

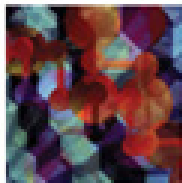
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Club Drugs: Reasons for and Consequences of Use[†]

Kathleen A. Parks, Ph.D.* & Cheryl L. Kennedy, M.S.W.**

Abstract—This preliminary descriptive study was designed to assess the reasons, primary contexts, and consequences (physical, psychological, lifestyle) of club drug use in a sample of young adults in a mid-size U.S. city. Fifty young adults (18 to 30 years old) reported on their use of club drugs (Ecstasy, GHB, ketamine, Rohypnol[®], methamphetamine, LSD) in face-to-face interviews that included quantitative and qualitative measures. Ecstasy was the most frequently used club drug followed by ketamine, LSD and methamphetamine. All of the participants reported using club drugs to “experiment” and most reported using these drugs to feel good and enhance social activities. Club drugs were frequently used at raves, in bars or clubs, and at home with friends. An average of 16 negative physical, psychological, and lifestyle consequences were reported for club drug use. Despite substantial negative consequences, participants perceived several positive consequences of regular recreational club drug use. These findings corroborate descriptions of club drug use in other countries (e.g., Australia, United Kingdom) and provide additional information on perceived positive consequences that users experience with club drug use. Further exploration of the reasons and positive consequences that are associated with use of each of the club drugs may provide important information on the growing trend in use of these drugs.

Keywords—club drugs, consequences, descriptive study, reasons for use, young adults

Findings from three large, ongoing survey and epidemiological projects in the United States indicate that club drug use has risen among adolescents and young adults at

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alarming rates since the early 1990s, despite decreases in other drug use (Monitoring the Future Project: Johnston, O'Malley & Bachman 2001; National Household Survey on Drug Abuse [NHSDA]: SAMHSA 2000; National Institute on Drug Abuse Community Epidemiology Work Group: CEWG 2000).

NIDA's Community Alert on Club Drugs in December of 1999 described six drugs frequently used in association with all night dance events or “raves”: MDMA (3,4 - methylenedioxymethamphetamine) or Ecstasy, GHB (gamma hydroxy-butyrate), ketamine, Rohypnol[®] (flunitrazepam), methamphetamine and LSD. These drugs

can be broadly categorized as having hallucinogenic (GHB, ketamine, LSD), stimulant (methamphetamine), or both hallucinogenic and stimulant (Ecstasy) properties. Several of these drugs (GHB, ketamine, and Rohypnol®) also have anesthetic properties (e.g., loss of consciousness, amnesia) at higher doses. An additional drug, dextromethorphan (DXM), causes hallucinations at higher doses and is becoming popular among college students and within the rave culture (Knowles 2000). The lure of the club drugs appears to be their enhancement of the rave experience, accessibility, relative affordability, social acceptability, and perceived benign nature.

CURRENT KNOWLEDGE ABOUT CLUB DRUGS

Research findings from the United Kingdom (U.K.) and Australia indicate that club drug use is inextricably linked to social contexts and patterns of polysubstance use (Parrott, Sisk & Turner 2000; Akram & Galt 1999; Topp et al. 1999; Boys, Lenton & Norcross 1997; Forsyth 1996). In studies of the rave scene, the majority of individuals who attend raves report using one or more drugs during each dance event (Akram & Galt 1999; Boys, Lenton & Norcross 1997; Lenton, Boys & Norcross 1997). The most popular drugs—Ecstasy, amphetamines, nitrites and LSD—have stimulant and hallucinogenic effects that are thought to enhance the rave experience by increasing sensory perceptions and the ability to dance all night. In studies of the dance scene in the U.K., the reported rates of club drug use ranged from 75% to 88% of dance attendees (Akram & Galt 1999; Forsyth 1996). These rates of drug use were exceeded or matched only by the use of alcohol (95.6%), cannabis (95.6%), and tobacco (86.2%).

