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Poly-Drug Use among Ecstasy Users: Separate, Synergistic, and Indiscriminate Patterns

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Abstract

The main objective of this paper is to explore poly-drug use among young adult ecstasy users. This phenomenon of using multiple substances within a specific time period is multi-faceted. In this paper, we focus on the various patterns of poly-drug use and the reasons for combining multiple drugs among ecstasy users. Using a mixed-methods design, we conducted interviews with young adults who used ecstasy and other licit and illicit drugs in the past 90 days. Based on the qualitative analyses, we define three distinct types of poly-drug experiences: separate, synergistic, and indiscriminate use. While separate and synergistic poly-drug use tended to be intentional, indiscriminate poly-drug use often was unintentional. These findings show the importance of recognizing poly-drug use as a common phenomenon. The findings presented here suggest areas for further research aimed at identifying risk and protective behaviors and risk reduction strategies.

Ecstasy, also known as MDMA (3, 4-methylenedyoxymethamphetamine), is a popular "designer" drug, especially among young adults (Johnston, O'Malley, Bachman, & Schuleberg, 2005; National Institute on Drug Abuse [NIDA], 2005; Substance Abuse and Mental Health Services Administration [SAMHSA], 2005). According to the *DSM IV-TR,* ecstasy is classified as a hallucinogen (American Psychiatric Association [APA], 2000), but it also produces alerting effects similar to those of stimulants such as (meth)amphetamine. Its popularity partly is driven by effects such as an increased ability to produce a strong sense of comfort and empathy to others (Cohen, 1998; Elk, 1996; Hastings, 1994; Millman & Beeder, 1994; Schwartz & Miller, 1997). Initial research on ecstasy use tended to focus on its use at raves and clubs, thereby resulting in its label as a club drug (Allaste & Lagerspetz, 2002; Bellis, Hughes, & Lowey, 2002; Diemel & Blanken, 1999; Gross, Barrett, Shestowsky, & Pihl, 2002; Hammersley, Ditton, Smith, & Short, 1999; Hitzler, 2002; Hunt, Evans, Wu, & Reyes, 2005; Measham, Parker, & Aldridge, 1998; Perdersen & Skrondal, 1999; Riley, James, Gregory, Dingle, Cadger, 2001; Ter Bogt, Engels, Hibbel, Van Wel, & Verhagen, 2002). However, ecstasy use no longer primarily is limited to raves and clubs, but instead is used in a wide variety of settings (see, for example, Boeri, Sterk, & Elifson, 2004; Galaif & Newcomb, 1999; Soar, Turner, & Parrott, 2006).

In this paper we focus on the various forms of poly-drug use and the reasons for combining multiple drugs among ecstasy users. We note that poly-drug use is not unique to ecstasy users (Feilgelman, Gorman, & Lee, 1998; Grant & Harford, 1990; Martins, Mazzotti, &

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Chilcoat, 2005; SAMHSA, 2005). Findings from studies among ecstasy users reveal that poly-drug use is widespread; in other words, few individuals use only ecstasy (Copeland, Dillon, & Gascoigne, 2006; Hansen, Maycock, & Lower, 2001; Martins et al., 2005; Schensul, Convey, & Burkholder, 2005; Sneed, Morisky, Rotheram-Borus, Lee, & Ebin, 2004; Soar et al., 2006; Sterk, Elifson, & Theall, 2000). Research also shows that it is more common among drug users to add ecstasy to an already existing repertoire as opposed to adding other drugs to a primary ecstasy use pattern (Forsyth, 1996; Hammersley et al., 1999; Reid, Elifson, & Sterk, 2007; Schifano, Di Furia, Forza, Mimicuci, & Bricolo, 1998; Solowij, Hall, & Lee, 1992; Sterk et al., 2000). Additional research suggests that ecstasy use can serve as a strategy to enhance a high from other drugs (e.g., alcohol, cocaine or heroin) or to come down from a high on other drugs (e.g., methamphetamine, cocaine or heroin). Again other research reveals the use of other drugs to enhance the ecstasy high or to soften coming down off ecstasy (Brecht & von Mayrhauser, 2002; Gahlinger, 2004; Hammersley et al., 1999; McElrath & McEvoy, 2001; Riley et al., 2001; Schifano et al., 2003; Sneed et al., 2004; Sterk et al., 2000; Uys & Niesink, 2005; Wu, Holzer, Breitkopf, Grady, & Berenson, 2006). Poly-drug use appears to be more complex than the typical definition of multiple drug use by a particular user within a certain time period. Nevertheless, researchers often limit themselves to listing all drugs used within a given time period without elaborating on the exact nature of combined or poly-drug use (Boys, Lenton, & Norcross, 1997; Forsyth, 1996; Grob, 2000; Hansen et al., 2001; Pedersen & Skrondal, 1999; Reid et al., 2007; Schifano et al., 1998; Solowij et al., 1992).

