

“Club Drug” Use Patterns and Related Behaviors in Seattle, King County
Survey Data Collection for Project STEPS
(Stemming the Tide of Ecstasy Through Prevention Strategies)

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Law Enforcement and survey data point to moderate level of use of MDMA in Seattle-King County, however death and emergency department data point to comparatively low levels of problems. In order to better understand the drugs used, their patterns of use and the impacts of use, a community based survey was conducted from May to August of 2003 by the Alcohol and Drug Abuse Institute under contract with Public Health- Seattle & King County for a Center for Substance Abuse Prevention, Ecstasy Prevention project.

Survey data were gathered from four populations in the King County area: youth in drug treatment agencies, rave (dance parties) attendees, men who have sex with men recruited at gay bars and at sexclubs/bathhouses. For the purposes of this study ‘club drugs’ include MDMA/Ecstasy, Ketamine, GHB, Rohypnol and LSD. This group of drugs represents a broad array of substances: psychedelics (MDMA and LSD), stimulants (MDMA), depressants (GHB and Rohypnol) and dissociatives (Ketamine).

Methods

This study utilized a cross sectional design. A survey was administered at a single time point. Potential subjects were recruited in community venues (described below). Subjects went

through oral informed consent/ assent for the anonymous, voluntary survey. Once oral assent/consent was obtained subjects were instructed how to complete the survey which they then completed themselves. In return they received an item of remuneration valued at five dollars or less. All study procedures were approved by the Human Subjects Division at the University of Washington

Subject recruitment at community venues

Survey data were obtained from four populations in the King County area: youth in chemical dependency treatment agencies, rave attendees, men who have sex with men were surveyed at gay bars and at sexclubs/bathhouses. All subjects had to be aged 14 or older and capable of understanding and providing oral consent/assent for the brief, self-administered survey. Pearson's chi-square tests, Fisher's exact test, and ANOVA were utilized for data analyses.

Four youth-drug-treatment-agencies participated, representing a convenience sample of agencies in the King County area. Subjects were recruited either by agency staff or by research staff, whichever was most appropriate for the facility and treatment program. All participants from these treatment agencies had a history of alcohol and/or drug use.

Five gay bars, one gay bathhouse and one gay sex club served as venues for MSM surveying, all were located in the Seattle area. Subjects were recruited and surveyed outside of bars and inside of the main entrances of the bathhouse and sexclub. Signed letters of agreement were received from the bathhouse and sexclub owners.

Surveyors attended nine raves at eight different venues, all in or near the Seattle metropolitan area. Subjects were recruited and surveyed outside of raves and clubs. Of these nine events one was a large event with approximately 2,800 attendees, two were small events with fewer than 200 attendees, and the remaining six were moderate sized events with between 200 and 600 attendees. These raves represented a convenience sample, with the intent of reaching subjects at events of various sizes, with a range of musical styles and event promoters.

For the raves, gay bars and gay bathhouses/sex clubs, surveyors attempted to recruit all venue attendees. At large events such as raves with lines outside of the venues, surveyors split up into pairs and worked different parts of the line. Surveyors were limited to five clipboards each, so that they were available to answer questions from subjects. Surveying took place in three hour shifts, between 9 p.m. and 2 a.m. depending upon the event. Response rates varied by venue from 97 percent at the youth treatment agencies, to 68 percent at raves, to 40 percent and 53 percent at bathhouse/sexclubs and gay bars respectively.

Results

Demographics

Over 600 surveys were completed by respondents from these four venues. Substantial differences were evident between groups as described below and detailed in Table 1.

Age

Those surveyed in the youth treatment agencies were, naturally, the youngest with a median age of 17. Rave attendees were the next oldest group with a median age of 20. Gay bar attendees were substantially older (median 37), with bathhouse/sexclub patrons the oldest of the four groups with a median age of 40.

Race/Ethnicity

Subjects self identified as white most commonly at gay bars (89%) and at bathhouses/sexclubs (80%), while 10% at bars and 7% at bathhouses/sexclubs identified as Latino. At raves, whites made up 72%, followed by Asians (8%), multiple (8%) and other (7%), with 7% identifying as Latino. Only 53% identified as white at the youth treatment agencies followed by 'multiple' (15%), Asian (11%), African American (8%). Among youth in treatment 20% identified as Latino. Several of the treatment programs specialized in working with youth of color.

Gender

All respondents from gay bars and bathhouses/sexclubs self-identified as male. The majority of those at treatment agencies also identified as male (80%), with one person identifying as transgendered. Rave survey respondents were 41% female, 1% transgendered with 58% male.

Sexual Orientation

At gay bars 92% identified as gay, 7% bisexual and 1% as ‘other’. Bathhouse/sexclub attendees reported they were mostly gay (86%), with some reporting bisexual (13%) and 1% reporting as straight. A substantial minority of rave respondents also reported their sexual orientation as bisexual (15%), with the majority straight (75%), and several people reporting as gay, ‘other’, or ‘unsure’. The majority of treatment based subjects reported to be straight (84%), with 6% reporting as gay, 5% ‘unsure’, 3% bisexual and 2% ‘other’.

