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Drug Use among Gay and Bisexual Men at Weekend Dance Parties:The Role of Intentions and Perceptions of Peers' Behaviors

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Abstract

Substance use is high among gay and bisexual men attending weekend dance events, yet little research has investigated motivations for drug use and contextual factors influencing use in these settings. We hypothesized that beliefs about peer drug use interact with individuals' own drug use intentions to predict use. 489 men attending weekend dance events completed an anonymous assessment asking about their own and their beliefs about other attendants' drug use intentions – 47% completed a follow-up assessment after the event. Forty-four percent reported intending to use ecstasy at the event; intentions to use GHB, marijuana, cocaine, unprescribed Erectile Dysfunction Drugs (EDDs), and poppers were also high. Perceptions about other attendant's drug use predicted use among those intending and those not intending to use drugs. Normative beliefs are important predictors of drug use at weekend dance events; event-specific prevention strategies should encompass messages that correct misperceptions of drug use among party attendants.

Keywords

Gay; Bisexual; Peer; Drug Use; Ecstasy

Introduction

Use of illegal drugs is one of the primary risk factors for HIV infection among men who have sex with men (MSM) [1–3], and is also associated with other risk factors associated with HIV infection including unprotected anal intercourse (UAI) and having multiple sex partners [4–8]. Thus, understanding contexts in which gay and bisexual men use drugs and their motivations for using is necessary to inform public health campaigns geared toward this population that tends to have higher rates of drug use than their heterosexual peers [9–11]. This is particularly important in light of the increasing rates of HIV infection among men who have sex with men in the United States. One setting in which prevention campaigns could be developed is weekend dance events at vacation destinations – events that in the past were commonly referred to as "circuit parties" and where prevalence of substance use, particularly ecstasy but also ketamine, Gamma-Hydroxybutyric Acid (GHB), cocaine, and crystal methamphetamine, is known to be high [12–15]. Studies conducted

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among men who have attended these events or at the events themselves confirm what is observed in more general studies of MSM, that at these parties the only risk factor consistently identified as increasing the risk of unprotected anal sex is increased drug use at the event [13, 15]. Recent studies examining drug use in these settings are lacking, and it is unclear whether drug use patterns at these events mirror trends over time observed among gay and bisexual men in urban environments (e.g., decreasing use of ecstasy between 2002–2007 in New York City) [16].

The theory of planned behavior [17] provides a useful starting point for understanding drug use among gay and bisexual men in the context of weekend dance events. The theory proposes that specific behavioral intentions (e.g., intending to use ecstasy) are the strongest predictors of specific behaviors (e.g., actually using ecstasy). Yet the relationship between intentions and behavior is not absolute and can be altered, particularly when the stability of the intent is weak [18]. One factor that may influence the stability of party-goers' intentions to use specific drugs is their beliefs about the behaviors in which other men at the party will partake. From a social learning perspective, men may model the actual or perceived drug use behaviors of their peers at the event, and these peers may, in turn, reinforce these behaviors [19]. An alternative way to consider other party-goers' influences on drug use at weekend events is a social norms perspective which posits that individuals tend to overestimate the substance use of their peers and, as a result, are likely to engage in higher levels of substance use themselves [20–22]. The latter of these theories is the theoretical underpinning we consider in the current study.

Past research, conducted primarily among college students and adolescents, suggests that overestimation of peer substance use is common [23–25]. However, the intricacies of how and in what contexts overestimation of peer drug use influences individual use are not fully understood. Most of the literature centers on descriptive norms, which relate to behaviors perceived as *typical* as opposed to those which are *morally approved or disapproved* [26]. Also, research on adult populations is limited; studies to date suggest a strong relationship between individuals' perceptions of their peers' substance use among adults in neighborhoods [27] and at worksites [28].

The influence of peer norms on drug use has rarely been studied among gay and bisexual men, though peer networks may be particularly salient in shaping substance use behaviors in this population. During adolescence and young adulthood, gay men may be less likely to form a strong sense of personal identity amidst heteronormative environments [29, 30]. During adulthood, gay and bisexual peers can play an important role in fostering each other's personal identities and do so, at least in part, via different gay "peer crowds" [29, 30]. In one study of gay men in New York City, men who reported socializing predominantly with other gay men had higher odds of drug use than gay men with more diffuse social networks [31]. Another study found not only that there are a number of distinct, recognizable crowds in gay communities but that men who affiliated with certain crowds were at higher risk for adverse health behaviors, including binge drinking and drug use [30]. Those at highest risk in the study were those who identified with "circuit partiers."

