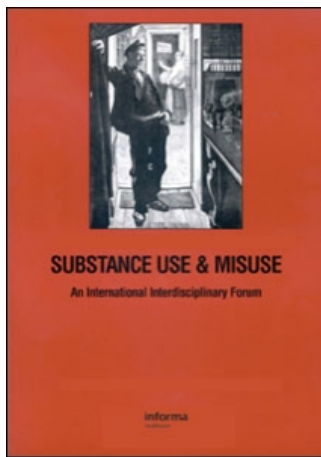


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Club Drug Initiation

Multivariate Modeling of Club Drug Use Initiation Among Gay and Bisexual Men

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This paper documents patterns and sequence of initiation of club drug use in a sample of 450 gay and bisexual men in New York City. Quantitative and qualitative baseline data from a yearlong longitudinal investigation conducted between 2001 and 2005 were analyzed. The study focused on the use of five club drugs—cocaine, GHB, ketamine, ecstasy, and methamphetamine—using self-reported indications of use for a period of 4 months prior to assessment. Patterns of club drug use among gay and bisexual demonstrated that poly-club-drug use is common, and that patterns of use can be differentiated along the lines of age, race/ethnicity, and sexual orientation, with those who are older, Black, and bisexual, reporting less club drug use. The majority of the men initiated use of the five club drugs as follows: (a) cocaine, (b) ecstasy, (c) ketamine, (d) methamphetamine, and (e) GHB. Variations in patterns were related to both age and level of poly-club-drug use. The sequencing and/or patterns of club drug use may be better explained by socialization processes in the gay community than by Gateway Theory, which has been traditionally used to explain patterns of drug use in the population. Future research should more closely examine the synergy of drug use combinations with an emphasis on measuring the extent to which the drugs are taken in synchronicity.

Keywords club drugs; gay and bisexual men; sequences; drug initiation; methamphetamine; cocaine; ecstasy; ketamine; GHB

Introduction

Sequential patterns of substance use initiation have been examined in literature, often nested in “stepping stone hypothesis” or “gateway drug theory” (Cohen, 1972; Kandel and Faust, 1975). Numerous studies have examined the evolution of drug use with regard to these paradigms (Kandel and Faust; Kandel, Treiman, Faust, and Single, 1976; Kandel and Yamaguchi, 1993; Mackesy-Amity, Fendrich, and Goldstein, 1997), yet few empirical studies have considered the application of these principles to the onset and evolution of club drug use.

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Club drugs, also known as party drugs or designer drugs, are those substances that traditionally have been associated with social venues such as dance clubs, raves, and circuit parties, and include substances such as MDMA (ecstasy), ketamine, *gamma*-hydroxybutyrate (GHB), methamphetamine (crystal meth), and powder cocaine. Club drug initiation trajectories have been documented in only a few studies. Gross, Barrett, Shestowsky, and Pihl (2002) found the most common sequence of club drug initiation to be as follows: (a) amphetamine, (b) cocaine, (c) MDMA, (d) GHB, and (e) ketamine. Winstock, Griffiths, and Stewart (2001) considered the club-drug-using behaviors of 1,151 individuals in the United Kingdom, but no specific sequences of use were reported. Rather ages of initial use of specific club drugs were noted as follows: amphetamine, 18.1 years old; ecstasy, 19.6 years old; cocaine, 20.7 years old; ketamine, 21.6 years old, and GHB, 22.4 years old.

In light of the limited data available regarding the patterns of club drug initiation and because use of these substances is common among gay and bisexual men (Halkitis, Green, Carragher, 2005; Klitzman, Greenberg, Pollack, Dolezal, 2002; Lee, Galanter, Dermatis, and McDowell, 2002; Romanelli, Smith, Pomeroy, 2003), we undertook an analysis of data from a large-scale study of club drug use and associated risks among gay and bisexual men. The purpose of our analyses was to delineate and document recent histories of club drug usage, and the initiation and sequencing of use of these substances in this segment of the population.

Method

Project BUMPS (Boys Using Multiple Party Substances) was a mixed-methods longitudinal investigation of 450 club-drug-using men in New York City. Participants were recruited from February 2001 to October 2002 using active and passive techniques in venues frequented by gay and bisexual men, and were assessed every 4 months over the course of a year through the use of quantitative surveys and semistructured qualitative interviews. The sample for the study is further described elsewhere (Halkitis et al., 2005; Halkitis, Green, and Carragher, 2006; Halkitis and Palamar, 2006; Palamar and Halkitis, 2006). The focus of our study was on the following five club drugs: cocaine, ecstasy, GHB, ketamine, and methamphetamine.