Table 1- Demographics of Survey Participants

Survey Location	Bathhouse/ Sex Club (n=135)	Gay Bar (n=100)	Rave (n=310)	Youth Treatment Agency (n=64)
Response Rate	40%	53%	68%	97%
Median Age (Min-Max)	40 (24-66)	37 (19-60)	20 (14-46)	17 (14-20)
Race				
White	80%	89%	72%	53%
African American	4%	1%	3%	8%
Asian	5%	3%	8%	11%
Nat. Hawaii/ Pac. Isd.	2%	1%	1%	3%
Amer. Indian	1%	0%	1%	3%
Alaska Native	0%	0%	0%	0%
Multiple	7%	2%	8%	15%
Other	2%	4%	7%	6%
Ethnicity				
Latino	7%	10%	7%	20%
Gender				
Male	100%	100%	58%	80%
Female			41%	18%
Transgender			1%	2%
Sexual Orientation				
Straight	1%	0%	75%	84%
Gay	86%	92%	2%	6%
Bisexual	13%	7%	15%	3%
Other	0%	1%	3%	2%
Unsure	0%	0%	4%	5%

Drug Use

Club Drugs Lifetime Use Levels

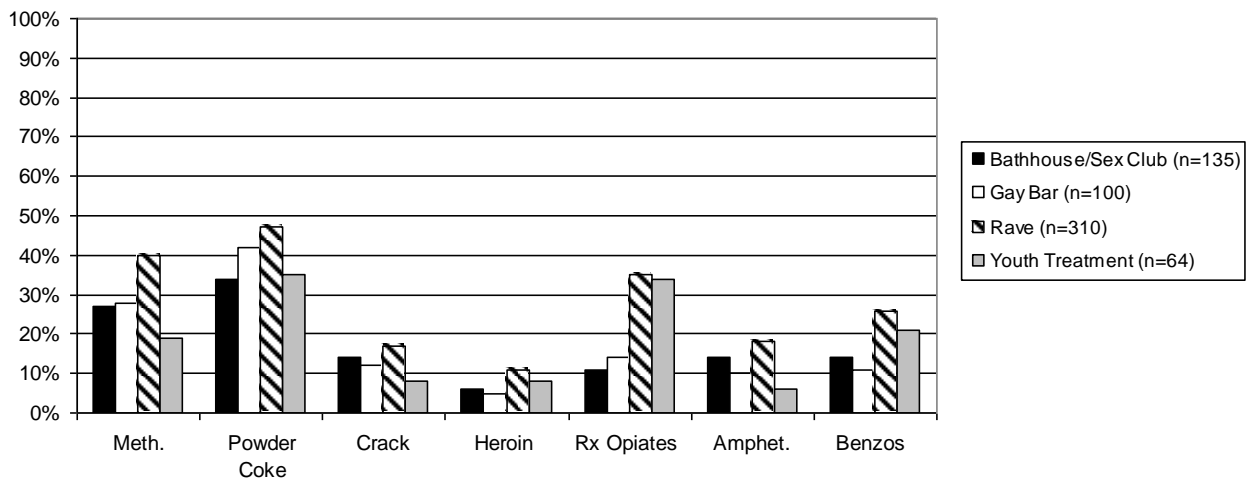
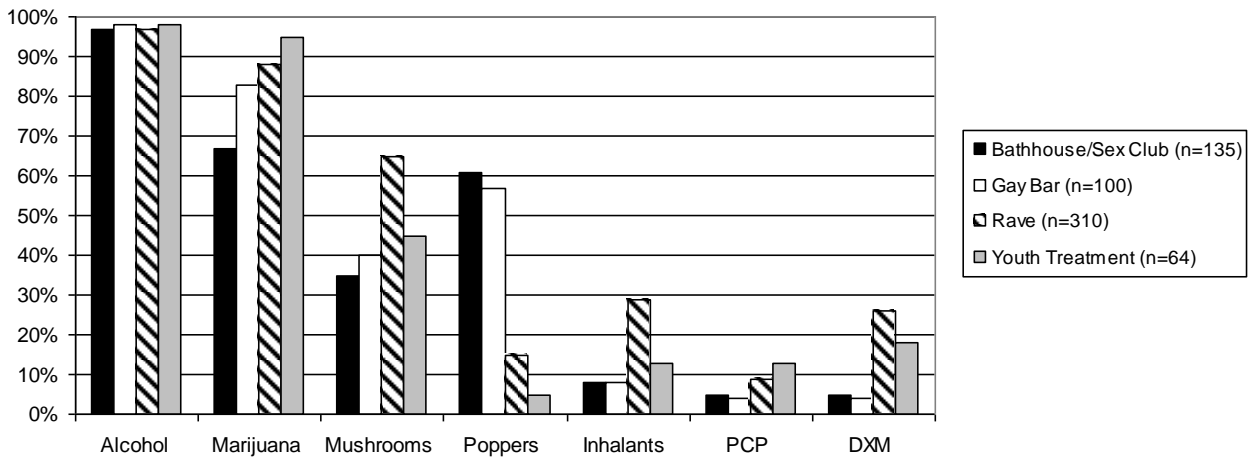
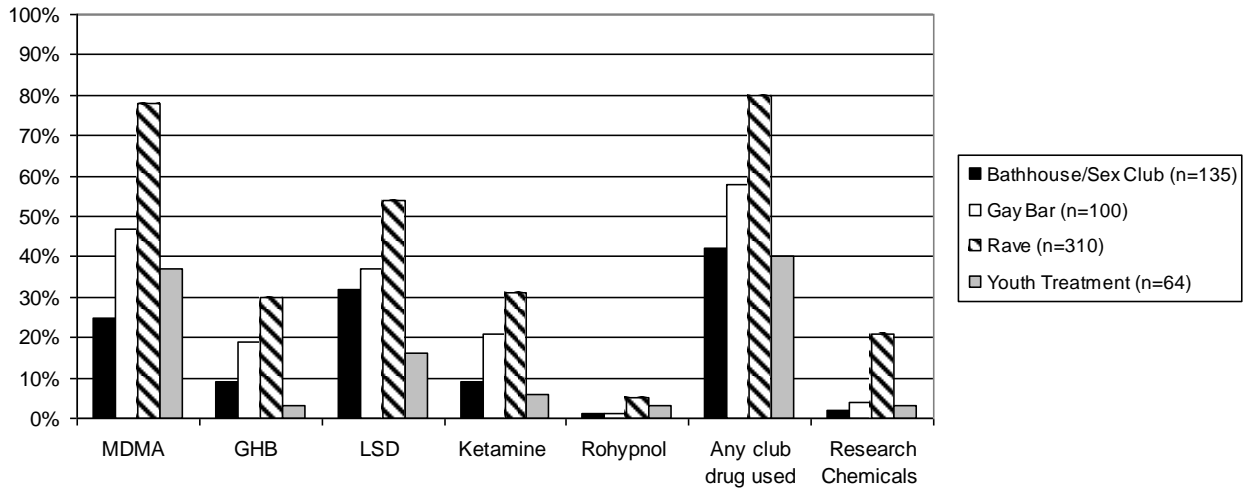
Lifetime use of any 'club drug' MDMA, GHB, Rohypnol, Ketamine and LSD was reported by 80% of those surveyed at raves, 40% at treatment agencies, 58% at gay bars, and 42% at gay bathhouses/sexclubs (Figure 1). For all of the groups, MDMA was the most commonly reported 'club drug', except MSM at bathhouses/sexclubs for whom LSD was the most common. Patterns of use of the other club drugs varied greatly by survey location. Rave and gay bar attendees, for instance, reported the highest levels of use of GHB and Ketamine.