The current study hypothesizes that among gay and bisexual men attending weekend dance events, normative beliefs about other party-goers' drug use interact with individuals' own intentions to predict drug use at the event. We test this hypothesis using data from a short-term longitudinal portal survey of gay and bisexual men attending one of two weekend dance events in the United States.

Methods

Sample

The current study is based on the PartyIntents study sample, described in detail in a separate publication [32]. Portal survey methodology [33] was used to recruit gay and bisexual men as they arrived at one of two weekend parties catering to them (one held in the Southeast United States; one held in the Northeast United States) and characterized by multiple dance events. This recruitment strategy is recommended for studying alcohol and drug use before and after high-risk events [33] and as described elsewhere [32], efforts were made to minimize bias and to ensure that the sample was generally representative of all men attending the party, though comparing the sample to the population it represents was not possible. Specifically, survey staff was located at an entrance to each party and approached potential respondents as they crossed over an invisible line to determine eligibility. To be eligible, individuals had to be male, 21 or older (the minimum age required to attend the dance parties), identify as gay or bisexual, and be planning on attending at least one of the weekend party events. Those eligible then completed an anonymous, self-administered, paper-and pencil survey. Recruitment spanned the entire day and occurred over multiple days to ensure a representative sample. Men were encouraged to complete their anonymous follow-up assessment in-person before leaving the event or online for up to two weeks after the event. Baseline and follow-up responses were linked using responses to three security questions, and participants were remunerated for their participation in each survey.

Measures

Questions about drug use were asked for 8 types of drugs: ecstasy, ketamine (also known as “Special K” or “K”), crystal methamphetamine, GHB or GBL, marijuana, cocaine or crack (asked as a single question), Viagra, Cialis, or Levitra without a prescription (termed Erectile Dysfunction Drugs, or EDD, for the remainder of this paper), and poppers (i.e., nitrate inhalants). For each, respondents were asked about their past use of the drug, their own intention to use the drug, their use of the drug over the weekend, and their normative beliefs about other party attendants’ intentions to use and actual weekend use of the drug.

Intention to Use—At the baseline assessment, all respondents were asked “How likely is it that over the course of the weekend you will use each of the following…?” Response options were: Not at all likely, Somewhat unlikely, Somewhat likely, or Very likely. Intention to use was defined as reporting somewhat or very likely.

Weekend Use—At the follow-up assessment, all respondents were asked: “Over the course of the weekend, when did you use each of the following…?” Respondents were instructed to “mark all that apply,” and response options were: Did not use, or Used Thursday, Friday, Saturday, Sunday, or Monday.

Normative Beliefs—At baseline and at follow-up, respondents were asked: “Over the course of the weekend, how many of the men attending [Party Name] will use/used each of the following…?” Response options were: Hardly anyone, Less than half, About half, More than half, or Mostly everyone.

Covariates—In the multivariate models described below, we included measures of past year use, age, and past party attendance collected via self-report. We also included an indicator of party location (Northeast or Southeast site).

Analysis

The analytic goal was to examine the relationship between intent to use drugs, normative beliefs about drug use, and actual drug use over the course of the weekend party. First, we describe characteristics of the study sample and the prevalence of intent to use each specific type of drug, the prevalence of actual drug use, and the median value of normative beliefs about drug use both at baseline and at the follow-up. We examine the possibility of attrition bias by examining differences between the entire baseline sample and those who completed both the baseline and follow-up surveys. In this process, we first compute absolute standardized mean differences (ASMD) between the two groups (standardizing by the standard deviation of the baseline sample) for a specific set of pre-determined characteristics measured during the baseline survey, noting values of ASMD that are greater than 0.20 [34]. Next, we weight the responder sample to be similar to the entire sample at baseline with respect to this set of pre-determined characteristics, and examine outcomes at the follow-up among the weighted and unweighted versions of the responder samples. We create our non-response weights using the "twang" package in the R programming environment to fit Generalized Boosted Models (GBM) to the indicator for whether or not an individual responded to the follow-up survey conditional on our pre-determined set of characteristics. Our pre-determined set of characteristics that we used to construct weights included demographic data (age, race, relationship status, education level, employment status, residential status), location of party, HIV status, intention to use each drug category, and expectation to have unprotected anal intercourse.