Descriptions from Australia and the United States indicate that club drug users tend to be young, employed, educated (Topp et al. 1999; Boys, Lenton & Norcross 1997; Lenton, Boys & Norcross 1997), from middle to upper socioeconomic status backgrounds and of European descent (CEWG 2000). Rates of club drug use in the U.S. are higher among males than females (CEWG 2000; SAMHSA 2000). Length of club drug use ranges from three to five years in U.K. and Australian samples, with initial use often in the late teens to early 20s (Akram and Galt 1999; Topp et al. 1999; Lenton, Boys & Norcross 1997; Forsyth 1996).

Although initial emergence of these drugs has been associated predominantly with the rave culture in the U.S. and abroad, their use appears to be diffusing to other social contexts (McDowell 2001; CEWG 2000; Lenton, Boys & Norcross 1997). Lenton and colleagues (1997) found that amphetamines, LSD, and inhalants had been used in nonrave settings by 80% to 93% of their Australian sample, while ketamine had been used by 30% of individuals in nonrave settings. Ecstasy was the only club drug used by more individuals at raves (85.7%) than in other nonrave contexts

(66.7%). In the U.S., reports from Boston and New York City indicate that these drugs are being used in contexts and locations (e.g., shopping malls, schools) outside the rave/club venue (CEWG 2000). As these drugs have become more popular, information about the reasons for their use and negative consequences (e.g., negative affect, memory impairment) associated with their use have emerged.

REASONS FOR CLUB DRUG USE

Research on reasons for club drug use is limited. Most research has focused on reasons for use of alcohol and more conventional illicit substances (e.g., marijuana, cocaine) prior to the rise in popularity of club drugs. Several measures of reasons for substance use have been developed based on use of non-club drugs (Johnston & O'Malley 1986; Segal 1986).

Johnston and O'Malley (1986) describe reasons for late adolescent use of different substances including alcohol, marijuana, LSD, amphetamines, and other illicit drugs in the U.S. Their findings indicate that the most common reasons for using any of these drugs are experimentation, to enhance social and recreational activities, and to relax. Segal and colleagues (1986), in a study of adolescents and young adults in Alaska, found that common reasons for using drugs fell within the three broad categories of tension-reduction or coping, experiencing the drug effect, and relating to peers. The present authors are aware of only one study that has looked at motives for using illicit substances that specifies reasons by drug type and includes club drugs.

Boys, Marsden and Strang (2001) assessed reasons for using drugs, including the two club drugs Ecstasy and LSD, among young adult polydrug users in the U.K. Nearly half (48.6%) of their sample reported using Ecstasy and 25% of the sample reported using LSD ever in the past. A majority (68% to 91%) of Ecstasy users reported using the drug to maintain or increase physical activity, stay awake, and experience euphoria or intoxication. More than half of LSD users reported using the drug for the intoxicating and euphoric effects, to maintain or increase physical activity, and to enhance social interactions. When they assessed common reasons for using any illicit drug, Boys and colleagues (2001) found that most individuals (more than 95%) reported using drugs to relax, get intoxicated, or to maintain their activity level.

Consequences that an individual experiences as a result of using a specific drug are likely to influence the frequency and reasons for using that drug. Although research on positive expectancies for the use of alcohol (e.g., Goldman, Del Boca & Darkes 1999) and other illicit drugs such as marijuana and cocaine (Jaffe & Kilbey 1994; Schafer & Brown 1991) is available, little research has assessed the perceived positive consequences for the use of club drugs.

NEGATIVE CONSEQUENCES OF CLUB DRUG USE

Negative consequences of use have been documented for each of the six primary club drugs. These consequences include physical, psychological, and general lifestyle effects.

Physical Effects

Ecstasy has neurotoxic effects on serotonergic neurons that affect mood, sleep, and memory by depleting serotonin levels (McDowell 2001; Morgan 2000; Morgan 1998). Topp and colleagues (1999) found that an average of eight physical and four psychological side effects were experienced by Australian Ecstasy users. Ecstasy users have described deficits in concentration and memory, as well as slower mental processing resulting from their Ecstasy use (Morgan 1998). These deficits have been corroborated by experimental studies of Ecstasy users (Morgan 2000). Drug free, recreational Ecstasy users perform worse on cognitive tests than nonusing control groups (Gouzoulis-Mayfrank et al. 2000; Rodgers 2000; Parrott & Lasky 1998).