In the qualitative interviews, participants were asked to indicate which of the five club drugs they had used in their lifetimes as well as the order of initiation of each of the five club drugs. After all baseline interviews were completed, a member of the research team listened to the section of each tape-recorded interview regarding club drug use initiation and noted via a preformed checklist the sequence in which the participant indicated initiation of use. Two other independent research assistants confirmed these data for accuracy; the process was iterative in nature and was undertaken through three iterations until 100% agreement was achieved. The qualitative data were supplemented by variables from the quantitative baseline questionnaire: self-reported age, race/ethnicity, sexual orientation, educational attainment, and confirmed HIV serostatus. In addition, participants were asked to indicate their usage (number of days of use) of each of the five club drugs in the 4 months prior to assessment. Further information on the measurement of these variables can be seen in Halkitis, Green, and Mourgues (2005).

Results

Sample Characteristics

Data of 437 of the 450 participants were included in our analyses. Data from 13 (2.9%) participants were not included in analysis due to insufficient data from the participant

Table 1
Selected Sample Characteristics

| | Analytic Sample | Missing |
|----------------------------------|-----------------|------------|
| | (n = 437) | (n = 13) |
| Race | | |
| Black | 65 (14.9%) | 1 (7.7%) |
| White | 222 (50.8%) | 8 (61.5%) |
| Latino/Hispanic | 85 (19.5%) | 4 (30.8%) |
| Other | 65 (14.9%) | 0 (0%) |
| Educational attainment | | |
| High school or less | 62 (14.2%) | 2 (15.4%) |
| Some college | 149 (34.1%) | 6 (46.2%) |
| Bachelor's degree | 162 (37.1%) | 3 (23.1%) |
| Graduate degree | 64 (14.6%) | 2 (15.4%) |
| Confirmed HIV status at baseline | | |
| HIV-negative | 277 (63.4%) | 7 (53.8%) |
| HIV-positive | 160 (36.6%) | 6 (46.2%) |
| Sexual orientation | | |
| Gay | 385 (88.1%) | 11 (84.6%) |
| Bisexual | 52 (11.9%) | 2 (15.4%) |

regarding the sequence of initiation. These 13 individuals did not differ from the remaining sample along any of the key demographic lines including age, HIV-status, sexual orientation, educational attainment, and race/ethnicity. The average age of the participants was 33 ($SD = 7.89$) and ranged from 18 to 67. A summary of sample characteristics is shown in Table 1.

Patterns of Club Drug Use

At the baseline assessment, 344 (78.7%) reported use of cocaine in the 4 months prior to assessment. Similarly, 326 (74.6%) reported use of ecstasy, 286 (65.4%) reported use of methamphetamine, 241 (55.1%) reported use of ketamine, and 128 (29.3%) reported the use of GHB. Across the five club drugs, our participants indicated that they had recently used approximately three of these substances ($SD = 1.28$, Median = 3). Only 14.6% ($n = 64$) indicated that they had used only one of the club drugs, whereas at the other extreme, 14.6% also indicated that had used all five of the club drugs in the 4 months prior to assessment. Furthermore 21.5% ($n = 94$) reported two drugs used, 23.6% ($n = 103$) reported three drugs, and 25.2% ($n = 110$) reported four drugs. Poly-club-drug use patterns are described more extensively in Halkitis, Green, and Mourgues (2005).

To further examine these patterns with regard to person level characteristics, we conducted a multiple linear regression model to explain number of club drugs used in the previous 4 months in relation to self-reported age, race/ethnicity, sexual orientation, and confirmed HIV serostatus. Results are shown in Table 2. The number of club drugs used in the last 4 months was modestly explained by person level factors ($F(6,428) = 6.04$, $p < .001$, $R^2 = 7.8\%$): older men, those who identified as Black, and bisexual men reported a fewer number of club drugs in the 4-month period before baseline assessment.

Table 2
Number of Club Drugs Used at Baseline Based on Participant Characteristics (N = 437)

| Person Characteristic | b | SE | β | p |
|---------------------------------|-------|------|---------|-------|
| Age | -.025 | .008 | -.150 | <.01 |
| Race/ethnicity ^a | | | | |
| Black | -.730 | .182 | -.202 | <.001 |
| Latino | -.130 | .162 | -.040 | NS |
| Other | -.134 | .177 | -.037 | NS |
| Confirmed HIV status | -.064 | .134 | -.024 | NS |
| Sexual orientation ^b | -.418 | .187 | .105 | <.05 |

^aWhite set as reference group.

