increased, so most of the time I take three or four [Ecstasy tablets] at once. If I can't get that much, then I'll snort one and a half, chop 'em up and do 'em both at once. I've eaten up to eight at once."

As CC commented, she associated mental health problems with Ecstasy use. "Like mostly we do Ecstasy; we just open up, and it really hasn't really affected me any, but . . . I have emotional problems sometimes, 'cause I do it about once a week if I can," she said. At the same time, she has never sought professional help for any problem related to Ecstasy or other drug use.

CC is a young high school student who has substantial, extremely worrisome, experience using a wide range of psychoactive substances. In addition, CC and two other participants were hanging out with one of the other participants who was a current heroin injector. This group was currently trying to start a harm reduction organization to help educate young people about the dangers of club drug use at local raves and asked for our help. Despite this concern for harm reduction and her personal concerns about the effects of Ecstasy use, she continues to take Ecstasy and other drugs.

Case Study 3

The final case study is that of "ZZ," a 21-year-old man who began using alcohol and marijuana when he was eight. He has a history of psychological health problems and has been prescribed various antidepressants and thorazine in the past. He dropped out of high school but obtained his GED. Some years ago, ZZ sold crack cocaine on the streets, although he never used the drug. About a year before the interview, he was hospitalized for an LSD overdose. Four months before the interview, he was charged with aggravated possession of OxyContin after using it daily for a couple months and was placed on probation. He had also used Rohypnol, GHB, and methamphetamine, although not in the last year.

ZZ first tried Ecstasy about 2.5 years ago at a house party with 35 other people. "It was like you smoked a whole ounce of weed. It's a 'happy-go-lucky' drug," he said. Since then, he has used Ecstasy on over 100 occasions, often in dance club settings. Typically he uses three to four Ecstasy tablets per occasion, but he has taken as many as seven tablets in one session, "just to see what would happen. My buddy took eight, and that was overboard. He started bitin' people and went crazy; we had to lock him in a room for a little bit, " he said.

After hearing on the national news about people dying after using Ecstasy, he "slowed down" and will no longer mix Ecstasy with other drugs. He tries not to drink alcohol while using Ecstasy because when he did, he had difficulty urinating. He also described getting cramps in his legs, being overheated, and always being thirsty when using Ecstasy.

Overall, ZZ hears contradictory messages about the risks associated with Ecstasy use, and he believes that use of the drug has not affected him. As he said:

> I've heard some stuff sayin' where if you actually get the real Ecstasy it could be, you know, a good therapeutical drug, and then I've heard other stuff where they're sayin' it's all homemade stuff now, and it can kill ya and everything else. Like I seen this one special where it showed this girl's brain, but they also said she did Ecstasy for a year and a half, and she ain't got a memory, blah blah blah. But they weren't mentionin' her high coke use too, 'cause she was doin' coke every day, and they showed like a picture of her brain where it was missin' pieces; that was on MTV. I haven't had no memory loss from it, or nothin' dramatic, I don't think.

ZZ had used Ecstasy just three days before the interview. His girlfriend had thrown him out of the house because he had begun drinking beer and taking Xanax again. He said that this combination of drugs often makes him violent. After being thrown out, he went to a friend's house and bought three Ecstasy tablets for $60. He took two tablets at once and blacked out for a couple hours. When he regained consciousness, he began walking the streets and took the third Ecstasy tablet. He does not remember much of what happened afterward, but he said the wounds on his face, arms, and legs indicated he had fallen or gotten into a fight.

As this case study indicates, Ecstasy use has moved beyond the typical high school and college student population in central Ohio to a range of people who are involved with an assortment of other drugs. Along with the increase in number and diversity of Ecstasy users, as well as expansion in settings of use, there is a need to better understand how different kinds of polydrug users perceive risks associated with Ecstasy use so as to inform appropriate interventions.

Perceptions of Risk and Barriers to Prevention

When asked about perceived risks associated with Ecstasy use, most participants said they did not believe there were any, or they offered comments like the following: "I don't worry about Ecstasy ; the only thing I really worry about is smoking [tobacco and marijuana]. I'm afraid my lungs are about gone." Among those who did believe there were risks associated with Ecstasy use, one of the most common fears was of ingesting something potentially deadly, like paramethoxyamphetamine (PMA)—which seriously increases blood pressure and may cause death (e.g., Beck & Morgan 1986). As one woman stated, "The only thing that I would worry about is maybe getting some bad Eecstasy, like with PMA in it." To minimize these risks, people most often try to obtain the drug from trusted friends or from people who have tried the particular brand previously. "We get them [Ecstasy tablets] from our friend, and the guy he gets 'em from swears that they are good. I guess I just trusted them. They, you know, they said it was safe, and I trusted them," said one man. Two other participants said they look on various web sites, including DanceSafe (www.DanceSafe.org) to verify the contents of the particular brand they have purchased. A 23-year-old man explained: "Every week they come up with different things, with different stamps [on the tablets], and you can look them up on a website, and the website states if it is junk or if it is good."