Frequently, in ecstasy studies as well as those on other drugs, poly-drug use is defined as having consumed more than one drug during a specific time period. The selected time period may range from a person's lifetime (Hammersley et al. 1999; Montgomery, Fisk, Newcombe, & Murphy, 2005; Scholey et al., 2004; Sneed et al., 2004; Wu, Holzer, Breitkopf, Grady, & Berenson, 2006) to the past six months, 90 or 30 days, week, or one or two days prior to data collection (Carlson, Wang, Falck, & Siegal, 2005; Copeland et al., 2006; Degenhardt, 2005; Hansen et al., 2001; Hunt et al., 2005; Isralowitz & Rawson, 2006; Montgomery et al., 2005; Sterk et al., 2000). Such definitions of poly-drug use often ignore relevant dimensions such as the frequency of use and the differences between combined or sequential use. Users may report having taken multiple drugs while referring to the actual highs on each drug as independent events. Others may refer to connected events in which the use of multiple drugs is part of the same experience, as a time-bound event of "getting high" (Schensul et al., 2005; Sterk et al., 2000). The latter may include simultaneous use (e.g., a speedball consisting of heroin and cocaine) as well as sequential use (e.g., alcohol or marijuana use that follows smoking crack cocaine). A central feature of the time-bound event is the user's intent to experience the synergistic effects of the drugs used. Despite the prevalence of the use of more than one drug, the drug use/addiction field has not agreed on a shared conceptualization of poly-drug use.

In addition to the conceptual challenges associated with defining poly-drug use, certain methodological questions arise. Poly-drug use that involves independent experiences within a certain time period is easier to measure in close-ended questions than poly-drug use that involves synergistic experiences. Moreover, quantitative measures have limited capability to capture the complexities involved with poly-drug use. For instance, the details around the reasons for poly-drug use, including the meaning attached to such use, are missed in quantitative measures. A qualitative or mixed-design approach may be more suitable for inquiries into poly-drug use. We apply such an approach in our inquiry into poly-drug use among young adult ecstasy users with the goal to gain an understanding of their perspective. Based on the findings, we distinguish between separate, synergistic, and indiscriminate poly-drug use, including the use of licit and illicit drugs.

Methods

The findings presented in this paper are part of a larger study among young adult ecstasy users and HIV risk. For the purposes of this paper, we focus on 94 ecstasy users who participated in a survey and an in-depth qualitative interview between September 2002 and August 2006 in Atlanta, Georgia. To be eligible, the study participants had to have used ecstasy at least four times in the past 90 days (on separate occasions), not be in a drug treatment or other institutional setting, and not be intoxicated or otherwise cognitively impaired at the time of the interview. The use criterion for our study is more stringent than that frequently used in most previous studies (Allaste & Lagerspetz, 2002; Gross et al., 2002; Hammersley et al., 1999; Hitzler, 2002; Riley et al., 2001; Van de Wingaart et al., 1999) because we aimed to focus on participants with extensive experience in ecstasy use as well as experimental and other types of users.

Initial participant recruitment involved the community identification (CID) process, a mapping method to record epidemiological indicators of the prevalence of ecstasy use (e.g., from emergency rooms, law enforcement, and drug treatment), expert opinions (e.g., local political leaders and public health officials), and ethnographic information from local researchers (Tashima, Crain, O'Reilly, & Sterk-Elifson, 1996). As the CID process progressed, including its ethnographic mapping and targeted sampling (Sterk, 1999; Sterk-Elifson, 1996; Watters & Biernacki, 1989), the recruitment became more targeted. The use of the CID process also allowed us to become familiar with the social ecology of the ecstasy scene, including the different types of users, the various social settings of use, and the associated behaviors and interaction patterns. The CID process is especially effective when studying "hidden" populations of which the parameters are unknown.

The field team consisted of five women, three of whom were white, one African American and one Asian American, and five men, whose racial/ethnic background was African-American (n=2), white (n=2) and Latino. They all engaged in recruitment as well as interviewing. Using a short form, potential respondents were screened either in the setting where they were recruited such as at clubs, raves, near college dorms or off-campus student housing, and at public settings such as parks. Passive recruitment, involving the posting of flyers in local clubs and venues, colleges and universities, coffee shops, and on the street in targeted areas of the city with heavier concentrations of young adults, was also utilized. Potential respondents, who called the project phone line listed on the flyers, initially were screened over the phone using the same short form. Once a potential respondent was identified as eligible, the field team member first described the study and time required to participate. The two most common reasons for ineligibility were not having used ecstasy at least three times in the past 90 days or not being between 18 and 25 years.