We then present descriptive statistics describing the hypothesized strong relationship between intentions to use drugs and actual use. Specifically, we present the bivariate odds ratios that describe the association between intentions to use drugs over the weekend and use of the same drugs, as well as the proportion of men who used conditional on their intent to use.

To examine how normative beliefs influence drug use in the presence of drug use intentions, we conducted multivariate logistic regression models for weekend use stratified by intent to use each drug type. These models included as predictors baseline perceptions about other attendants' drug use (entered as a 5-level continuous variable), as well as indicators of whether at follow-up men thought more or fewer people used each drug type (reference category was no change in normative beliefs). Covariates are described above (past year use of the drug, age, past party attendance, and party location). We present adjusted odds ratios with corresponding confidence intervals, and denote those associations that remained significant at $p<0.05$ after adjustment for multiple testing using the Benjamini-Hochberg correction [35].

Results

Study Sample

Descriptive characteristics of the study sample at baseline and follow-up are presented in Table 1. A total of 489 of 504 eligible respondents completed an anonymous baseline assessment when they were recruited (239 at the Northeast event location and 250 at the Southeast location). Across both sites, 232 respondents (47%) completed the follow-up assessment when they were leaving the event in-person (n=147) or online (n=85) for up to two weeks after they had left the event. Age was uniformly distributed between 21 and 54 year-olds; the mean age at baseline was 36 (Standard Error=0.4). The sample was also overwhelmingly White/Non-Hispanic, highly educated, and employed full-time. Around half reported their relationship status as single. Also, around half lived in or around the metropolitan area where the party was being held, while 10% lived outside of the United

States. Seventeen percent of those surveyed at baseline reported having tested positive for HIV.

An alternate publication provides rich detail about characteristics about the study sample [32]. Worth noting is that some differences existed between the Northeast and Southeast study sites: in the Southeast location, there was a greater proportion of Hispanics (22% vs 14%) and men with less than a college education (22% versus 13%); the event held in the Southeast United States also attracted more men from outside of the metropolitan area in which the event was located. In addition, those who completed the follow-up online generally were more likely to report using drugs over the weekend than those who completed it in-person.

Prior to applying our nonresponse weights, there was no baseline variable for which the responder and baseline samples had an ASMD greater than 0.20. The largest ASMD was intention to use ketamine (i.e., unweighted responder mean=0.09, baseline sample mean = 0.15; unweighted ASMD = 0.15). After applying our nonresponse weights, this difference went away (weighted responder mean = 0.12; weighted ASMD = 0.07; See Supplemental Table 1). This evidence that our responders are representative of the baseline sample is further supported by the fact that the baseline variables used in our GBM fit to the follow-up indicator only explained 7% of the variance in follow-up indicator. Nonetheless, we did apply these weights to the full sample to see if our prevalence estimates of drug use and unprotected sex were sensitive to use of nonresponse weights. Prevalence estimates remain unchanged after weighting which is further evidence that the follow-up sample is generally representative of the baseline study sample assuming nonignorability (i.e., weekend use is not associated with follow-up above and beyond that which is explained by demographic characteristics or intentions; See Supplemental Table 2). In light of these findings, the results we present are unweighted in order to maximize power to detect significant associations in this sample.

Prevalence of intended drug use, actual drug use, and normative beliefs about drug use

Party attendants generally thought that more men would use each drug type than actually intended to use (Table 2). More than half of all survey respondents thought that more than half of the men attending the weekend events would use ecstasy, cocaine/crack, unprescribed EDDs, and poppers, though for each drug type fewer than half of those asked actually intended to use. Among all party attendants, 44% intended to use ecstasy, and approximately 1 in 5 intended to use each GHB, marijuana, cocaine/crack or crack, unprescribed EDDs, and poppers (intention to use ketamine and crystal methamphetamine were lower, with approximately 15% and 7% of respondents intending to use each, respectively). Among those who completed the follow-up assessment, prevalence of actual use generally reflected intention to use, particularly for ecstasy (42%), GHB (18%), marijuana (20%), unprescribed EDDs (18%), ketamine (13%) and crystal methamphetamine (7%). On the other hand, use of poppers was lower than intended (13%) whereas use of cocaine/crack was greater than intended (25%).