^b0 = gay/homosexual, 1 = bisexual.

Lifetime Club Drug Use and Order of Initiation

On average, the participants indicated use of approximately four of the club drugs in their lifetimes ($SD = 1.22$, Median = 4). Only 6.6% ($n = 29$) indicated that they had used only one of the five drugs, whereas 32.7% ($n = 143$) indicated use of all five.

In terms of initiation of use, the majority ($n = 258$; 59.0%) indicated that cocaine was the club drug that they had used first, whereas 35.2% ($n = 154$) of this sample indicated the ecstasy was the first drug used; 3.4% ($n = 14$) indicated methamphetamine as the first club drug used; 2.3% ($n = 10$) indicated ketamine, whereas none of the participants used GHB first in sequence. Furthermore, of the 189 men in the sample who have ever used GHB, 126 men (66.67%) used it last in sequence regardless of whether all five club drugs were used. The sequence of initiation of club drug use is further shown in Table 3, suggesting the following pattern of initiation: (a) cocaine, (b) ecstasy, (c) ketamine, (d) methamphetamine, and (e) GHB.

Finally, we built a statistical model using multinomial logistic regression to determine if any key person level factors (age, sexual orientation, HIV serostatus) in combination with history of use of the five club drugs (i.e., the number of the five club drugs the participant had used in his lifetime) could differentiate the participants with regard to the first club drug that they had used. We set cocaine as the reference category, given that it was the most frequently reported first club drug used, and no comparisons were made for GHB as none of the participants indicated it was the drug they first used. Findings yielded a statistically significant model ($\chi^2(21) = 50.26$, $p < .001$, $-2 \text{ Log Likelihood} = 686.55$) with a computed pseudo R^2 (as described in Harlow, 2005) of approximately 11%. The

Table 3
Sequences of Club Drug Use Initiation

| | First | Second | Third | Forth | Fifth |
|-----------------|-----------|-----------|-----------|-----------|----------|
| Cocaine | 258 (59%) | 67 (15%) | 53 (12%) | 19 (4%) | 7 (2%) |
| Ecstasy | 154 (35%) | 154 (35%) | 54 (12%) | 16 (4%) | 4 (1%) |
| Ketamine | 10 (2%) | 96 (22%) | 134 (31%) | 71 (16%) | 9 (2%) |
| Methamphetamine | 15 (3%) | 84 (19%) | 87 (20%) | 124 (29%) | 30 (7%) |
| GHB | 0 (0%) | 7 (2%) | 29 (7%) | 59 (16%) | 93 (21%) |

Note. Each box contains the number of participants who used the drug for the first time.

Table 4
Multinomial Logistic Regression Explaining First Club Drug Used^a

| Drug Predictor | b | OR (CI) | Wald | p |
|------------------------|-------|------------------|-------|--------|
| Ecstasy | | | | |
| Age | .03 | 1.03 (1.00–1.06) | 4.21 | < .05 |
| Black | –.05 | 0.95 (0.51–1.78) | 0.02 | NS |
| Latino | –.20 | 0.82 (0.64–1.45) | 0.47 | NS |
| Other | –.10 | 0.76 (0.49–1.68) | 0.10 | NS |
| Confirmed HIV status | .31 | 1.36 (0.70–2.65) | 0.81 | NS |
| Sexual orientation | .14 | 1.15 (0.73–1.82) | 0.37 | NS |
| # Club drugs | .41 | 1.51 (1.25–1.82) | 18.59 | < .001 |
| Ketamine | | | | |
| Age | –.05 | 0.95 (0.87–1.06) | 0.82 | NS |
| Black | –.51 | 0.61 (0.07–5.63) | 0.20 | NS |
| Latino | –1.11 | 0.33 (0.04–2.96) | 0.98 | NS |
| Other | .13 | 1.01 (0.19–5.53) | 0.01 | NS |
| Confirmed HIV status | .02 | 1.02 (0.23–4.55) | < .01 | NS |
| Sexual orientation | .06 | 1.07 (0.12–9.36) | < .01 | NS |
| # Club drugs | .97 | 2.65 (1.13–6.20) | 5.01 | < .05 |
| Methamphetamine | | | | |
| Age | .06 | 1.06 (0.99–1.13) | 3.09 | NS |
| Black | .30 | 1.35 (0.33–5.53) | 0.18 | NS |
| Latino | –.63 | 0.53 (0.11–2.66) | 0.59 | NS |
| Other ^b | — | — | — | — |
| Confirmed HIV status | –1.16 | 0.31 (0.81–1.21) | 2.83 | NS |
| Sexual orientation | –.22 | 0.80 (0.16–4.40) | 0.07 | NS |
| # Club Drugs | .36 | 1.43 (0.88–2.32) | 2.12 | NS |

^aCocaine use set as reference.