Interviews were scheduled with interested individuals who passed the screening. The interviews took place at a mutually convenient location such as one of the project offices, the respondent's home, a local restaurant or coffee shop, community centers, or the interviewer's car. Additional information was provided on the nature of the study, the time required, and the informed consent and other confidentiality procedures. The consent form and procedures were approved by the Emory University and Georgia State University Institutional Review Boards. The respondents and the interviewers each retained a copy of the signed consent form.

The survey interview covered domains such as demographics, drug use history and patterns, drug treatment experiences, health history, criminal justice involvement, and issues around HIV testing and risk and protective behaviors. The average time needed to complete the survey was two hours (range from 1 to 3.5 hours). Respondents were reimbursed $25 for

their participation. The in-depth interviews were organized around an interview guide that listed topics derived from the literature and our own past research. Among these topics were initial and subsequent use, the impact of the social context, reasons for use, being high, craving and withdrawal. The topics were not addressed in any particular order and the respondent was allowed to guide the conversations. If a topic did not arise at all, the interviewer would probe. As is common in such qualitative interviews, not all topics were addressed in all interviews. New topics raised by a respondent were introduced in the ongoing data collection. The average length of the qualitative interview was 90 minutes (range from 1 to 2.5 hours). The study respondents were reimbursed $15 for participating in the open-ended interview.

The quantitative data analysis was limited to descriptive statistics. The qualitative data analysis was guided by a modified grounded theory approach (Charmaz, 2001; Glaser & Strauss, 1967; Sterk et al., 2000; Strauss & Corbin, 1998). The in-depth interviews were transcribed and the text was imported into a qualitative data management program. The data were then coded for general themes related to ecstasy use. Following the analytical induction method, we analyzed the narratives so that emerging theory fit the details of the majority of cases. A preliminary examination of the data focused on initial and continued ecstasy use, including when, where, and with whom. Poly-drug use emerged as a broader and more relevant category after initial analysis of ten interviews. Subsequent analysis involved frequent discussions on the emerging categories of analysis and a comprehensive manual search for poly-drug use related statements in the interview transcripts. The data were then re-coded for sub-themes within each of the newly emerging categories related to poly-drug use. Each transcript was coded by at least two project staff. We identified themes as described by the experiences recounted by our respondents (Malterud, 2001). For example, the three main themes that organize our findings were arrived at by a process of first searching for patterns in frequency, setting, and types of poly-drug use, but it became clear that the meaning of poly-drug use was the most salient issue for the majority of respondents. The use of quantitative and qualitative data allowed for triangulation (Caudle, 1994; Creswell, 1994; Denzin, 1970; Hunt, Joe-Laidler, & Evans, 2002; Lempert & Monsa, 1994; Lincoln & Guba, 1985; Lofland, Snow, Anderson, & Lofland, 2006; Nichter, Quintero, Nichter, Mock, & Shakib, 2004; Rhineberger, Hartmann, & Van Valey, 2005; Van Maanen, 1988). We used the triangulation to validate our findings by looking for congruence between the quantitative and the qualitative data as well as to aggregate the findings.

Findings

Upon describing selected demographic characteristics of the study participants, we present a series of descriptive quantitative findings on their ecstasy use and their poly-drug use. Next we move into the qualitative findings as we distinguish between experiences of separate, synergistic, and indiscriminate poly-drug use from the perspective of the users.

Study Sample

As shown in Table 1, the majority of the study participants were male (71.3%), with slightly over one-half (53.3%) being between 18 and 20 years. The study participants' median age was 21 years (range 18-25). The majority reported having completed high school or the equivalent thereof (43.6%) or some college education (36.2%). Approximately one-half of the study respondents self-identified as white (51.1%), with another one-third (33.0%) self-identifying as African American. Approximately three-fourths (77.7%) of the study participants identified themselves as heterosexual. In terms of their current relationship status, approximately two-fifths (43.6%) were single.

Given that income information among young adults may not accurately reflect their socio-economic status, the study participants were asked to self-rank their status. Most viewed themselves as middle class or below (77.7%). Regarding their employment status, about one fourth (24.5%) were employed full-time with another one-fourth (23.4%) being employed part-time.