Alcohol and Other Drugs Lifetime Use

Alcohol and marijuana were the most commonly used drugs with a substantial majority of all survey groups reporting lifetime use. Psychedelic mushrooms were also widely used with a third of bathhouse attendees and two-thirds of rave attendees reporting use. Poppers were used by over half of MSM. (Poppers, amyl nitrite, act to dilate blood vessels and relax muscles, they are often used in a sexual context.) Methamphetamine use ranged from 20% for youth in treatment to 40% for rave attendees. Powder cocaine usage levels were surprisingly high, with lifetime prevalence between 34-47%. Use of prescription opiates was substantially higher among those surveyed in youth treatment agencies (34%) and raves (35%) than other survey respondents.

Research chemicals are a broad array of chemicals which may have psychoactive effects, but are poorly studied and often used by those interested in exploring potentially new psychedelic experiences. The two most common sources of information of research chemicals include the internet and books by Shulgin et al. (1995, 1997)^{1 2}. There are dozens and dozens of such chemicals, two of the more common ones, at least at the time of survey development, were included as examples on the survey: '2C T7' and 'Foxy Methoxy'. Only those surveyed at raves mentioned these drugs with any frequency, 21 percent.

Figure 1- Lifetime Use of Drugs

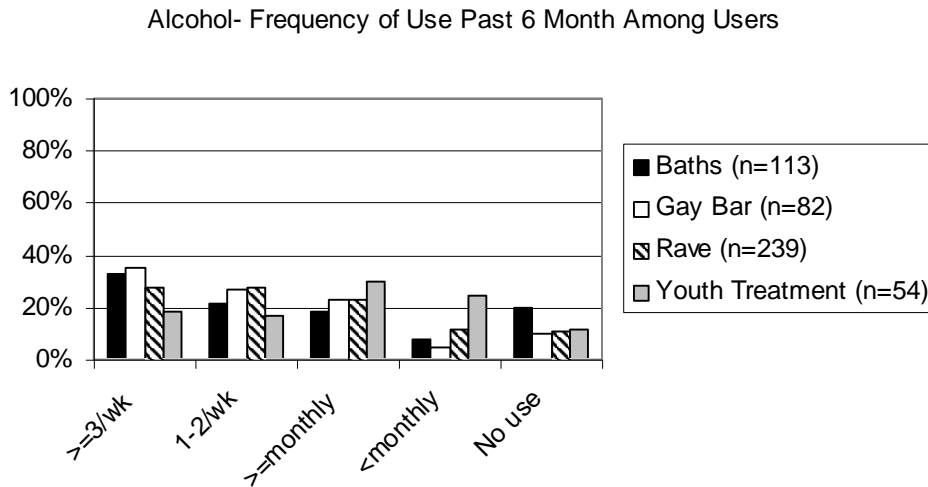
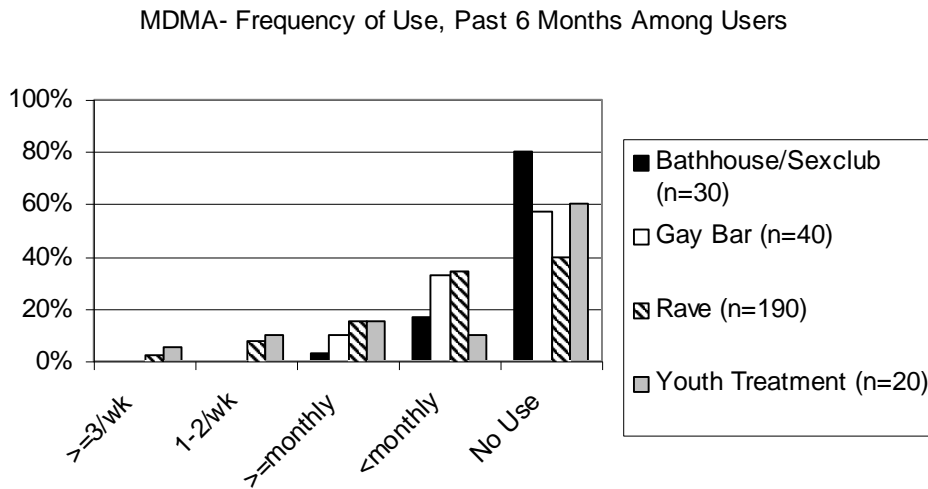


Drug Use Patterns in the Past 6 Months

Despite high lifetime use levels for MDMA, use was relatively infrequent in the prior 6 months among those who had ever used (Figure 2). Groups with the highest lifetime use levels also reported the highest frequency of use in the past 6 months. Among those surveyed in bathhouses who had previously used MDMA, only 20% used at all in the prior 6 months, with the most common response indicating use less than monthly and no one reporting use weekly or more often. MSM at gay bars reported a similar pattern of low frequency of use among recent users, though 43% of MDMA users reported some use in the prior 6 months. A minority (40%) of MDMA users surveyed at youth treatment agencies reported using in the past 6 months, with 15% reporting use weekly or more often. Subjects recruited at raves reported the highest level of MDMA use in the past 6 months at 60% among MDMA users. However, only 11% reported using at least weekly, with 35% reporting use less than monthly.