The hazards of using one particular club drug are difficult to assess because most individuals are polydrug users. A general measure of the harmful physical effects of club drug use is emergency room visits related to these drugs. Emergency room visits from 1994 to 1998 related to Ecstasy have quadrupled and visits related to GHB have increased twenty-fold across the U.S. (CEWG 2000).

Psychological Effects

Ecstasy users also report greater negative affect (anxiety, depression, aggression) and mood swings after Ecstasy use (Morgan 1998). In a review of the psychological effects of Ecstasy, Morgan (2000) reports on the increasing body of evidence that heavy Ecstasy use is associated with heightened depression, anxiety, impulsivity, and hostility. The negative effects of Ecstasy appear to persist for days (Parrott & Lasky 1998) and sometimes months (as long as six to 12) after abstinence (Morgan 2000). Verheyden and colleagues (2002) found that female Ecstasy users reported greater depression four days after Ecstasy use than on the day of use when compared to male Ecstasy users and a polydrug-using control group.

Abuse and Dependence

Information on the abuse potential of club drugs is limited. Cottler and colleagues (2001) found that among U.S. adolescent and young adult Ecstasy users, a substantial percentage met diagnostic criteria for dependence (43%) and abuse (34%). In an early U.S. study, Beck and Rosenbaum (1994) found that 19% of their sample had tried Ecstasy five to 10 years earlier, 32% had been using for more than five years and anticipated continuing use, and only 9% had actually stopped using. Regular users of Ecstasy report that bingeing is not effective in increasing the positive

effects, but rather only increases the negative side effects, providing some evidence that Ecstasy use produces tolerance (Knowles 2000; Beck & Rosenbaum 1994).

General Lifestyle Effects

The use of club drugs by young people who have not yet entered the work force makes it difficult to determine the extent of negative lifestyle consequences associated with club drug use. In a study of Australian Ecstasy users, Topp and colleagues (1999) found that 40% of the sample attributed general lifestyle problems (e.g., financial, relationship, work), in addition to physical and psychological problems, to their use of Ecstasy.

This study adds to current knowledge about club drug use among a young adult sample in the U.S. in several ways. It is one of a limited number of studies that assess young adults' reasons for using club drugs. In addition, it assesses positive as well as negative consequences of use for each of the individual club drugs. It further assesses the different contexts, in addition to the rave environment, in which club drugs are used.

THE CURRENT STUDY

The present study was designed to provide descriptive data from a sample of young adults in a mid-size U.S. city on reasons, primary contexts, and consequences (physical, psychological, and lifestyle) of club drug use. Club drug use in and around Buffalo, New York appears to have risen over the past decade. The narcotic division of the local sheriff's office has reported a substantial increase in club drug arrests and investigations during the late 1990s (Erie County Sheriff's Office 1999). In addition, anecdotal reports indicate that "rolling" or being high on Ecstasy, rather than drinking alcohol is becoming more common in local clubs on Saturday nights.

METHOD

Participants

Several methods were used to recruit 50 current club drug users for the study. Participants were recruited through newspaper advertisements, flyers distributed on a bar "strip" (i.e., a street lined with bars and clubs), and in the student union of two large university campuses located in Buffalo, New York. Newspaper advertisements and flyers asked individuals "to call the Research Institute to participate in a study about club drug use." Individuals were eligible to participate in the study if they were between the ages of 18 and 30 years and reported using club drugs (i.e., Ecstasy, GHB, ketamine, Rohypnol[®], LSD, methamphetamine or dextromethorphan) six or more times during the past six months.

A total of 152 individuals called the project; 73% had learned of the study through newspaper advertisement,

19.7% through a flyer and 7.2% by word of mouth. Of those individuals who called the project, four (2.6%) were not interested in participating after hearing a description of the study and 79 (52.0%) were not eligible to participate because they were older than 30 years ($n = 22$) or had not used club drugs with sufficient frequency ($n = 57$). Of those individuals who were eligible to participate, 68.5% ($n = 50$) completed the study.