Current Ecstasy Use

The median number of years that that study participants had been using ecstasy was 2.6 years, with a range between less then one to eleven years. When asked about the number of days ecstasy was used in the past 90 days, the median number was 9 days, with a range between 4 and 88 days (data not shown). Approximately one-fourth (27.7%) of the study participants indicated that ecstasy was their drug of choice. In terms of the settings where they used ecstasy during the past 90 days, use at raves, parties or clubs was mentioned most frequently (85.1%), followed by use at a friend's place with a party going on (58.5%), and at home without a party going on (54.3%). Three-fourths (74.5%) of the study participants reported ever having taken a booster dose of ecstasy, with the most common reason being to make the high last longer (40.4%).

Poly-Drug Use

Table 2 shows the use of drugs other than ecstasy during the past 90 days. Alcohol use during the past 90 days was reported by all respondents and cigarette smoking/nicotine use by almost four-fifths (79.8%). In terms of illicit drugs, marijuana was the most commonly reported illegal drug used (85.1%) in addition to ecstasy. Substantial proportions of the study respondents reported using methamphetamine (40.4%), hallucinogens/ LSD (38.3%), and powder cocaine (34.0%). Unprescribed pills (30.9%) and unprescribed opiates (25.5%) also were commonly mentioned.

When asked about their favorite drug to use with ecstasy almost one in ten (9.6%) study participants preferred no other drug to use as part of the ecstasy high. In contrast, the majority indicated a preference for using another drug with ecstasy. Almost one-half of the study participants (45.7%) preferred using marijuana while taking ecstasy, followed by methamphetamine (10.6%), and alcohol (9.6%) next. In terms of their favorite other drugs to aid in coming down from an ecstasy high, only one-fifth (19.2%) of the study participants indicated not having such a drug. Almost one-half (48.9%) reported marijuana as their preferred drug used to come down from ecstasy. Others mentioned alcohol, tobacco, and methamphetamine (5.3% for each).

Qualitative Findings

Based on narratives from the study participants three forms of poly-drug use were identified. The thematic categories were developed through a process of coding the data, paying attention to meanings and experiences described by the respondents, and interpreting the emerging classifications in team discussions as we gained further insight into poly-drug use among ecstasy users. The three primary categories include: (1) separate poly-drug use, (2) synergistic poly-drug use, including enhancing a high and/or coming down from one, and (3) indiscriminate poly-drug use.

Separate Poly-Drug Use

This form of poly-drug use refers to the use of multiple drugs as separate and unrelated experiences. The study participants viewed their ecstasy use as independent from their other drug use. For each of the drugs they used, they purposefully sought the effect of each on separate occasions. A number of the study respondents described that they made decisions

on what drug to use based on its anticipated effect. For example, stimulants such as methamphetamine or cocaine were used when facing a demanding task that required long hours of work and alertness. Other drugs, such as marijuana, hallucinogens, and prescription drugs, were chosen because these allowed them to relax. Several study participants mentioned that their ecstasy use did not serve a functional purpose whereas that of other drugs might. A 19-year-old woman elaborated on her ecstasy and methamphetamine use:

> Ecstasy, I feel like I can do that maybe once a month or maybe even less than that because it's fun but it's an intense experience. And doing meth is really intense, but it's something you can do every day too, it's a very functional drug … You can't eat ecstasy and go to school and go to work … On meth, you can go to work and still act normal and you got more energy but you can still act more normal.

A number of study participants explained that daily use of ecstasy was uncommon and that its use tended to be concentrated to specific events, including the weekend. A 19-year-old male reflected on his use patterns, and he explained that he may use marijuana but not ecstasy during the week. His ecstasy use is limited to the weekend:

> I have my reality during the week. My school, my responsibilities … But on the weekends I have my alternate universe where I go to and I have fun … I go off, I leave all my worries behind on Friday and Saturday, sometimes into Sunday … But those are the days I use. And those are the days I get so bent that I can't function. Now during the week, yeah I might smoke some pot or something, calm down, but I don't get to the point where I can't function … I keep myself, for the majority, sober during the week.

Among other study participants, the drug they would use depended on the social environment, including the setting and the people present. Ecstasy use was acceptable while at a rave or party, but not in other settings or when with non-drug using friends. A 21-year-old female who used marijuana frequently and methamphetamine episodically explained that the environment influenced when she used ecstasy:

> I enjoy doing ecstasy but it's not something that I would want to do all the time. I couldn't imagine doing it everyday … I couldn't even imagine doing it every weekend. It's something I can do every once in awhile and enjoy it. Like, maybe once a month if that, you know, and I can enjoy doing it … I like to do it when I'm going most of the time to a rave. Or if I'm going to be around my friends who give light shows who also roll … I could be at a house at, like, at an ecstasy party and be just fine. I could sit on the couch with glow sticks and techno in the background and just everyone else around me rolling and be fine too.