The second most common concern, among those few participants who described any, was depression—either current or future. One 20-year-old woman explained: "Yeah, I'm afraid I'm gonna get like, really depressed. Like maybe like five years down the road, I'll have depression, I don't know." When we commented that this perceived risk is not stopping her from using Ecstasy, she responded, "No, it feels too good." Another person responded that if she is depressed, she will not use Ecstasy : "Like sometimes being depressed will stop me from doing Ecstasy, 'cause sometimes I'll be like really depressed, and I won't want to do it."

When asked about risks associated with Ecstasy use, three other participants began talking about how they try to avoid any potential risks by taking small doses and using Ecstasy infrequently. As one woman commented, "When if ever I, you know, do Ecstasy or K, or whatever, it's pretty spread out. 'Cause maybe I like subconsciously think, well, you know, kinda worry about what it may do to me." A college student commented: "Any drug is bad if you do an excess, and these kids, I met one kid said he took six of 'em at once. You're going to be frying brain cells; your serotonin goes right up and other stuff goes on, but that's when the brain starts frying."

Only one participant specifically mentioned taking seriously the potential negative effects of Ecstasy use on memory or cognition. The 31-year-old man commented: "Maybe it's gonna have a [neurological] effect on me when I'm much older and the rest of me starts degenerating. But by that point, you know, where our technology's gonna be, I don't think it's gonna matter."

Despite the occasional stories in the media about the negative consequences of Ecstasy use, including overdoses and deaths, most participants perceived Ecstasy as a relatively harmless drug. Hearing an occasional story on the news about an overdose death related to Ecstasy use may make some people more cautious, particularly about using other drugs while using Ecstasy, but such stories do not appear to dissuade people from use. Based on the very few negative consequences they hear from friends who have used Ecstasy, people rationalize, "That won't happen to me" or "Well, everybody else is doin' Ecstasy , and they're not havin' any problems." As other researchers in Australia (Hansen, Maycock & Lower 2001) and Scotland (Shewan, Dalgarno & Reith 2000) have suggested, Ecstasy users may minimize the potential short and long-term risks associated with Ecstasy use because of the relative absence of people they know personally who have experienced obvious adverse consequences as a result of using the drug.

CONCLUSION

These findings are preliminary and are based on qualitative data from a small convenience sample of young people in college (or working) and several high school students. In addition, all of the participants were White and heterosexual. Understanding the use of Ecstasy among the gay population in Ohio, as well as tracking its movement into other ethnic groups, are important future research questions. Despite the limitations of this study, several preliminary findings have been presented.

First, the expansion in the diversity of Ecstasy users as well as the different settings in which Ecstasy is used

may be the result of several interrelated phenomena. One influence may be the high cost of going to a dance club or rave. A 22-year-old woman said, "When I first came to college, I had a lot of money from, like, my parents, so last summer . . . I was doing X like a couple times a week at clubs for a while, but I realized, 'Oh my gosh, I just spent hundreds of dollars, that's bad.'" Hence, the high cost of using Ecstasy in dance clubs and raves may contribute to the use of the drug in other settings.

Second, since traditional rave events are decreasing in frequency in central Ohio, people who prefer to use Ecstasy in this context may be encouraged to use it in other settings. If this is indeed the case, the opportunity for public health interventions may be diminished as people go off to use Ecstasy in diverse, less public settings that are more difficult for health advocates to access.

Another obvious influence is the increase in the availability of the drug. Increases in the availability and use of Ecstasy over the past several years have been reported in all major Ohio urban areas as well as in the nation as a whole (Agar & Reisinger 2003; Wright State University 2001; Community Epidemiology Work Group 2000). Very limited data are available on the local marketing of Ecstasy. However, it appears that as Ecstasy becomes integrated into established networks that sell marijuana, for example, the potential for reaching new users will be increased; indeed, this may have already happened to some extent.

One of the most important influences on the increases in the diversity of users and expanded settings of use may be "folk" perceptions about the acceptability of the drug. As more people use Ecstasy without obvious adverse consequences, these experiences are observed by others who may in turn be more willing to try Ecstasy and then continue to use it. Despite continuing warnings, Ecstasy is, by and large, perceived by people who use it as an "okay" drug. Some participants emphasized the positive benefits associated with Ecstasy use in comparison with potential negative consequences, many of which are not overtly apparent and are perceived as unlikely (Baggott 2002). Overall, the benefits associated with Ecstasy use are perceived as enhancing recreational pleasure and with taking "time outs" from normal daily routines (Vollenweider et al. 2002; Beck & Rosenbaum 1994). Similar to the findings of McElrath and McEvoy (2001) among Ecstasy users in Northern Ireland, most participants in this study distanced themselves from heroin or crack cocaine users, because the effects of Ecstasy use are not generally associated with the stigma of drug addiction or other obvious, extreme negative consequences. The exceptions here were the three heroin injectors in the sample and the three high-school participants who hung out with one of them. As demonstrated by the case studies, expansion in the settings of Ecstasy use reflects an increasing diversity in the social background and drug use experience of people who use Ecstasy.