The final sample was comprised of nearly equal numbers of males (52%) and females (48%). They were predominantly European-American (84%), with 8% African-American and 8% from other ethnic groups. The average age of participants was 21.3 years ($SD = 3.1$). A majority of the participants had at least some college education (70%). Forty percent of the participants were employed full-time, 38% were students, and only 4% were currently unemployed. Most of the participants had never been married (84%) and did not have any children (86%). The median annual household income was between \$15,000 and \$25,000.

Procedure

Each participant attended a 60-minute, individual interview at the Research Institute on Addictions. After providing informed consent, participants were interviewed by trained interviewers about their sociodemographic characteristics, lifetime substance use (i.e., age of first use, frequency of use), past year substance use (alcohol and illicit drugs, including the seven club drugs), and positive and negative consequences associated with the use of club drugs. Qualitative, open-ended questions were used to assess participants' subjective experiences with club drugs and the social and environmental contexts in which they used club drugs. All interviews were audiotaped and responses to open-ended questions were transcribed to facilitate qualitative analysis. Each participant was paid \$30.

Measures

Personal history of substance use. Participants were asked general questions about their substance use (alcohol and illicit drugs other than club drugs). These questions included: whether they had ever used a given drug, age of first use, use in the past 12 months and past 30 days (yes or no) and frequency of use (number of times) over the past 30 days.

Patterns of current club drug use. Questions about current club drug use were patterned after the alcohol and tobacco questions in the Health and Daily Living Form (Moos et al. 1990). These included whether the participant had ever used a specific club drug (yes/no), whether they had used this drug over the past 12 months and past 30 days (yes/no), number of years they had used the drug, and the frequency of using each drug on a five-point scale (1 indicating "4-7 times each week," to 5, "less than once per month"). In addition, participants were asked about the level of impairment (1, "not at all high," to 4, "very high") they

experienced when using each of the club drugs and whether they used multiple substances at the same time.

Context and location of club drug use. This measure was developed for the current study based on the literature available on club drug use. It assessed the extent to which each club drug was being used in other contexts in addition to raves. Participants were asked to indicate all of the social and environmental contexts (e.g., rave, bar, party, alone, with others) in which they used club drugs.

Reasons for using club drugs. A comprehensive 21-item measure used by Johnston and O'Malley (1986) in the Monitoring the Future project was adapted for use in the current study. This measure originally asked participants to indicate which of 21 reasons had ever been true for their use of a given drug (e.g., "to relax or relieve tension," "to stay awake"). This measure was modified to ask participants to indicate which reasons were true (yes/no) for their use of club drugs. Johnston and O'Malley (1986) found that the most common reasons for using a drug were experimentation, social/recreational, and relaxation. Internal consistency for this measure was good (Cronbach's $\alpha = .83$) for the current study.

Consequences of club drug use. Several studies have developed checklists of physical (e.g., muscular aches, heart palpitations) and psychological (e.g., irritability, confusion) symptoms (Drake et al. 1992) as well as general lifestyle consequences (e.g., financial, work related; see Topp et al. 1999) frequently associated with drug use. These checklists have been successfully used in studies of club drug use in Australia (Topp et al. 1999). A similar list was used to assess negative physical, psychological, and lifestyle consequences of club drug use in the current study. Individuals were asked to indicate how frequently they had experienced each negative consequence, on a five-point scale from 0 (never) to 5 (always), as a result of using club drugs. Internal consistency for the physical, psychological, and lifestyle consequences was good (Cronbach's $\alpha = .83, .79, \text{ and } .81$, respectively) for the current study. Several of the club drugs have been associated with drug-facilitated rapes (e.g., Rohypnol®, ketamine and GHB; Anglin, Spears & Hutson 1997; Calhoun et al. 1996). Items relevant to aggression (e.g., date rape, fights) associated with these drugs were added to the original measure. Internal consistency for the five aggression items was .49 (Cronbach's α). Qualitative, open-ended questions were used to gain information about the positive consequences of club drug use (e.g., "Please list positive or 'good' experiences you usually have when taking Ecstasy, for example better communication"). Participants were asked to rate how often they had experienced each positive consequence on the same five-point scale used for rating negative consequences (0 = never to 5 = always).