Frequently, as a study participant became experienced with a variety of drugs, a drug of choice would emerge, though this drug was not necessarily the drug used most frequently. For a majority of the study participants, marijuana was the drug of choice, with ecstasy being preferred episodically at special occasions. For example, a 24-year-old female who started using ecstasy at a rave when she was 19 recalled using ecstasy every weekend. Over time, though, her ecstasy use has become less frequent, having replaced it with alcohol and marijuana use. She explained that ecstasy use is not conducive to adulthood responsibilities:

> You get to the point where you realize that, okay, I have to have my life, and I need to be responsible. A lot of times when you do ecstasy, you are so out of it … wasted the whole day … You realize you have to be responsible for your life. Whereas when you are taking ecstasy a lot, you get to the point where you just want to do it all the time. Was I addicted? Well, I wasn't doing it everyday all the time or taking it all night and the next day and the next day after that, but I definitely enjoyed it too much for a responsible person.

She began preferring alcohol and marijuana for those days that she could not "afford" an ecstasy high and coming down. She noted that her "hard drug use was carefully planned so that it would not interfere with her responsibilities. Later in the interview, however, she also hinted at the fact that she might be cutting down on her ecstasy use and shifting to alcohol and marijuana because that is what her current boyfriend uses.

Synergistic Experience Poly-Drug Use

The study participants provided numerous scenarios of poly-drug use that was part of the same event. The main reason for this use pattern was to achieve the synergistic effect of the combined drugs, including those while coming down of a high. Many study participants described how alcohol enhanced the ecstasy high and softened coming down off it. One user described this as follows:

> Alcohol really does boost it. Like an hour after you take your pill or something, and you're starting to come down a little bit, you take a shot of vodka—that really boosts your roll. You roll a lot harder for that few minutes. You roll a lot harder while you're drunk.

Another user shared the following about her motivation to drink alcohol when using ecstasy:

> [Alcohol] doesn't make [ecstasy] last longer, but it makes it more exciting. Well, like with alcohol, you can drink a lot of alcohol to where you can't get drunk. It's like if you drink and you get to the point where you get drunk, you're not going to get any drunker. You're just drinking. But with X it takes you to the next level … You won't be feeling all drunk and falling around out there. You'll be more high, more like, up, more aware of things. With alcohol, you get drunk and I'll just got to sleep for a little bit, but with X I don't go to sleep.

Similarly, combined ecstasy and nicotine use was a favorite combination. For some, ecstasy was perceived as enhancing the smoking experience. As one user said: "A cigarette has like ten times the power it would normally have, you know, the nicotine hitting you…more of an upper." One woman explained that ecstasy made her smoking smoother or as she puts it: "it makes you breathe easier."

For others, nicotine added to the ecstasy high. They expressed that the cigarettes added a buzz to the ecstasy high, specifically when they smoked menthol cigarettes. Several study respondents began smoking (again) once they started taking ecstasy. An 18-year-old male who also uses methamphetamine said:

> I had quit smoking for three months up until that night, and then I rolled [used ecstasy] and then I smoked 3 packs of cigarettes. Then that's when I started back smoking … smoking is like the greatest thing in the world when you're on X…Just 'cause of the way it makes you feel. And plus the, you know, cigarettes kinda give you a buzz anyways.

Marijuana was the most popular drug to use while on ecstasy and while coming down from ecstasy. One young female said that marijuana would ruin the peak of ecstasy but helps when coming down; therefore she used marijuana after the ecstasy peak. A 19-year old male talked about his reasons for combining ecstasy and marijuana.

> Rolls and weed go well together. It's just – mellows you out that one little bit more. … You can just chill and just enjoy the nice sensations of tingling in your body. Sit back, watch a movie, whatever … Weed just helps the comedown. It helps me go to sleep. I have a lot of trouble sleeping coming down from a pill. And if I'm awake for too long … I've just got a headache and I don't feel like dealing with anybody.

> I will not be able to sleep. I'll just lay there all night. And so I'll smoke [marijuana] and it'll help me fall asleep.

Another common pattern was taking ecstasy with a hallucinogen. One 19-year-old male described his experience of taking LSD and ecstasy as "amazing … it's called a candy flip when you mix the two together. It's a more intense mind kind of thing, and the visuals last longer and you come up and down from like rolling one minute and then you're tripping … it lasts longer, too."