Men were also asked after the party how many attendants used each drug type. The median response for ecstasy was “about half”- for all other drugs, the median response was ‘less than half.’ For ecstasy, cocaine/crack, EDD and poppers this means that men generally thought fewer people used than they initially expected; for ketamine, crystal methamphetamine, GHB, and marijuana perceptions before and after the party were generally the same.

Relationships between drug use intentions, normative beliefs, and weekend use

As hypothesized, intending to use a specific drug was the strongest predictor of actual use, with a mean bivariate odds ratio across all drug categories of 53 and ranging from 16 (poppers) to 129 (crystal methamphetamine; data not shown). Viewed prospectively, Figure 1 presents the proportion of men who used given their intention to use each drug type. For example, 84% of those who intended to use ecstasy actually used it over the course of the weekend relative to 12% who used among those who did not intend to use. For most drug types (except ecstasy and cocaine/crack), fewer than 10% of those who did not intend to use actually used the drug; conversely, at least two thirds of those intending to use each drug (except poppers) actually used the given drug.

Odds ratios derived from multivariate models that examined the relationship between baseline normative beliefs about drug use, changes in these beliefs, and actual use are presented in Table 3 among those who intended to use each drug type at baseline, and Table 4 among those who did not intend to use each drug type. All models for each drug type also adjusted for past year use, past party attendance, age, and location of the party. For example, among those intending to use ecstasy, thinking at baseline that more party-goers would use ecstasy over the weekend was associated with a 2-fold increase in the odds that an individual would himself use (adjusted Odds Ratio (aOR) =2.0, 95% Confidence Interval=1.0, 3.8). However, there was no statistically significant association between thinking more or fewer people used ecstasy after the event with actual use. Along with ecstasy, among those intending to use marijuana, the likelihood of using the drug was associated with perceiving more men were going to be using these drugs at baseline (aOR =8.2, 95% CI=1.3, 50.6). On the other hand, among those intending to use unprescribed EDDs, those who thought that fewer used over the course of the weekend than they expected would use were less likely themselves to use this drug. As shown in Table 4, baseline perceptions of use also predicted use among those who did not intend to use ketamine (aOR=1.9, 95% CI=1.0, 3.8), GHB (aOR=2.3, 95% CI=1.1, 4.8), cocaine/crack (aOR=2.4, 95% CI=1.3, 4.4), and unprescribed EDDs (aOR=2.8, 95% CI=10.0, 7.8). In addition to baseline perceptions, thinking more men used than initially expected was associated with actual use for ketamine (aOR=5.9, 95% CI=1.5, 23.0) and cocaine/crack (aOR=3.5, 95% CI=1.0, 12.3), and extremely large odds ratios nearing significance were found for unprescribed EDD (aOR=7.1) and poppers (aOR=4.1).

Discussion

Increasing rates of HIV-infection among men who have sex with men will require multiple approaches for prevention. Stall and colleagues [36] proposed that a congruence of additive psychosocial health problems among urban MSM, including substance use, “magnify the effects of the HIV/AIDS epidemic in this population.” They suggest that addressing psychosocial factors affecting MSM, specifically mental health, substance use, and violence, is critical to addressing HIV infection among this population and, separately, could enhance the utility of existing interventions focused specifically on HIV. To work towards this end, our study sought to examine motivations for drug use at weekend dance parties where drug use has historically been high. While many factors may account for drug use at these events – for example, the events themselves attract drug-users, drugs may be more available, or the event may provide more opportunities to use them – we specifically examined the role of intentions and of social norms.

The results from the current study confirm what past studies using convenience samples have described: that at weekend dance events in vacation destinations held for gay and bisexual men, drug use is notably high. In our study, which used an approach designed to be more representative of all those in attendance [32, 33], almost half of participants arrived at

the party intending to use ecstasy, while one in five intended to use each of five other drugs (GHB, marijuana, cocaine/crack, unprescribed EDDs, and poppers), and one in ten intended to use ketamine and/or crystal methamphetamine. These intentions were strong predictors of use of these drugs over the course of the weekend. However, the results presented here indicate that even after accounting for these specific drug-using intentions, men's beliefs about other party-goers' drug use was important in predicting their own drug use over the weekend. Among those who intended to use ecstasy and marijuana, thinking that more men would use these drugs predicted individual use. What is more striking, however, is the role of normative beliefs among those who did not intend to use each drug type. In multivariate models that accounted for use of each drug in the recent past, among those who did not intend to use, those who thought more men would use ketamine, GHB, cocaine/crack, and unprescribed EDDs were more likely themselves to use each drug type over the weekend. These results are sensitive to multiple testing, as Benjamini-Hochberg adjustments in many cases resulted in p-values that are no longer statistically significant at the 0.05 level. However, the magnitude of the odds ratios are meaningful and in the hypothesized direction, and remain marginally significant after adjusting from multiple testing with adjusted p-values ranging from 0.08 to 0.12.