The overall pattern of MDMA use was opposite that reported for alcohol, with at least 80% of respondents using alcohol in the past 6 months. Use of alcohol at least weekly ('1-2 times per week' or '3 or more times per week') was reported by 35% of youth in treatment and by 62% for those surveyed at gay bars.

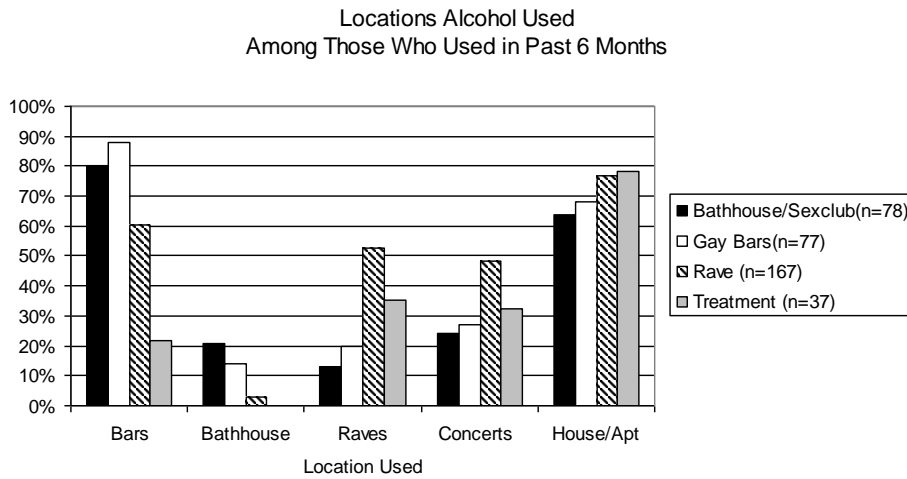
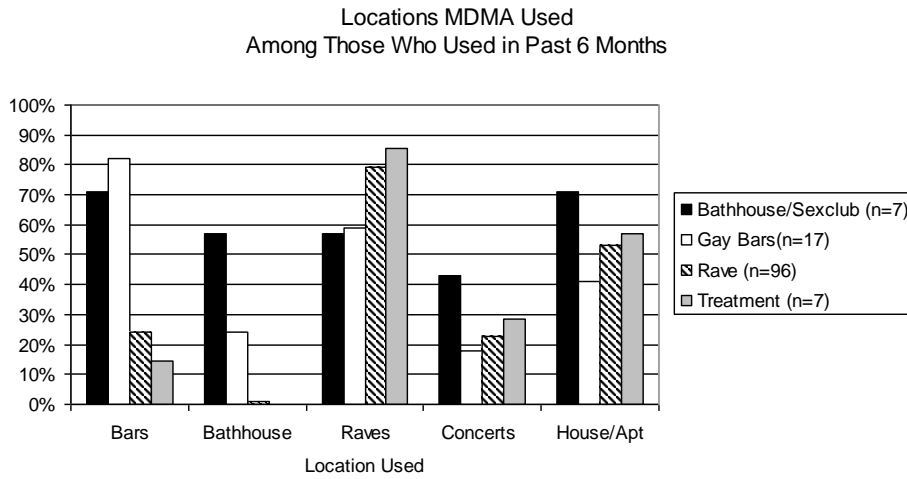
Figure 2- Frequency of MDMA and Alcohol Use in the Prior Six Months, Among Users



Location of Drug Use

MDMA is termed a ‘club drug’, and while it is commonly used at raves and bars, it is also commonly used in other venues. Among those surveyed at raves who used MDMA, 79% reported using at raves, with 53% reporting use in homes and approximately a quarter reporting use at bars or concerts (Figure 3). Among youth in treatment agencies who had ever used, 86% reported use at raves, followed by 57% using in homes and 29% at concerts. A majority of MSM who reported MDMA use reported using at raves. Men surveyed at bathhouses/sexclubs reported use at bars and homes as most common (71%), with 56% reporting use at bathhouses and raves. MSM surveyed at gay bars used MDMA most commonly at bars (82%), followed by raves (59%), with 41% using in homes.