One 21-year-old male explained that he had learned on the internet how to combine ecstasy with mushrooms in a particular sequential order to achieve a specific effect:

> I had read on the internet that if you take mushrooms and ecstasy together, if you do it in the right order—like if you take ecstasy first and establish a really great mood you know, and then you take the mushrooms—when you start tripping, you're not really rolling anymore, but you've got all the positive stuff from when you're rolling. So that means, like, as you start coming down from the 'shrooms, you're not worried about dying and stuff like that. Because whenever I came down from mushrooms I was always worried about dying for some reason. But when I did it with rolls, it was just the perfect, great trip. The best mushroom trip I ever had.

A combination that according to the respondents seemed to have gained popularity was ecstasy with methamphetamine. For some, like the following male user, it enhanced their interactions with others:

> Crystal meth. Incredible! All it does is just keeps you up and have energy so you want to move—you want to be more active. I mean, any kind of roll in general I'll still want to get up, walk around, talk to people. But it's hard a lot of times without any type of other amphetamine to get myself to dance while I'm rolling. Just 'cause, you know, you're just so—my body feels kind of heavy, but my mind's racing. So that combination is great.

A 20-year-old female said ecstasy and methamphetamine were her favorite drugs to use together. She explained the combined effects of "X and meth … the meth will make it last longer. The meth with make you feel better … It will increase how the ecstasy feels. It will give you a little bit more energy to go along with it. You get more zoned out."

Again others explained that methamphetamine can help overcome a negative ecstasy high. A 23-year-old female described this effect: "I know when you're having a bad roll you snort meth and it gets you out of it. When I was telling you when I did the Sand Dollars and was throwing up, I snorted a line of meth and it got me out of it. My stomach felt better…it just kills the roll out."

Synergetic effects between ecstasy and heroin were achieved by some users by crushing the ecstasy pill into powder and mixing it with heroin. Among others, it was more common to take an ecstasy pill and to follow it up with a heroin injection. A 21-year-old male injection drug user described this as follows:

> Well more than a couple of times, but only if we had a whole lot, because it [ecstasy] doesn't last long enough. It's like something that you'll do. You'll like eat what you're going to take to get high and then shoot one [heroin dose] before you feel the effects of the pills that you've just eaten. So, you know, you don't ever come down, and you get blown up immediately.

A number of participants explained their preference for mixing ecstasy and prescription pills, which often were illegally acquired. A young white male combined ecstasy and OxyContin®:

> Because the Oxy will leave, it'll like go away and you can't feel it and then it'll come back and hit you, like, 10 times harder, and then it—if you do it on a roll—you can just like sit there and like feel it, you can tell it's coming and then it comes and then you're – then it's game over… It's like a train hitting you.

It appears that those participants who were already on a prescription medication for depression did not like to combine these pills with ecstasy. More than one ecstasy user mentioned that their prescribed anti-depressants did not work for them when they used ecstasy. A 21-year-old white male who lived in the suburbs explained:

> I took ecstasy a couple of times while I was on anti-depressants and did not feel a thing. And all my friends were completely blown out of their minds, and they were, like, man, what's your problem? How come you're not feeling anything? And I got kind of pissed off 'cause I wasted my money, and I got to reading up on that and figured out what the problem was. And, you know, I came to a conclusion, well, ecstasy makes me happy, and I'm taking anti-depressants and I'm still depressed. And it makes me more depressed that I can't take a drug that I really like. So I stopped taking anti-depressants.

Several study participants referred to using various prescription pills in combination with marijuana at different times during the ecstasy high in order to moderate the effects or ease the come down. For example, one 19-year-old male explained the combination of amphetamines, ecstasy and marijuana as building blocks, each with a specific purpose at a specific time:

> I'll take two or three Adderall®, something like that. And for some reason when I've already got the amphetamines in my system it makes my roll kick in more quickly. And it'll also keep me awake. Most rolls these days are …smacky rolls … and unless I take something speedy along with it, I'll be doing that sitting on the stairs all night long … I'll smoke weed, definitely. Usually I'll bring, like, a little bit with me into the [rave] and smoke while I'm there, have some in the car, smoke on the way home. If I have enough money I'll eat another roll when I get home and just sit there and smoke and just hang out for the rest of the night talking with friends. I see 'em kind of as like building blocks almost. Like with the amphetamines, I see that as like a base layer. Alright, there's no real good feeling off of that. All that it's gonna do is keep me awake and give me energy. And then I add the ecstasy to that and it's, like, alright, so I've got the awake energy part already. Now it's time for the feel-good effect. And so I just see 'em as kind of working as separate things but together at the same time. Weed just helps the comedown. It helps me go to sleep.