There were also relationships between shifting perceptions about drug use and actual drug use, though even with the closely spaced longitudinal data used it is difficult to discern temporal ordering between these constructs. For instance, among men intending to use unprescribed EDDs, those who thought fewer used after the weekend than they originally thought were less likely to use themselves. It may be that over the weekend they were unable to acquire the drug and thus thought fewer men used; alternatively, they may have witnessed fewer men using and thus decided not to use themselves. Similarly, men were more likely themselves to use for at least three drug types (ketamine, marijuana, and cocaine/crack) if after the party they thought more men used than they thought would use when they first arrived. It could be that after afforded the opportunity to use themselves these men thought that many more men used these drugs, or that seeing many more men using than they initially thought influenced them to use these drug types.

The weekend dance events studied in the current investigation are important venues for preventing drug use and associated harmful consequences among gay and bisexual men. In the current study, participants tended to overestimate other party attendants' drug use, especially for ecstasy, cocaine/crack, nonprescribed EDDs, and poppers. Prevention campaigns geared toward reducing individuals' overestimation of their peers' substance use behaviors are effective strategies for curbing individuals' substance use, though to date these campaigns have focused primarily on heavy drinking among college students [37–39]. "Event- and context-specific norms interventions" have been suggested for college students who tend to overestimate their peers' drinking behaviors at events such as tailgating parties and at 21st birthday celebrations [25]. Similar interventions could also be designed and tested among gay and bisexual men in the context of weekend dance events. However, while social norm campaigns found effective among college students may be a useful starting point for developing such interventions, it will be important to adapt them to be sensitive to the gay and bisexual men attending these events. Not only must these campaigns be geared toward gay and bisexual men, but the average age of participants in the current study is much older and they tend to be more highly educated than college students, and thus will likely require different communication strategies.

It should also be noted that the PartyIntents study does not enable us to differentiate whether the intentions, behaviors, and normative beliefs at the weekend dance event differ from those held by the same men in their regular, day-to-day lives. Such a finding would not

diminish the importance of event-specific interventions, but instead signify the need for additional interventions that reach men in their regular, daily lives.

While normative beliefs are important in predicting drug use at weekend dance events, specific drug-using intentions remain the strongest predictors of drug use at these events. Thus, even if effective, correcting misperceptions of drug use should be one component of a comprehensive strategy for developing prevention campaigns in this context. This corresponds to prior recommendations to develop comprehensive, multifaceted interventions for college events [40] and circuit parties [41]. Such a strategy is also in-line with recent findings by researchers who question the salience of normative perceptions on individual drug use and who state that proximal peer contacts (i.e., contact with peers who use certain drug types and offers from peers to use drug types) are what both influence individual behavior and shape normative beliefs [42]. An integrated approach may thus train peer opinion leaders to deliver messages at such events that not only encourage safe and healthy behaviors, but that also correct misperceptions about drug use among other party-goers [43, 44].

The current study findings thus inform future studies that aim to explore causes and correlates of drug use among gay and bisexual men by stressing the potential importance of event-specific contexts in which drug use occurs and perceptions of peers' behaviors at these events. However, it also focuses the need for future studies to expand upon these results by investigating more closely the peers with whom gay and bisexual men affiliate and how these affiliations influence individuals' perceptions of other gay and bisexual men's behaviors.

