

Estimating the Prevalence of Ecstasy Use Among Juvenile Offenders

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Abstract—To date, no studies have examined Ecstasy use among criminal justice populations. Focusing on individuals under criminal justice supervision is useful because “new” illegal drugs will typically take root in a criminal population before diffusing to the general population. In the current study, self-report drug use data and urine specimens were collected from 209 juvenile offenders surveyed through Maryland’s Offender Population Urinalysis Screening (OPUS) Program. Prevalence estimates are generated and associations between Ecstasy use, demographic characteristics, and alcohol and other drug use are explored. Sixteen percent of the sample reported using Ecstasy within the past 12 months, an estimate almost three times as high as grade school and high school students surveyed through the Monitoring the Future survey. Compared to nonusers, Ecstasy users were significantly more likely to be female (45% versus 20%, $p<0.01$), White (82% versus 22%, $p<0.001$), and out of school (39% versus 20%, $p<0.05$). Associations were also found between Ecstasy use and the use of other drugs. These findings suggest that the recent use of Ecstasy among juvenile offenders is higher than estimated use in the general student population, and that youthful offenders may represent an important population for potential intervention.

Keywords—criminal justice, Ecstasy, MDMA, prevalence, urinalysis

The use of MDMA (3,4-methylenedioxymethamphetamine), better known as “Ecstasy,” is associated with a variety of physical and mental health consequences. Users report feelings of peacefulness, acceptance, and empathy, as well as anxiety, insomnia, memory loss, and paranoia (Bolla,

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(McCann & Ricaurte 1999; McCann et al. 1999; National Institute on Drug Abuse 1999; Peroutka, Newman & Harris 1988; Downing 1986; Hayner & McKinney 1986; Snyder 1986). Blurred vision, involuntary teeth clenching, muscle tension, nausea, and sweating also are associated with acute Ecstasy use (Bolla, McCann & Ricaurte 1999; McCann et al. 1999; NIDA 1999; Peroutka et al. 1988; Downing 1986; Hayner & McKinney 1986; Snyder 1986). Neurologically, MDMA use has been associated with aggressive outbursts, depression, and cognitive impairment (Schifano, 2000; McCann et al. 1999; Kuhn, Swartzwelder & Wilson 1998). In addition, Ecstasy-related deaths have been reported at “raves,” where Ecstasy’s ingestion, combined with the hot, crowded conditions, can lead to dehydration, hyperthermia, and heart or kidney failure (Weir 2000; Karch 1995, 1992; Randall 1992).

Recent findings from the Monitoring the Future (MTF) survey, based on self-report data from a nationally representative sample of students, indicate that in 1999, 0.8% of eighth graders, 1.8% of 10th graders, 2.5% of 12th graders, and 2.1% of college students had used Ecstasy within the past 30 days (Johnston, O’Malley & Bachman 2000). Corresponding figures for past-year use are 1.7%, 4.4%, 5.6 %, and 5.5% (Johnston, O’Malley & Bachman 2000). These estimates represent increases since 1995, when questions on Ecstasy were added to the MTF survey instrument.

To the authors’ knowledge, no studies have examined Ecstasy use among criminal justice populations. Focusing on individuals under criminal justice supervision is useful because “new” illegal drugs will typically take root in a criminal population before diffusing to the general population (Wish 1997; DuPont & Wish 1992). The purpose of the current study was two-fold: (1) to measure Ecstasy use among a sample of juvenile offenders surveyed through Maryland’s Offender Population Urinalysis Screening (OPUS) Program; and (2) to explore the associations between Ecstasy use, demographic characteristics, and alcohol and other drug (AOD) use among this high-risk population.

METHODS

Sample

The OPUS Program, under the direction of the Center for Substance Abuse Research (CESAR), is an ongoing system for identifying new and emerging drug trends among Maryland’s juvenile offender population. For the current study, data were collected at two residential juvenile detention facilities in Prince George’s County, Maryland, over a two-month period in 2000. All youths in custody for 72 hours or less were eligible for inclusion. This time frame was utilized because most illegal drugs of abuse can be detected by urinalysis up to 72 hours after ingestion. While parental/guardian permission was not required, youths were informed that the purpose of the study was to investigate drug use within the State of Maryland and that their participation was voluntary, anonymous and confidential. Respondents were interviewed out of hearing range of correctional personnel and other juvenile offenders. A candy bar was offered as an incentive for participation. A total of 223 male and female juvenile offenders were approached for interviewing. Of these, 98% agreed to participate and completed the interview. Of those who completed the interview, 95% provided a urine specimen.

Measures

Information was obtained via a brief face-to-face semistructured interview on demographic characteristics, including age, race/ethnicity, employment status, and school enrollment. A series of questions was administered to all individuals to assess use of alcohol, marijuana, powder cocaine, crack cocaine, methamphetamine, opiates, phencyclidine (PCP), and Ecstasy during their lifetime, the past 12 months, the past 90 days, the past 30 days, and the past two days.