There are many forms of synergistic experience poly-drug use among the study participants. Nevertheless, like with separate experience poly-drug users, the combination of drugs taken is planned to achieve a desired outcome.

Indiscriminate Poly-Drug Use

A number of the study participants described using multiple drugs either as independent experiences or to achieve some combined effect. Yet, in most cases what drugs they took tended to be driven by availability. Some referred to this type of poly-drug users as garbage heads. A 23-year-old male explained that "I would mix all sorts of different drugs and it

didn't matter if they were uppers or downers or narcotics because you just want to get messed up, and they don't counteract it or whatever. You just get totally messed up."

He, as did other study participants, would use ecstasy when it became available but would not go out of his way to find it. A 20 year-old female described how indiscriminate use caused her to end up in the emergency room:

> I've gone to the hospital for a night because of it [ecstasy] … I did X, I did speed first and then had some ecstasy and then to come down I did some heroin. But that was before I actually started coming down so I got really scattered all over the place. I started running around and eventually I just blacked out.

Another 22-year-old male on Spring Break described a poly-drug use experience based on whatever was easily accessible:

> I would do all kinds of drugs, you know, I'd be eating pills—first I'd eat a couple pills, and may do some coke, may eat a Xanax, drink some alcohol…and I'd eat another one, 'cause, you know, I had tons of them. I didn't—I wasn't worrying about it…I just ate ecstasy too, you know, to have a good time.

We identify the "garbage head" experiences as indiscriminate poly-drug use. One of the difficulties of identifying this type of use is that indiscriminate use is not necessarily a characteristic of a type of user. An indiscriminate experience does not signify that the user never cares what he or she is taking. At times, indiscriminate use may be followed by intentional separate use, such as when the user has to counter-balance the effects of using multiple drugs indiscriminately in order to function in a social role. Such was the case with one 19-year-old college student who had used crack, heroin, and cocaine as they became available, but then "I had a paper due the next day, so I went out and bought some crystal meth to do the paper."

Discussion

The objectives of the present analysis were to describe poly-drug use among young adult ecstasy users from their perspective. We limited the time period to the past 90 days. Others have explored lifetime or shorter term poly-drug use. For the purposes of this paper, however, we were primarily interested in gaining an understanding of poly-drug use within a time period for which the users would have be able to recollect their drug intake, while also being long enough to allow for the identification of patterns. Recent research on poly-drug use calls for refining the definition of poly-drug use in order to capture variations of experiences (Schensul et al., 2005), motivations for poly-drug use (Hansen et al., 2001), and environmental effects (Schifano et al., 2003). By exploring forms of poly-drug use and providing insights on the motivations and settings of poly-drug use from the perspective of active young adult ecstasy users, the findings presented here suggest areas for further research aimed at identifying risk and protective behaviors and strategies for risk reduction. Based on the qualitative analyses, we defined three distinct types of poly-drug experiences: the separate, synergistic, and indiscriminate consumption of multiple drugs. In terms of ways to disentangle intentional and unintentional poly-drug use, the findings suggest that separate and synergistic use tend to be intentional. Indiscriminate use, on the other hand, is unintentional or unplanned. In addition, the latter tends to be associated with more risk-taking and negative outcomes, including overdosing.

Ecstasy is different from many other drugs in that its users tend not to take it on a daily basis. In addition, it often tends not to be the drug of choice but one of a series of drugs taken by a user. Among the study participants in our sample, ecstasy was the drug of choice

for only one in four. Alcohol and nicotine were used both as part of separate and synergistic poly-drug use. The quantitative and qualitative data support this finding.

Marijuana was the other illicit drug most frequently used among the study participants. For some, their marijuana use was independent of their ecstasy use. More common, however, was the use of marijuana to enhance an ecstasy high, including coming down from a high. Through the quantitative data, we were able to identify this pattern. Yet, it was via the examination of qualitative data which helped us understand the complexities of this form of poly-drug use. We would not have been able to detect the separate and synergistic poly-drug use pattern from only the quantitative data. In addition, the qualitative data provided insight into the reasons for the synergistic use and the users' perceptions of its advantages. The same is true for the use of other illicit drugs. Also common among more than one-half of the ecstasy users in this sample was the use of prescription drugs. For some this involved medications that actually were prescribed to them. We especially note that even though ecstasy and SSRIs tend to have a similar impact on the brain, some users experienced that their prescription anti-depressants were preventing them from experiencing an ecstasy high. Unfortunately, they would give up their prescription medications in order to get high on ecstasy as opposed to taking the opposite choice of giving up ecstasy.