The focus of the current study on intentions and normative beliefs on drug use does not discount what may seem like alternative theories of drug use and sexual risk-taking at these types of events. A theoretical model proposed in 2005 [41] suggests that in addition to expectations, contextual factors also influence drug use and sexual risk taking at circuit parties: namely, ritualistic meanings attached to drug use at events, dynamics of the dance floor such as close bodily contact, darkness, pornographic images, go-go dancers, and sexual cues that are omnipresent at the event. According to this model, these factors in addition to expectations lead to drug use, a sense of deindividualiztion among large crowds of similar men, and enhanced feelings of community brought about by sharing experiences with party-goers, all of which in turn lead to increased libido coupled with cognitive distortions. Our measure or normative beliefs may be crude representations or, at least, correlates of 'deindividualization' or 'enhanced feelings of community.' Indeed, results from the current study suggest that more research is needed into these more nuanced concepts, and that such research should examine relationships among different drug types separately. However, for those who arrive at the party already intending to use, the current study indicates that these factors may be less important and that alternative strategies may be needed for those arriving at the party intending to use than those who do not.

The findings reported here should be considered in light of certain limitations of the current study, the first of which is our inability to examine proximal peer contacts and how these contacts are associated with men's intentions to use drugs and perceptions of other party attendants' drug use. In addition, though our baseline response rate was high, only 47% of respondents originally recruited at baseline completed the follow-up assessment. Though this is considered "low," there is little precedent for conducting anonymous, longitudinal data collection with surveys administered over a period of time that spans multiple days. Unfortunately, the anonymity afforded to survey participants in the current study precluded us from most follow-up strategies used to remind participants to complete the follow-up study. Our study of attrition suggests that those who were lost to follow-up were more likely

to, at baseline, report intending to use different drug types [32], and post-hoc analyses indicate that men who did not complete the follow-up tended to think that more men would use ketamine, crystal methamphetamine, GHB, marijuana, cocaine/crack, and poppers than those who completed the follow-up. Without knowing whether these men actually used each drug type, it is difficult to know how the omission of these men impacts our outcome analysis. However, applying non-response weights which were estimated using demographic characteristics and drug and sexual intentions did not significantly alter prevalence estimates at follow-up. This suggests that although there are differences in drug-use intentions in some categories between those who did and did not complete the follow-up assessment, such differences do not affect our outcome estimates. With some assumptions, the behaviors over the weekend of respondents should be representative of the baseline sample. However, to the extent that the associations between intentions, perceptions, and weekend use differ among those men lost-to-follow-up, perceptions of peer behaviors may have greater or less influence on individual use. As discussed elsewhere [32] creative strategies are needed to increase participation of men such as those in the PartyIntents study to ensure the accuracy of information used to guide the development of interventions geared toward this population.

Notwithstanding these limitations, the current study provides new and unique insights into drug use in contexts where use is high and potentially heightened, adding to only one other study that we know of to date that has examined normative beliefs of behaviors at singular events [25]. For gay and bisexual men attending weekend dance events, intentions and perceptions interact to produce high rates of drug use, specifically ecstasy but also GHB, cocaine/crack, marijuana, and nonprescribed EDDs. The results provide a better understanding of motivation for drug use among gay and bisexual men in this context. Indeed, drug use among this population remains a critical public health issue – not only due to the direct consequences of harmful use (e.g., overdose, development of a substance use disorder) but also because of the link between drug use and incident HIV infection [1–3], an epidemic that continues to plague gay and bisexual men in the United States.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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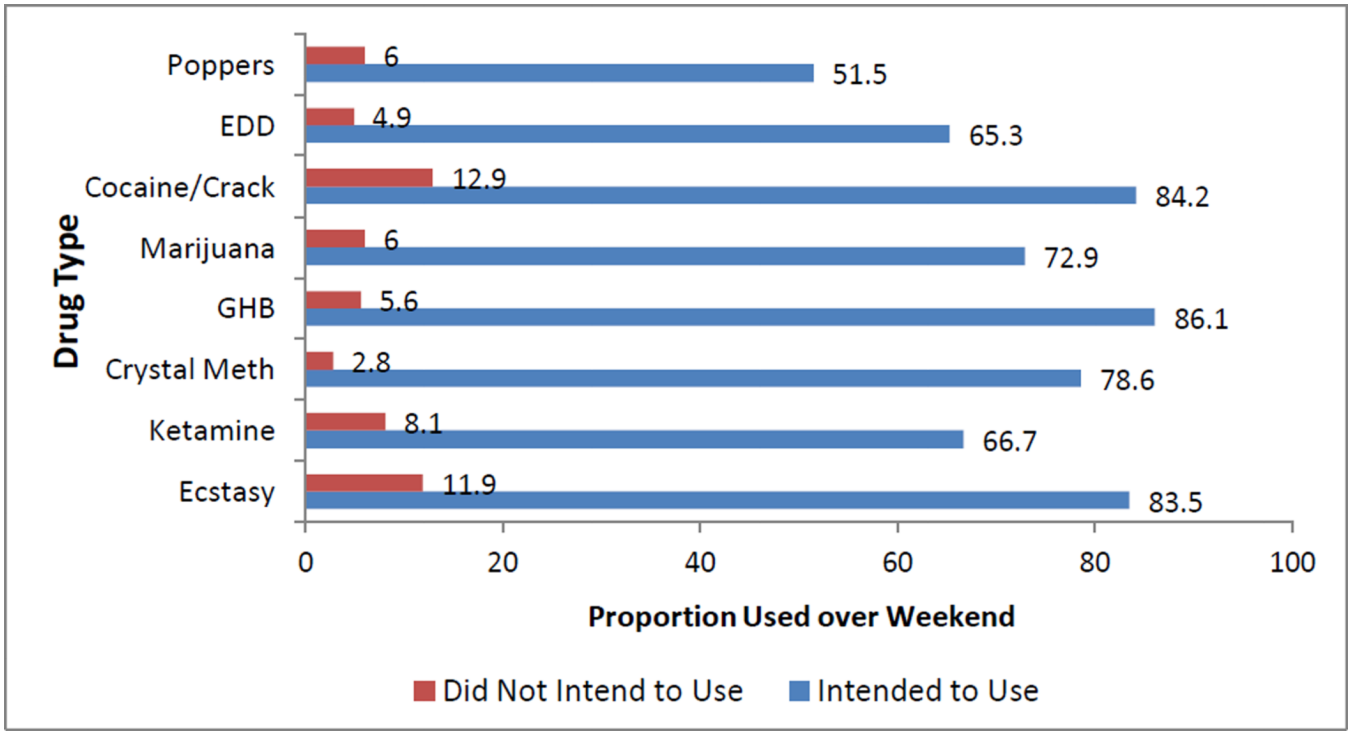