Figure 3- Location of Drug Use



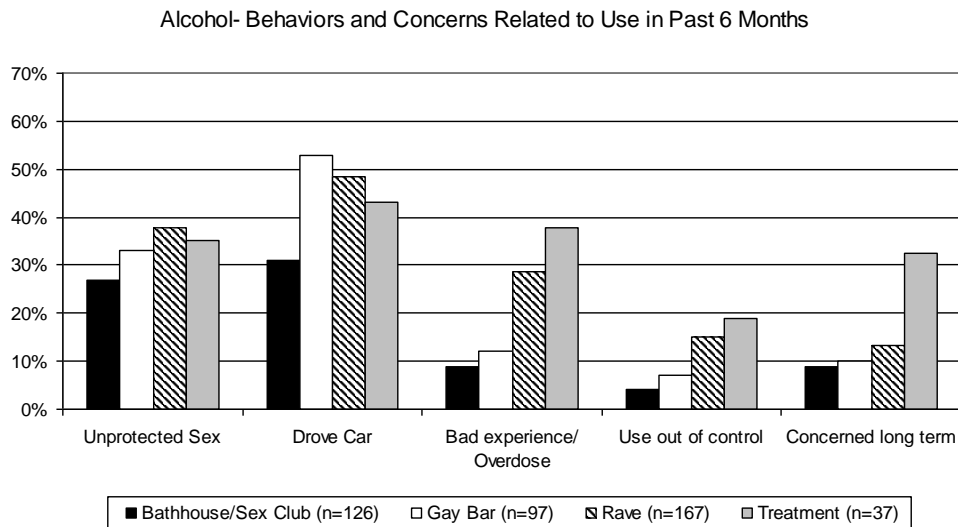
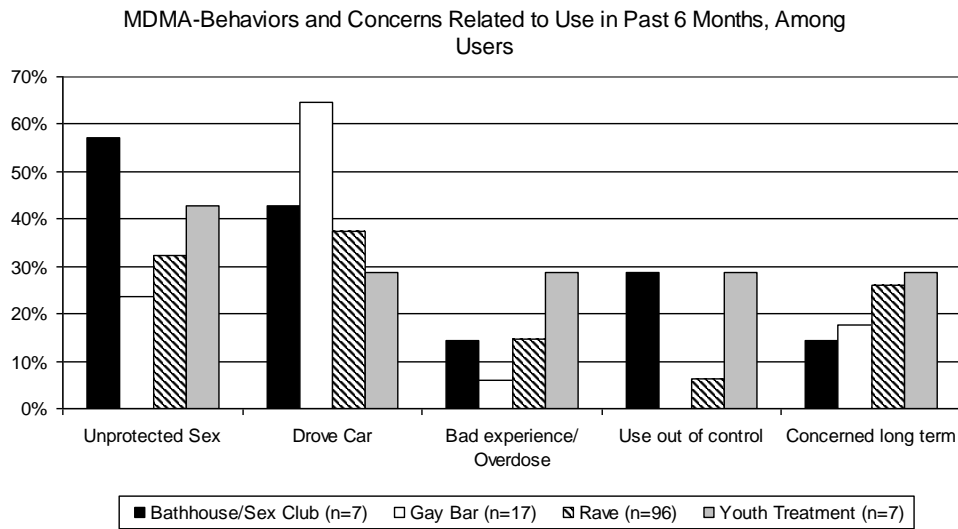
Risky Behaviors and Concerns About Drug Use

Concerns related to MDMA use among those who had used in the past 6 months were relatively low, below 30%, both in terms of the short term, ‘Felt that your use of the drug was out of control or had a hard time stopping use?’, and the long term, ‘Been concerned you might have problems years down the road caused by the drug, such as memory or health problems?’ (Figure 4). Overall a greater proportion of MDMA users than alcohol users expressed concerns about the short and long term consequences of use.

Potentially dangerous activities done while using MDMA varied greatly. Many people reported driving while on MDMA, between 29% and 65%. MDMA is known to impair driving ability³. Unprotected sex was reported by a substantial minority, over one-third, and was similar to the

level for alcohol. (Note, levels of unprotected sex while not using drugs or alcohol was not collected.) Few respondents indicated that they had ‘Overdosed, passed out or had a bad experience caused by the drug.’ No respondents indicated that they had injected MDMA, or any of the other ‘club drugs’. (Note the small number of respondents from most sub-groups for questions related to MDMA.)

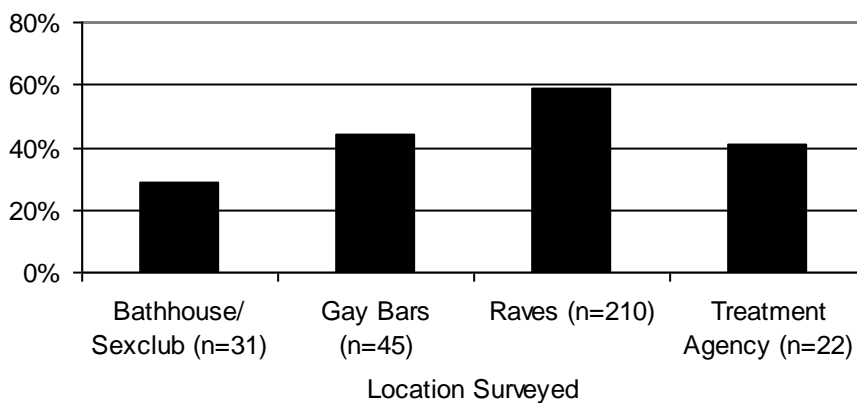
Figure 4- Behaviors and Concerns Related to Drug Use



Previous anecdotal reports indicated that many users of MDMA felt that the drug they bought as MDMA was clearly not actually MDMA. The survey asked ‘Have you ever taken something

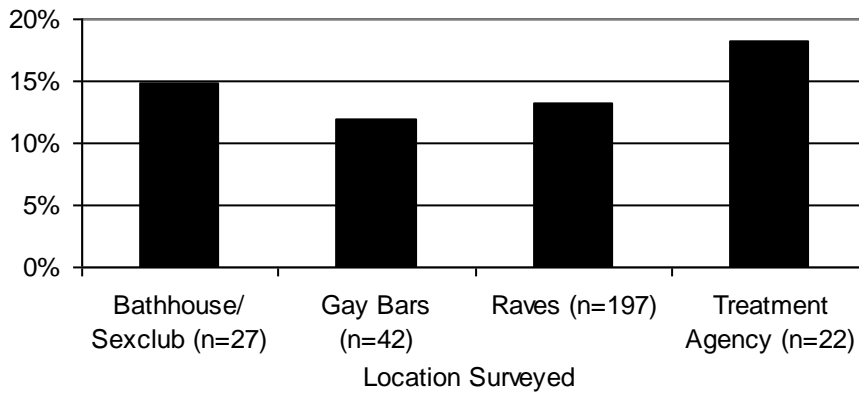
that was supposed to be Ecstasy but felt like it wasn't'. Respondents in all survey groups indicated they had taken MDMA that felt adulterated (Figure 5). Those reporting the lowest levels of lifetime use and the lowest frequency of use in the past 6 months, MSM at bathhouses/sexclubs, also were the least likely to report taking adulterated MDMA (29%). Rave attendees, who had the highest levels of lifetime use and frequency of use in the past 6 months, also reported having ever taken adulterated MDMA at the highest level (59%).