After completing the survey, urine specimens were collected and sent to a single laboratory for analysis (performed by Psychomedics, Inc.). A four-fold screening process was utilized. The Enzyme

Multiplied Immunoassay Test (EMIT[®]) screened for methamphetamine, marijuana, metabolite (crack and powder) cocaine, opiates, and PCP. Any positive results for marijuana, PCP, opiates, and cocaine were confirmed by gas chromatography/mass spectrometry (GC/MS). Screen cutoff levels were 1000 ng/ml for amphetamine (500 ng/ml for GC/MS), 50 ng/ml for marijuana (15 ng/ml for GC/MS), 25 ng/ml for PCP (25 ng/ml for GC/MS), and 300 ng/ml for cocaine (150 ng/ml for GC/MS) and opiates (300 ng/ml for GC/MS). All of the specimens were then screened by radio-immunoassay (RIA) for a combination of methamphetamines and MDMA, with a screen cutoff level of 500 ng/ml. Finally, all of the specimens were screened for MDMA by liquid chromatography/ tandem mass spectrometry (LC/MS), with a screen cutoff level of 5 ng/ml. It is important to note that while this screening process is a thorough one, it is also expensive. Until an Ecstasy-specific assay is developed to screen for use, its detection by urinalysis will likely continue to be very costly.

RESULTS

Statistical Analyses

Data analysis was accomplished in two phases. First, frequency distributions were used to describe the characteristics of the sample. Second, the sample was divided into recent Ecstasy users and non-users based on self-reported use during the 12 months prior to the interview. Individuals who reported lifetime use, but no use in the past 12 months ($n=5$), were excluded from the non-user group. Chi-square statistics were then used to detect significant associations between Ecstasy use, demographic characteristics, and AOD use.

TABLE 1
Demographic Characteristics of Juvenile Offenders (N=209)

Variable	N	%
Sex		
Male	158	76
Age		
13 and under	14	7
14-15	86	41
16-17	98	47
18 and over	11	5
Mean (in years)	15.6	
Race/Ethnicity		
African-American	137	66
White	64	31
Hispanic	4	2
Asian	4	2
Educational level		
Still in school	159	76

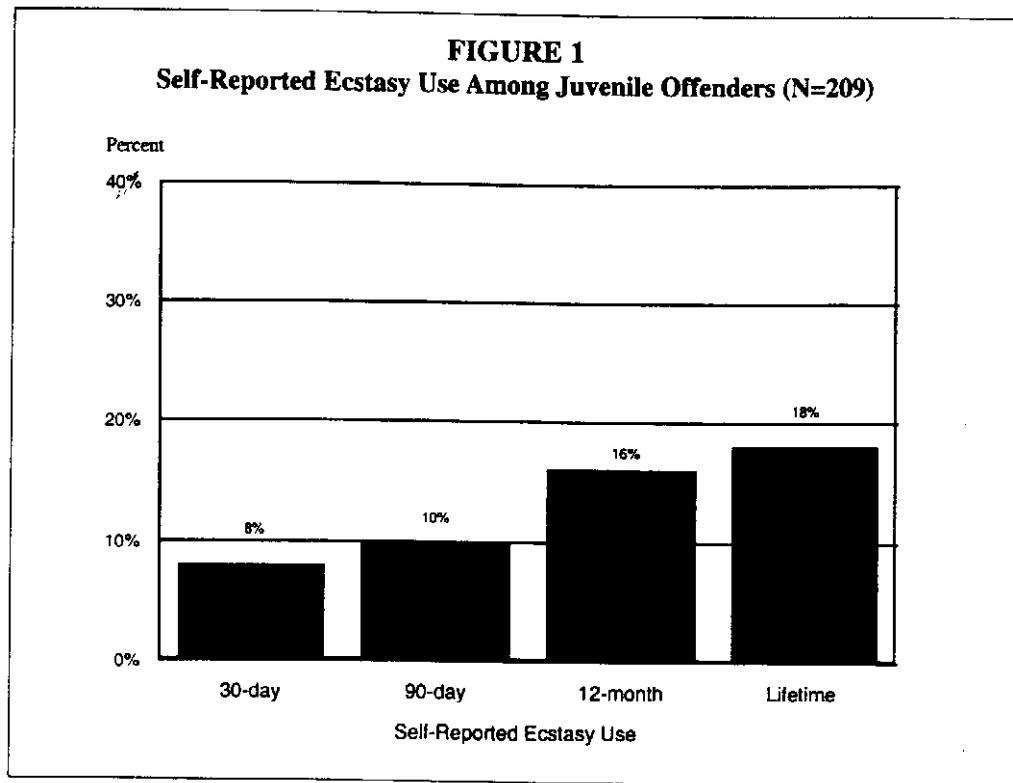
Sample Characteristics

As shown in Table 1, 76% of the juvenile offenders were male. Eighty-eight percent of the sample were between the ages of 14 and 17. Sixty-six percent of the offenders were African-American, and

76% were still in school.