The use of Ecstasy carries inherent risks because of the potential acute and long-term adverse consequences—about which there is some disagreement in the scientific community (Cole & Sumnall 2003; Cole, Sumnall & Wagstaff 2002; Baggott & Mendelson 2001; Parrott 2001; Grob 2000). Although many of these participants recognized risks associated with Ecstasy use, like the potential for overdose or for buying something deadly like PMA, the more common potential risks associated with Ecstasy use as identified by scientific research were apparently outweighed by the positive effects of the drug as based on peoples' experiences. Convincing young people that there are significant health risks associated with Ecstasy use is a major challenge to future intervention/prevention efforts.

What will encourage young people to listen to prevention or other intervention messages? These participants were much more open to harm reduction approaches, rather than what they perceived as "war on drugs" messages. For example, one participant spoke about drug abuse prevention in the following terms:

> What I think the biggest problem is in, is the education just isn't there. These kids are coming up, "Say no to drugs, say no to drugs." Everybody they know is doing Ecstasy. Some of the straight A students are doin' 'em. So, okay, "The say no to drugs people are full of it. These people are lying to us about it. You're not tellin' us the truth." So, they don't listen. I don't know how anybody that questions authority is gonna figure out how these people can be successful if they're taking it [Ecstasy] moderately. Yeah, if they're overdoing it [Ecstasy] then, you know, that's a different story.

Moderate use of Ecstasy is something many young people look to their friends and harm-reduction groups to define. As a 21-year-old woman said, "When you think about drugs from a government standpoint, it's different. I wouldn't listen to it as much as if a person like a social worker was tellin' me about it face-to-face, kind-of a 'cool' person."

Many of the participants were also quick to evaluate the potential risks associated with Ecstasy use in comparison with other drugs, both legal and illegal. As one man commented, "From what we know, MDMA's so much better than alcohol; alcohol destroys brain cells, too. And it [Ecstasy] doesn't have all the other societal problems with it. If you have to ban one, let's ban alcohol. Just like, ban tobacco—even better; that stuff is the worst." Here, apparently contradictory messages concerning legal versus illegal drugs take on special value in the view of some Ecstasy users in this study. For example, in talking about how he would educate his future children, one man said:

> Ecstasy's not like any of the other drugs. You ask me, I'd rather have my kids doin' X [Ecstasy] understanding the limitations of it, and not overdoing it. Anything in excess is gonna kill ya. I'd rather have 'em doing that than drinking, drinking and driving or, you know, all the other crap kids are out there doing.

Participants wanted general information on the risks associated with Ecstasy use, so they could make their own informed decisions about using it in the future. As one man stated, "I'm sure you read the *Time* magazine article [Cloud 2000]. That seemed to be an honest approach to MDMA, and that made me believe it more. I had more respect for that guy in that article than anything I've ever seen because it was a fair representation." Without understanding Ecstasy and other drug use from the perspective of active users, prevention and/or intervention approaches are unlikely to be successful.

This study has several implications for future research as well as intervention approaches. As other researchers (e.g., Parrott 2001; Morgan 2000) have noted, long-term prospective studies of Ecstasy users are needed to better identify the prevalence of acute adverse events, chronic mental health problems, and neurotoxicity as well as the perceived need for professional help.

Unfortunately, college-age youth are a significant market for Ecstasy and other illegal drugs. Each incoming freshman class—as well as young people not in college—represents potential new Ecstasy users. Because Ecstasy use commonly occurs among relatively small groups of friends, prevention and other risk-reduction interventions might take the form of peer leader or other social network approaches (see also Falck et al. 2004; Hansen, Maycock & Lower 2000). As Baggott (2002) suggests, intervention approaches might be more successful if they focused on the more common acute effects during Ecstasy use, effects lasting several days, and longer-term problems, rather than on rare serious adverse consequences or potential neurotoxicity. Finally, interventions will have to be oriented toward a multitude of polysubstance abuse patterns. Currently, there is little sense of drug use patterns *between* occasions of Ecstasy use or of the concurrent use of other drugs during Ecstasy-taking occasions among different groups (Cole & Sumnall 2003; Hansen, Maycock & Lower 2000).

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