Figure 5- Ever Taken Adulterated MDMA, Among Those Who Used MDMA



Use of anti-depressant prescription medications to control the post-use depressant effects of MDMA have also been reported anecdotally. A minority of respondents reported having 'ever used any anti-depressant medications like Prozac or Zoloft specifically to try to control the effects of Ecstasy' (Figure 6). Overall, between 12% and 18% of respondents who had ever used MDMA indicated they had used anti-depressants for this purpose.

Figure 6- Ever Taken Anti-Depressants to Control Effects of MDMA, Among Those Who Used MDMA



Use of vitamins and supplements believed to be protective against the depressant effects of MDMA were reported by respondents surveyed at raves in response to an open ended question regarding what ‘other’ things they did to ‘try to make (their) use of Ecstasy safer’. Open ended responses to this question revealed that 16 percent took vitamins and 11 percent took 5-hydroxytryptophan (5-HTP), which is in the tryptophan-serotonin pathway.

Men Who Have Sex With Men- HIV Status, Sex and Drug Use Patterns

Several additional questions were asked of MSM surveyed at bars and bathhouses/sexclubs. These questions focused on HIV status, sexual behaviors and drug use. Self-reported HIV status differed somewhat between the two venue types. A larger proportion of MSM surveyed at gay bars reported being HIV negative, 82%, than those at bathhouses/sexclubs, 70%. Not knowing their HIV status was reported by 5% at gay bars and 9% at bathhouses, while being HIV infected was reported by 12% and 21% respectively.

Lifetime use of drugs among MSM varies by the venue at which they were surveyed as detailed in Figure 1, above. Table 2, below, combines data from both gay oriented venues and examines lifetime prevalence of drug use by age. Adults ages 35 and younger were more likely to report using MDMA, GHB, and Ketamine, while adults ages 36 and older were statistically more likely to report using amphetamines.

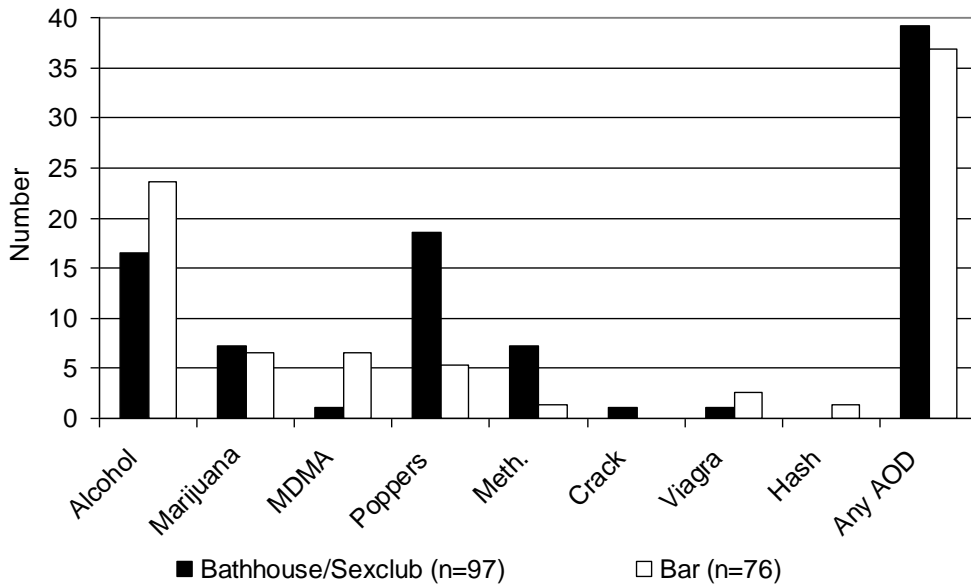
Table 2: Lifetime Use of Drugs by Age, MSM Venues Combined

Drug Name	35 & younger (n=90)	36 & older (n=145)	Significance (p<.05 in bold)
Younger Adults Higher Proportion Used			
MDMA	43	28	0.018
GHB	19	10	0.042
Ketamine	21	10	0.014
LSD	37	31	0.373
Methamphetamine	30	25	0.384
Older Adults Higher Proportion Used			
Poppers	50	62	0.069
Coke Powder	32	39	0.273
Prescription Opiates	7	15	0.050
Amphetamines	6	16	0.018
Benzos Downers	10	14	0.390

Lifetime history of anal sex while under the influence of both MDMA and Viagra (Sildenafil) was reported by 9% of men surveyed at bathhouses/sexclubs and 20% of men surveyed at gay bars. The majority of both groups of MSM reported no use of Viagra in the prior six months, though men surveyed at bars reported any use during the past six months more often (24%) than MSM surveyed at bathhouses/sexclubs (9%). For both groups, using Viagra once during the past six months was the most common frequency endorsed.