Substance abuse and dependence. The Drug Abuse Screening Test (DAST; Skinner 1982) was used to assess the extent of abuse and dependence associated with each of the club drugs. The DAST is a 28-item measure that

TABLE 1
Percentage of Participants Using Each Type of Drug Over the Past Year

Drug	Male (N=27)	Female (N=23)	Full Sample (N=50)
Club drugs			
Ecstasy	96.3	100.0	98.0
GHB	25.9	21.7	24.0
Ketamine	70.4	73.9	72.0
Rohypnol®	3.7	8.7	6.0
Methamphetamine	48.1	69.6	58.0
LSD	63.0	73.9	68.0
Dextromethorphan	18.5	21.7	20.0
Other drugs			
Alcohol	100.0	95.7	98.0
Amphetamine	51.9	65.2	58.0
Barbiturates	25.9	26.1	26.0
Cocaine	74.1	78.3	76.0
Hallucinogens	66.7	56.5	62.0
Inhalants	44.4	30.4	38.0
Marijuana	96.3	95.7	96.0
Opiates	51.9	56.5	54.0
Ritalin	18.5	30.4	24.0
Tobacco	66.7	69.6	68.0

assesses problems related to drug use. It has good internal consistency ($\alpha = .92$; Skinner 1982) and diagnostic validity (Gavin, Ross & Skinner 1989) with clinical drug abusing samples. A score of five to six is recommended as the optimal threshold score for indicating drug abuse or dependence (Gavin, Ross & Skinner 1989). Internal consistency for the DAST was acceptable (Cronbach's $\alpha = .67$) for the current study.

Data Analyses

Descriptive statistics were used to assess the frequency, contexts, and location of club drug use for the present study. ANOVA and chi-square tests were used to assess gender differences in club drug use. Qualitative, open-ended questions about the contexts and positive consequences of club drug use were coded and grouped based on general thematic content.

RESULTS

Drug Use

The percentage of individuals who reported use of each of the club drugs and other drugs are presented in Table 1. There were no significant differences in drug use by gender. Nearly all of the participants had used Ecstasy during the past year and a majority had used ketamine, LSD and methamphetamine. Use of GHB, dextromethorphan (Robitussin), and Rohypnol® was substantially lower. Nearly all of the participants reported the use of alcohol and marijuana over the past year, while a majority reported the use of amphetamine, cocaine, hallucinogens, opiates,

and tobacco products. The average number of club drugs used over the past year was 4.1 (SD = 1.6) and the average number of non-club drugs used over the past year was 4.4 (SD = 1.5). The majority (75%) of participants reported using club drugs once or twice each month or less. The average score on the DAST was 10.2 (SD = 4.5), suggesting that the sample met the cut-off used to indicate abuse or dependence.

The majority of participants (72%) reported Ecstasy as the first club drug they had ever used. The average age of first Ecstasy use was 18 years (SD = 2.7). The average age of first use for both alcohol and tobacco was 14 years (SD = 2.2 and 2.1, respectively), and for marijuana 14.6 years (SD = 3.1). Among the other drugs used over the past year, average age of first use ranged from 16.6 years (SD = 2.5) for Ritalin to 19.2 years (SD = 3.9) for barbiturates. The average duration of Ecstasy use was 2.9 years (SD = 2.3). Average duration and age of first drug use did not differ by gender.

Context of Club Drug Use

The percentages of participants who reported using club drugs in each of the different contexts are presented in Table 2. This sample reported using Ecstasy most often at raves, bars, or at home with others. Ketamine was most often used at raves or at home with others. Use of LSD occurred most often at home with others.