Figure 1.
Weekend use of specific drug types among those who intended or did not intend to use that drug type

Table 1

Descriptive characteristics of PartyIntents study sample.

	Baseline	Follow-up
	N (%)	N (%)
Total	489 (100)	232 (100)
Party Location		
Northeast U.S.	239 (49)	122 (53)
Southeast U.S.	250 (51)	110 (47)
Age		
21–30	150 (31)	64 (28)
31–40	133 (27)	64 (28)
41–54	146 (30)	74 (32)
>=55	12 (2)	6 (3)
Race		
White, Non-Hispanic	349 (71)	178 (77)
Black, Non-Hispanic	21 (4)	7 (3)
Asian, Non-Hispanic	19 (4)	9 (4)
Other, Non-Hispanic	13 (3)	7 (3)
Hispanic	87 (18)	31 (13)
Relationship Status		
Married	32 (7)	11 (5)
Live-in Male Partner	137 (28)	73 (31)
Steady Boyfriend	73 (15)	33 (14)
Single	247 (51)	115 (50)
Educational Attainment		
Less than college	85 (17)	35 (15)
Bachelor's	220(45)	102 (44)
Post-graduate studies	183 (37)	95 (41)
Employment Status		
Full-Time	413 (84)	197 (85)
Part-time/Student	29 (6)	12 (5)
Other	44 (9)	23 (10)
Residential Status (See Note)		
Within Metro Area	215 (44)	100 (43)
Outside Metro Area, within U.S.A.	217 (41)	107 (46)
Outside U.S.A.	53 (11)	25 (11)
Tested Positive for HIV	83 (17)	39 (17)

Metro area was defined as the metropolitan statistical area (MSA) in which the party was located for the Southeast site, and as the closest city with over 100,000 persons to the Northeast site.

Table 2

Intention to use, perceived use, and actual use of specific drugs over the course of the weekend party.

	Baseline (N=489)		Follow-Up (N=232)	
	Perceived Use* Median	**Intend to Use** (%)**	**Perceived Use* Median**	**Actual Use (%)**
Ecstasy	More than half	44.0	About half	41.8
Ketamine	Less than half	14.5	Less than half	13.4
Crystal Meth	Less than half	7.0	Less than half	7.3
GHB	Less than half	19.8	Less than half	18.1
Marijuana	Less than half	21.9	Less than half	19.8
Cocaine or Crack	About half	21.9	Less than half	24.6
EDD	About half	21.5	Less than half	17.7
Poppers	About half	17.8	Less than half	12.5

*Respondents were asked about how many men attending the party they thought would use each drug type; Response options were: Hardly Anyone, Less than half, About half, More than half, Mostly Everyone

**Respondents were asked about their intention to use each drug type over the course of the party weekend. Intention was defined as reporting “very likely” or “somewhat likely.”