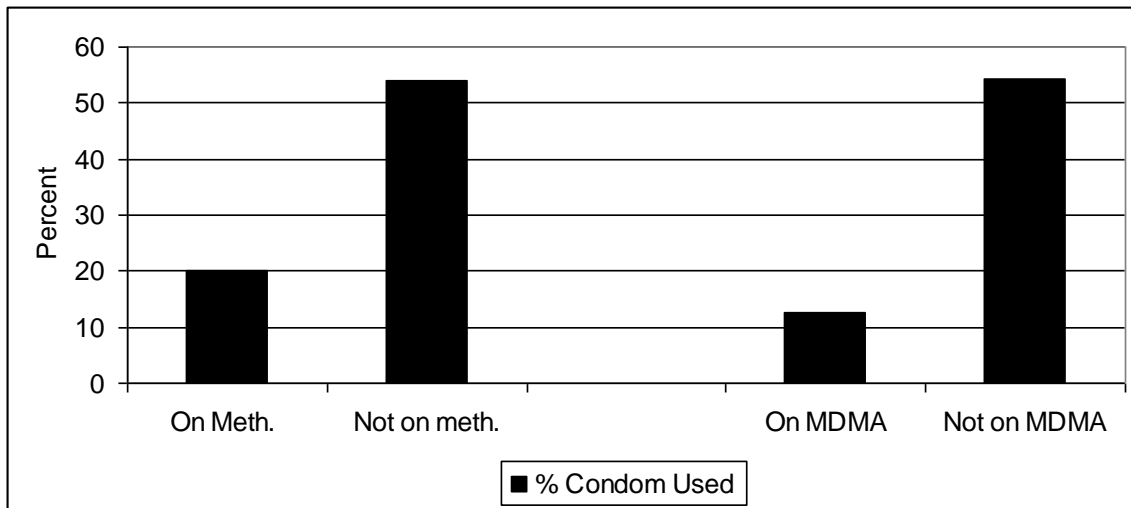
Figure 7 reports on the use of alcohol and other drugs during the last anal sex encounter. Overall rates for use of alcohol or other drugs is similar for survey respondents at both venues. Differences emerge when specific drugs are examined. Men surveyed at gay bars reported using alcohol and MDMA much more often. Men surveyed bathhouses/sexclubs were much more likely to report using poppers and methamphetamine.

Figure 7- Alcohol or Other Drugs Used During Last Anal Sex Among MSM



Use of drugs during the last sexual encounter was associated with a much lower likelihood of condom use for both methamphetamine and MDMA. For MDMA, 54% of those not using MDMA during their last anal sex encounter did use a condom compared with 13% of those using MDMA (Figure 8). Though the total numbers were small, this association between MDMA use and unprotected anal intercourse was significant even after controlling for methamphetamine use.

Figure 8- Condom Use During Last Anal Sex by Methamphetamine and MDMA Use



Discussion

Overall levels of lifetime use of club drugs, as well as other drugs, are substantially higher than reported in population surveys indicating that these four groups represent groups at increased likelihood for use of these drugs. Use of club drugs is higher among those surveyed in the community based survey in comparison to local school survey findings. Specifically, while the Seattle school survey shows that 16 percent of 12th graders have reported lifetime use of MDMA, community based survey data reveal that 45 percent of those surveyed at youth treatment agencies and 62 percent of rave attendees aged 17 and 18 reported lifetime use of MDMA. Use of MDMA and hallucinogens was higher among Seattle school survey respondents for all measures of use compared to similar national data collected for the Monitoring the Future study⁴. Lifetime MDMA use was 11 percent among 12th graders nationally compared to 16 percent in Seattle, use in the prior 30 days was 2 percent nationally and 6 percent locally.

Among the four groups, rave attendees reported the highest level of use of any club drug with youth in treatment reporting the lowest level of use. However, since youth in treatment were the youngest group surveyed, and club drugs are often used several years after initial use of alcohol or other drugs, they would be expected to have lower levels of use relative to older groups. Several other club drugs were also used at relatively high levels, depending on the sub-group, including GHB, LSD and Ketamine.

Frequency of use in the past 6 months for MDMA was markedly different than for alcohol, with about half using in the past 6 months and the majority of those who did use reporting use less than monthly. While similar high lifetime use levels among rave attendees has been reported elsewhere, the frequency of use in the prior 30 days in Seattle is lower than that reported in several areas including Baltimore-Washington D.C., 48 percent⁵ (Arria), Montreal, 53 percent (Gross)⁶, and Edinburgh, Scotland, 74 percent⁷ (Riley). The lower frequency of recent use in Seattle may be due to the broad definition of ‘raves’ used to select venues to include events identified by promoters and the rave community as raves as well as events at established facilities playing rave-type music, which likely attract more diverse participants. Lower frequency of recent use based upon survey data collected in the summer of 2003 may also be due to a temporal trend in which U.S. and Seattle indicator data appear to show a peak in MDMA use in 2000 and 2001 with a decline in subsequent years.

Among those surveyed at raves who had ever used MDMA, those who used in the prior six months had initiated use more recently than those who had not used, 2.9 years since first use compared with 4.3 years ($p=.0003$). This points to a possible transient phenomenon involving MDMA use.

MDMA use was significantly associated with lifetime use of many other drugs among survey respondents at almost all venues. Significant associations were found for respondents at all four types of venues for LSD, ketamine, mushrooms, poppers, powder cocaine, methamphetamine and benzodiazepines/downers (data not presented in this report). Arria et al. (2002) reported that current MDMA users were significantly more likely than non-users to report marijuana and powder cocaine use in the prior 12 months. Forsyth reported on drugs used by those in the Glasgow rave scene and found that the drugs most commonly mentioned were alcohol, marijuana, Ecstasy, LSD, amphetamine, cocaine and nitrites; all of which were used by over half of respondents⁸.