Reasons for Club Drug Use

All of the participants indicated that they used club drugs to "experiment" and nearly all indicated that they

TABLE 2
Percentage of Participants Who Reported Using Club Drugs in a Given Context

Drug	Context				
	Rave	Bar/ Club	Party	Home with Others	Home Alone
Ecstasy	78	60	54	74	4
Ecstasy mix	44	32	26	30	2
GHB	18	12	8	8	2
Ketamine	52	38	42	52	16
Rohypnol®	0	2	2	2	0
Methamphetamine	40	26	26	32	6
LSD	38	28	34	56	12
Dextromethorphan	10	2	6	8	2

used these drugs to feel good or high (98%) and to have a good time with friends (90%). The majority (70% to 80%) indicated using club drugs for their stimulant properties (e.g., to increase energy, to stay awake), to enhance the effect of another drug(s), to seek insight, or to relax and relieve tension. Less than half (48%) of the participants indicated using these drugs to get away from their problems. Less than 30% reported using club drugs because they were "hooked," to get through the day, or because of anger or frustration.

Positive Consequences of Club Drug Use

Table 3 provides a summary of the positive consequences, by type of club drug, that were reported by 10% or more of individuals who had used the drug over the past year. Only three individuals reported using Rohypnol® over the past year. Among those three individuals only one positive consequence was reported by one user. Less than 10% of dextromethorphan users ($n = 13$) reported any positive consequences associated with this drug. Therefore, Table 3 only includes positive consequences reported for use of Ecstasy, GHB, ketamine, methamphetamine (meth), and LSD. Feeling good (e.g., euphoria, increased sensitivity) and social benefits (e.g., improved social skills, decreased inhibitions) were reported as positive consequences for all five of these drugs. Increased energy was reported as a positive consequence for Ecstasy, methamphetamine and LSD. Stress relief and escape were reported as positive consequences for Ecstasy and ketamine use. Gaining insight and greater open-mindedness was reported for LSD use.

Negative Consequences of Club Drug Use

Participants endorsed an average of nine of 21 possible physical, six of 14 possible psychological, and less than two of six possible lifestyle negative consequences. Ecstasy was the primary club drug for which negative consequences were reported, followed by ketamine and LSD to a lesser degree. Thus, the rates of negative consequences reported here are for Ecstasy use.

Profuse sweating, hot and cold flashes, tingling or numbness, and blurred vision were experienced by 50% to 75% of individuals "sometimes" or more often, when using

Ecstasy. Additional negative physical symptoms reported by 20% to 48% of participants included memory lapse, shortness of breath, inability to urinate, vomiting, joint stiffness, stomach pains, headaches, heart palpitations, tremors or shakes, teeth problems, weight loss, loss of energy, and muscle aches. Among the psychological symptoms, 72% of participants reported trouble sleeping, while 20% to 46% reported experiencing visual and auditory hallucinations, depression, confusion, anxiety, irritability, paranoia, and loss of sex urge at least some of the time following Ecstasy use. Among the negative life consequences, 40% of individuals reported trouble maintaining their usual daily activities, while 20% reported experiencing financial and work trouble as a result of using Ecstasy. Problems with aggression were infrequent following club drug use. A small group of participants indicated that they got into verbal arguments sometimes (14%) or half of the time (2%) following Ecstasy use. A small percentage of individuals indicated that they ever had been involved in physical (14%) or sexual (2%) aggression following the use of Ecstasy.

DISCUSSION

Similar to studies of club drug users in the U.K. and Australia (e.g., Parrott et al. 2000; Akram & Galt 1999; Topp et al. 1999; Boys, Lenton & Norcross 1997; Forsyth 1996), the present study's sample of club drug users were found to be polysubstance users. In addition to their use of club drugs, all participants reported the use of more conventional illicit drugs (i.e., cocaine, opiates) over the past year. Nearly all of the sample reported concurrent use of marijuana and alcohol with club drugs over the past year.