Independent of the licit or illicit status of the drugs, all were described as being used in the context of separate experiences as well as synergistic experiences. From a prevention and risk reduction perspective, it is important to be aware of this and to incorporate it into health education messages, formal and informal risk reduction programs, and social and health services, including drug treatment.

The study has a number of limitations including the small sample size. In addition, unique cultural or geographic characteristics of the sample may limit the generalizability of the findings to a wider population. On the other hand, researchers have demonstrated the external validity of purposive samples of ecstasy users compared to national population studies (Topp, Barker, & Degenhard, 2004). Furthermore, the study's cross-sectional design has its limitations. A longitudinal design would allow for an exploration over time and, in the case of a quantitative study, causal inferences. The data were based on self-reports, which may be affected by recall, social desirability, or additional types of bias. Nonetheless, researchers have found that drug use reports tend to be valid and reliable (Magura, Goldsmith, Casriel, Goldstein, & Lipton, 1987; Needle et al., 1995; Weatherby et al., 1994). The limitations of qualitative research methods also serve as its strengths. For example, the open-ended unstructured format of the interviews allowed the respondents to determine the flow of the interview and to introduce new topics. Interviewers using close-ended questions typically only receive answers only to questions included in a survey and that fit the answer categories. Furthermore, the use of a mixed design allows for data triangulation.

In conclusion, the sample of young adult ecstasy users in our study highlights the importance of recognizing that poly-drug use is a common phenomenon. Researchers often separate licit from illicit drugs, thereby resulting in findings that are incomplete. In addition, it is common to sample based on the use of a specific drug without considering the impact of poly-drug use. For example, a user may fit the eligibility criteria in terms of frequency of use for a research project on one drug but when asked about the primary drug of choice indicate another drug. Similarly, drug treatment programs often are designed around the treatment of one drug, thereby ignoring the prevalence of poly-drug use. Finally, we add to the literature a clearer distinction between the types of poly-drug experiences, as well as the motivations for the various types of use and the influence of the setting. We hope that the findings presented in this paper will result in future research that takes a mixed-methods

approach and that it will yield comprehensive risk reduction programs and drug treatment services that recognize the prevalence of poly-drug use, including its variations.

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TABLE 1

SAMPLE DEMOGRAPHICS (n=94)

	%
Gender	
Male	71.3
Female	28.7
Age	
18	19.1
19	21.3
20	14.9
21	11.7
22	6.4
23	7.4
24	9.6
25	9.6
Ethnic/Racial background	
African American	33.0
White	51.1
Other	15.9
Education	
Less than high school	20.2
High school diploma/GED	43.6
Some college	33.0
College degree	3.2
Sexual Orientation	
Heterosexual	77.7
Homosexual/Lesbian/Gay	11.7
Bisexual	10.6
Relationship Status	
Single (not in relationship)	43.6
Married or Living with partner	14.9
Steady relationship (not living together)	24.5
Casual relationship	17.1
Self-Ranked Socio-Economic Status	
Less than middle class	38.3
Middle class	39.4
Upper-middle class	19.1
Higher than upper-middle class	3.2
Employment Status	
Full-time (35 hours/week or more)	24.5
Part-time (less than 35 hours/week)	23.4
Unemployed	27.7

	%
In school or training only	12.8
Other (odd jobs, seasonal work, etc)	11.7

TABLE 2

FAVORITE DRUGS USED WITH ECSTASY (n=94)

Drugs used in past 90 days	**(%)**
Alcohol	100.0
Tobacco/nicotine	79.8
Hallucinogens	38.3
Marijuana	85.1
GHB	12.8
Ketamine	18.1
Amphetamine	18.1
Methamphetamine	40.4
Cocaine	34.0
Crack	8.5
Heroin	12.8
Unprescribed opiates	25.5
Other unprescribed pills	30.9
Favorite drug to use with ecstasy	
Alcohol	9.6
Tobacco	4.3
Marijuana	45.7
Methamphetamine	10.6
Hallucinogen	8.5
Heroin	4.3
Cocaine	2.1
GHB	1.1
Ketamine	1.1
Rohypnol	1.1
Other (nitrous, adderol)	2.1
None	9.6
Preferred drug to use to come down	
Alcohol	5.3
Tobacco	5.3
Marijuana	48.9
Methamphetamine	5.3
Heroin	4.3
Cocaine	2.1
Amphetamine	1.1
GHB	1.1
Rohypnol	1.1
Unprescribed opiates	3.2
Other unprescribed pills	3.2
None	19.2