MDMA was used in many different locations with rave attendees and youth surveyed in treatment agencies using most commonly at raves. MSM reported high levels of use at bars. Use was also common in homes and apartments by all groups surveyed. So, while use in clubs is common, so too is use in other venues and it is important that the community be aware that the use of these so called 'club drugs' is not limited to a single type of setting.

Among men recruited at gay oriented venues, MDMA users were younger than non-users, while for those from rave/dance club venues the relationship was inverse. This disparate finding regarding the ages of MDMA users could be due to two factors: 1) the rise of MDMA in recent years may be more substantial among those in early to young adulthood, i.e. this difference reflects a secular trend in MDMA use and 2) MDMA, and other club drugs, are generally used at a later age than most other drugs by survey respondents. Survey data reveal that among those surveyed in raves the mean age of first use of MDMA was 18.3 compared to 14.6 for marijuana and 16.4 for LSD. This contrasts with gay bar recruits, for example, for whom the average age at first use of MDMA was 26.4, compared to 18.5 for marijuana, and 21.2 for LSD. These data

highlight the importance of accounting for the arrival, or resurgence, of various drugs when examining the pattern of drug initiation.

Substantial proportions of all respondents reported driving a car while under the influence of MDMA. Unprotected anal/vaginal sex while using MDMA was reported by a substantial minority of respondents with overall levels similar to those for unprotected sex while on alcohol. A minority of respondents reported that their MDMA use was 'out of control' or that they were concerned about long term consequences of use related to their MDMA use in the prior six months. Two factors need to be considered when interpreting these findings 1) these levels are relatively high considering how infrequent use of MDMA was and 2) these findings are for those who had used in the past six months. Those who had experienced substantial problems resulting from their MDMA use may well have stopped using earlier, resulting in an underreporting of problem behaviors. Feeling that their use of MDMA was 'out of control' was reported by 8 percent of participants from raves who used at least monthly in the past six months compared to one percent of those who used less than monthly ($p=.014$). Higher levels of lifetime MDMA use has been found to be associated with more psychobiological problems among MDMA polydrug users⁹.

Use of adulterated MDMA was reported by respondents in all groups. Adulterated drugs sold as MDMA have the potential to be particularly dangerous as they often include other unknown drugs with unknown potency and effects. Adulterated drugs sold as MDMA have the potential to be particularly dangerous as they may include other unknown drugs with unknown potency and effects. Baggott et al. (2000) chemically analyzed 107 pills purported to contain MDMA from users throughout the United States¹⁰. They found that 63 percent contained MDMA or an analogue, 29 percent contained an identifiable drug, dextromethorphan being the most common 21 percent; currently available pill testing kits cannot identify dextromethorphan and according to the authors co-ingestion of MDMA and dextromethorphan can increase the adverse effects of dextromethorphan. Drug test kits available to the general population are severely limited with three primary limitations according to Winstock et al. (2001): 1) multiple drugs may be present, but not detectable, 2) if MDMA is detected its impact on an individual cannot be predicted, and 3) strength of the drug detected cannot be determined¹¹.

Use of anti-depressants specifically to control the effects of MDMA was reported by a minority of respondents 12% to 18% depending on the sub-group, however this is an important finding because it represents individuals concerned enough about the psychological effects of MDMA to use a prescription psychiatric medication in an unintended manner. Some MDMA users believe 5-HTP helps brain serotonin levels and prevents MDMA associated depression, a published review of the literature on tryptophan and 5-HTP did not find convincing evidence of the anti-depressant properties of these supplements¹². Cottler et al. (2001) found that 37 percent of users reported feeling depressed following MDMA use¹³.

Among MSM surveyed at both venues, HIV infection rates were quite high. Use of alcohol and other drugs during the last anal sex encounter was also relatively high, with differing drug use patterns by venue. Given the finding that methamphetamine and MDMA are each associated with unprotected anal sex and given the prevalence of HIV among the MSM surveyed, the risks for HIV among some in this population appear to be high.

Summary

Several factors appear to underlie the relatively low levels of morbidity and mortality associated with MDMA despite relatively high levels of use among certain populations. Most people who have ever used MDMA either no longer continue to use the drug, or use it infrequently, so that the opportunities for acute negative consequences are infrequent compared to alcohol, for instance. Among those who used in the prior six months, only a small minority reported acute negative consequences such as over dosing or passing out. Acute toxicity due to moderate doses appears to be low based upon self report data of problems associated with use and population level data that indicate low morbidity and mortality associated with MDMA use relative to the level of use in the community.

Ramifications of these findings for prevention and intervention efforts are many. Given the suspicion of many users regarding information from government and law enforcement sources some of the types of information provided in this paper may be of benefit. For instance, the self report of problems associated with MDMA use, most notably depressant related effects would

provide an excellent starting point for conversation with adolescents who may be considering using, or have already initiated use. Prevention and intervention efforts need to integrate updated information about abuse liability of MDMA. Data from focus groups conducted by Public Health- Seattle & King County with MSM along with risky behaviors identified in the club drug survey point to the need for prevention and intervention efforts tailored to MSM that account for the role of drugs in sexual identity and sexual behavior for some MSM.

A balanced educational message is needed that accounts for the fact that the risk of acute toxicity associated with small doses of MDMA is relatively low, but that there is the potential for longer term negative psychological consequences as well as acute risk with unknown purity, high doses and dangerous adulterants. An educational approach is needed that accounts for the realities that most youth have encountered, infrequent negative consequences due to MDMA among occasional users, along with lessons learned from heavier users, psychological problems, occasional overdoses and deaths. Adulteration is another concrete issue to be discussed with youth which is a significant problem. Educational programs need to make the shortcomings of drug test kits clear: they are difficult to read, do not detect all adulterants, and give no indication of the amount of drug present.

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