The reasons reported for using club drugs suggest that use of these drugs centers around a social context, and it is usually done to enhance or heighten positive sensory experiences rather than as a means to escape negative affect. The positive consequences reported for use of each of the club drugs were congruent with the reasons for use. Positive consequences for the five most frequently used club drugs included feeling good and enhanced social

TABLE 3
Percentage of Participants Reporting Positive Consequences for Use of Each Club Drug in the Past Year

Consequence	Type of Club Drug				
	Ecstasy (N = 49)	GHB (N = 22)	Ketamine (N = 38)	Meth (N = 36)	LSD (N = 47)
Stimulant properties					
Increase in energy	42.8			33.3	16
Lose weight	12.2				
Mental and physical effects					
Euphoria	14.3				
Everything is fun/funny	42.8		21.1	16.7	36.2
Everything is more intense	16.3				10.6
Hallucinate/get high					10.6
Increased sensitivity/feels good	36.7	13.6			
Open-minded/greater insight					10.6
Social benefits					
Better current relationship	20.4				10.6
Decreased inhibitions	26.5		13.2	11.1	
Improved social skills/new friends	59.2	13.6		13.9	17.0
Escape/stress reduction					
Complete oblivion/escape			13.2		
Relax/relieve stress	10.2				

Note: Empty cells indicate that the percentage of individuals who mentioned this consequence was less than 10%.

relationships. It should be noted that positive consequences differed by type of club drug. Thus, future research should explore the reasons for club drug use by individual drug.

Few participants reported using club drugs because they "were hooked" and a small percentage indicated using these drugs alone. The focus on enhancing positive emotions and the social contexts (e.g., at raves/clubs, parties, with others at home) in which these drugs are used may provide an explanation for the general acceptance of club drug use among young adults. Individuals who use club drugs do not view themselves as addicted to these drugs. The characterization of club drug use that emerges from this sample is one of infrequent (one to two times per month or less), yet regular social recreational use.

Despite the low incidence of reported physical symptoms typically associated with drug abuse and dependence (i.e., craving, tolerance), the average score on the DAST was twice the accepted cutoff of five for abuse and dependence. This suggests that a majority of this sample would fit diagnostic criteria for drug abuse or dependence. These findings corroborate the findings of Cottler and colleagues (2001) indicating substantial rates of abuse and dependence among U.S. club drug users.

The number and rates of reported negative consequences associated with Ecstasy use were substantial for this sample and are similar to those found by Topp and colleagues (1999) among Australian club drug users. If the physical, psychological and lifestyle consequences are added together, the average number of consequences exceeded

16 per individual. The polysubstance-using nature of this sample (an average of more than four club drugs and four other drugs in the past year) makes interpretation of the negative physical and psychological consequences of their use of club drugs somewhat problematic. Although participants were asked to indicate the symptoms they experienced after using club drugs, many of the negative effects could have been confounded by the use of multiple substances at the same time. Further research is needed to assess the negative consequences of drug use in this population.

This study adds to current knowledge of club drug use in the U.S. in several ways. First, the ability to recruit and complete face-to-face interviews with current club drug users about their use of these illicit substances provides important methodological information. Unlike other drug-using populations (e.g., IV drug users), club drug users do not appear to be as difficult to reach. This may reflect social acceptance of recreational club drug use among young adults. Indeed, the positive consequences reported by this sample for use of these drugs indicate that all of the drugs are seen as enhancing social relationships and making one feel good, despite a substantial number of reported negative consequences. Among this sample, use of club drugs was not confined to the rave context. This finding is similar to findings by the CEWG (2000) in the U.S. and Lenton and colleagues (1997) in Australia.

The current study was descriptive in nature and limited in size, therefore, additional studies are needed to

confirm and expand these findings. In a recent study in Germany, Daumann and colleagues (2001) found that after controlling for cannabis use, abstinent recreational Ecstasy users did not differ from nonusers and cannabis user control groups on measures of psychological functioning (e.g., impulsiveness, anxiety, sensation seeking, obsessive-compulsive behavior, psychoticism). These findings suggest

that future studies of the negative consequences of club drug use need to employ some form of substance-using comparison group (e.g., cannabis- or alcohol-only users). Studies with appropriate comparison groups will allow for better assessment of the degree to which negative physical, psychological, and lifestyle consequences are associated specifically with the use of club drugs.

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