Self-Reported Ecstasy Use

Figure 1 displays lifetime and recent self-reported use of Ecstasy in the sample. As shown, 18%



reported use of Ecstasy at least once during their lifetime. Sixteen percent of the sample reported using Ecstasy within the past 12 months, 10% within the previous 90 days, and 8% within the past 30 days. No Ecstasy use during the prior two days was reported.

Urinalysis Results

Consistent with the reports of no Ecstasy use within the prior two days, no Ecstasy positives were detected by urinalysis. Similar to other studies of youthful offenders (CESAR 2000, 1999; National Institute of Justice 2000), the most prevalent drugs detected were marijuana (51%), PCP (5%), and cocaine (4%) (table not provided). Methamphetamine and heroin were each detected in 1% of the sample.

Correlates of Ecstasy Use

Table 2 presents a comparison between self-reported 12-month Ecstasy users and those juvenile offenders who reported no lifetime Ecstasy use. Compared to nonusers, past-year Ecstasy users were more likely to be female (45% versus 20%, $p<0.01$), white (82% versus 22%, $p<0.0001$), and out of school (39% versus 20%, $p<0.05$). (Separate analyses were conducted to determine if the educational level variable was confounded by age. After controlling for age, the statistical significance remained.)

No differences were found with respect to primary charge. Ecstasy users were also significantly more likely to have used alcohol (79% versus 51%, $p<0.01$), marijuana (88% versus 61%, $p<0.01$), and powder cocaine within the 17 past 90 days (30% versus 1%, $p<0.001$).

TABLE 2
Comparisons of 12-Month Ecstasy Users to Nonusers (N=204)

	Nonusers (n=171)		Users (n=33)	
	n	%	n	%
Sex				
Female	35	20*	15	45*
Age**				
13 and under	14	8	0	0
14-15	74	43	10	30
16-17	74	43	23	70
18 and over	9	6	0	0
Median (in years)	15.0		16.0	
Race/Ethnicity***				
African-American	130	76	3	9
White	37	22	27	82
Hispanic	2	1	2	6
Asian	2	1	1	3
Educational level				
Not in school	35	20**	13	39**
Primary charge				
Miscellaneous offense	49	29	11	33
Property offense	45	26	7	21
Personal offense	42	25	7	21
Drug or alcohol offense	35	20	8	25
Alcohol and other drug use				
90-day alcohol use	87	51*	26	79*
90-day marijuana use	104	61*	29	88*
90-day powder cocaine use	1	1***	10	30***
90-Day PCP use	0	0***	3	9***

Note: Nonusers are respondents who reported never having used Ecstasy, while users are respondents who reported Ecstasy use in the 12 months prior to being interviewed.

*Chi-square significant at the $p<0.01$ level.

**Chi-square significant at the $p<0.05$ level.

*** Chi-square significant at the $p<0.001$ level.

DISCUSSION

This study is the first to document the prevalence of Ecstasy use in a sample of juvenile offenders. While 10% reported Ecstasy use within the past 90 days and 8% within the past 30 days, none reported Ecstasy use in the previous two days, and no Ecstasy positives were detected by urinalysis. Among the juvenile offenders in our sample, Ecstasy users were significantly more likely to be female, White, and out of school compared to nonusers. Ecstasy users were also significantly more likely to have used alcohol, marijuana, powder cocaine, and PCP within the past 90 days.

The prevalence of 12-month Ecstasy use among this sample of juvenile offenders (16%) was found to be almost three times as high as grade school and high school students in the general population (Johnston, O'Malley & Bachman 2000). These findings suggest that youthful offenders may represent an important population for potential intervention. Researchers may want to focus on high-risk populations, such as individuals under criminal justice supervision and rave attendees, when examining issues related to the use of Ecstasy.

One study limitation should be noted. The juvenile offenders in the current study were sampled

from one county in Maryland. The Arrestee Drug Abuse Monitoring (ADAM) Program has shown significant geographical differences in drug prevalence rates among juvenile arrestees (National Institute of Justice 2000). As such, this study should be replicated across the country to examine the extent to which Ecstasy use has emerged in other jurisdictions.

Larger studies that can more precisely estimate the prevalence of Ecstasy use among juvenile offenders and that can identify the risk factors for Ecstasy use are also needed. Research is needed to understand the place Ecstasy might have in the progression to other substances and the possible role it may play in the development of drug dependence. Moreover, studies of the physical and mental consequences of Ecstasy use should be undertaken. Additional studies are needed to confirm preliminary findings that Ecstasy use in both animals and humans is associated with neurological sequelae, including depression and memory loss (Bolla, McCann & Ricaurte 1999; McCann, Mertyl & Eligulashvili 1999).

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