Table 3

Multivariate associations between normative beliefs about party attendants' drug use and actual use among those who intended to use each drug type.

	Ecstasy	Ketamine	Crystal Methamphetamine	GHB	Marijuana	Cocaine/ Crack	EDD	Poppers
	N=97	**N=21**	**N=14**	**N=36**	**N=48**	**N=38**	**N=49**	**N=33**
	OR (95%CI)	**OR (95%CI)**	**OR (95%CI)**	**OR (95%CI)**	**OR (95%CI)**	**OR (95%CI)**	**OR (95%CI)**	**OR (95%CI)**
Baseline Perceptions	**2.0 (1.0, 3.8)**	---	---	0.9 (0.2, 4.5)	**8.2 (1.3, 50.6)**	2.8 (0.6, 13.4)	1.6 (0.6, 4.2)	1.2 (0.4, 3.5)
Change in Perceptions Before and After Event								
No change (Ref)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Thought Fewer Used	0.6 (0.1, 2.6)	---	---	2.8 (0.1, 78.5)	0.2 (0.0, 1.5)	0.3 (0.0, 3.9)	**0.1 (0.0, 0.6)** *	0.2 (0.0, 1.5)
Thought More Used	1.0 (0.2, 4.3)	---	---	1.9 (0.1, 67.3)	---	6.6 (0.2, 217.4)	0.7 (0.1, 6.7)	2.2 (0.1, 56.8)

Note. This table represents results from multivariate logistic regression models estimated separately for each drug type. Odds ratios (OR) represent associations between respondents' baseline perceptions of how many party-goers they thought would use and whether between baseline and follow-up they changed to think more or fewer party-goers used. These models also adjusted for past year use, past party attendance, age, and party location.

Bolded estimates are those with confidence intervals that do not contain the null value (=1.0).

** denotes associations with p<0.05 controlling for multiple testing using the Benjamini-Hochberg correction;

* denotes associations with p<0.10 controlling for multiple testing using the Benjamini-Hochberg correction.

Table 4

Multivariate associations between normative beliefs about party attendants' drug use and actual use among those who did not intended to use each drug type.

	Ecstasy	Ketamine	Crystal Methamphetamine	GHB	Marijuana	Cocaine/ Crack	EDD	Poppers
	N=135	N=211	N=218	N=196	N=184	N=194	N=183	N=199
	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)
Baseline Perceptions	1.6 (0.7, 3.5)	**1.9 (1.0, 3.8)**	1.5 (0.5, 4.8)	**2.3 (1.1, 4.8)**	0.7 (0.2, 2.4)	**2.4 (1.3, 4.4)** **	**2.8 (1.0, 7.8)**	1.3 (0.6, 2.9)
Change in Perceptions Before and After Event								
No change (Ref)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Thought Fewer Used	0.2 (0.0, 1.7)	0.3 (0.1, 1.7)	N/A	0.3 (0.0, 1.5)	1.0 (0.1, 15.5)	0.3 (0.1, 1.0)	1.0 (0.1, 7.5)	0.1 (0.0, 1.2)
Thought More Used	1.4 (0.3, 8.0)	**5.9 (1.5, 23.0)** *	4.3 (0.6, 31.2)	0.9 (0.1, 9.0)	**6.5 (1.1, 38.3)**	**3.5 (1.0, 12.3)**	7.1 (0.7, 77.2)	4.1 (0.9, 19.8)

Note. This table represents results from multivariate logistic regression models estimated separately for each drug type. Odds ratios (OR) represent associations between respondents' baseline perceptions of how many party-goers they thought would use and whether between baseline and follow-up they changed to think more or fewer party-goers used. These models also adjusted for past year use, past party attendance, age, and party location.

Bolded estimates are those with confidence intervals that do not contain the null value (=1.0).

** denotes associations with p<0.05 controlling for multiple testing using the Benjamini-Hochberg correction;

* denotes associations with p<0.10 controlling for multiple testing using the Benjamini-Hochberg correction.