^bInsufficient data to compute probability.

micro-level indices of fit are shown in Table 4. Men who indicated that cocaine was the first club drug they had used were in no substantive way different from those who indicated methamphetamine as their first drug. However, both those who used ketamine and those who used ecstasy as their first drug were more apt to indicate a greater number of different club drugs used in their lifetime. Moreover, those who indicated ecstasy as their first club drug were also slightly older than those who used cocaine as their first drug.

Discussion

The analyses presented in this paper were based on the baseline quantitative and qualitative assessments of gay and bisexual men in New York City who participated in a large-scale, community-based longitudinal study of club drug use. We considered patterns of use of five club drugs—cocaine, GHB, ketamine, ecstasy, and methamphetamine, as well as the sequences with which the men in our sample initiated use of each of the five substances. Compared the rest of the sample, men who were older, bisexual, or Black used a fewer number of club drugs being studied. Other studies have documented high rates of club drug use among young gay men (Klitzman, Greenberg, Pollack, and Dolezal, 2002); and

as indicated elsewhere, drug use tends to decrease as one ages (Chen and Kandel, 1995; White and Bates, 1995; von Sydow Lieb, Pfister, Hofler, and Wittchen, 2002). With regard to race, our findings corroborate those of Ompad, Galea, Fuller, Phelan, and Vlahov (2004), in which Black men in their sample also tended to use a lesser number of club drugs than their White counterparts. These differences along racial lines may be due to socioeconomic differences or the more limited access of Black men to gay social venues in which club drug use is common. For example attendance at circuit parties is more common among White gay men than men of other races or ethnicities (Lee, Galanter, Dermatis, and McDowell, 2002; Mansergh et al., 2001; Mattison, Ross, Wolfson, Franklin, and HNRC Group, 2001).

We also determined that powdered cocaine was most frequently the first club drug used by the men in our sample. These findings resonate with past research, which indicates that after alcohol, nicotine, and marijuana, cocaine tends to be the next drug initiated in sequence (Kandel and Faust, 1975; Kandel, Treiman, Faust, and Single, 1976; Kandel and Yamaguchi, 1993; Mackesy-Amiti, Fendrich, Goldstein, 1997). This should further be considered in light of the fact that cocaine use in New York City was highly prevalent in the 1980s (Miech, Chilcoat, and Harder, 2005) before any of the other drugs we considered had reached popularity in the circuit party and club scene. To this end, cocaine is not always associated as a club drug in the manner that ecstasy, ketamine, GHB, and methamphetamine are considered club drugs. Our findings on sequence of initiation are similar to those of Barrett, Gross, Garand, and Pihl (2005) with respect to ecstasy appearing early in sequence, ketamine following after ecstasy, and GHB being initiated last. Similarly, we found that those who used ketamine and ecstasy as the first of the five drugs we examined were also more likely to have used all five of the club drugs in their lifetime.

The trajectories of club drug initiation suggested here differ from those associated with Gateway Drug Theory, which suggests that “softer,” more socially accepted and legalized drugs lead to the use of “harder,” illegal drugs (Kandel and Faust, 1975; Kandel, , Treiman, Faust, and Single, 1976; Kandel and Yamaguchi, 1993; Mackesy-Amiti, Fendrich, and Goldstein, 1997). Currently, *all* club drugs are illegal to possess or distribute in the United States, making progression a very different phenomenon. We do not suggest that the use of certain club drugs, such as cocaine and ecstasy, which are more prevalent and socially accepted, are a *cause* of initiation to use of “harder” club drugs, such as ketamine and GHB. Instead, given that the majority of our participants were poly-club drug users and followed common pathways of drug initiation, we suggest that an accumulated desensitization of perceived stigma or social unacceptability of club drug use explains these patterns more effectively. Many gay men are likely to be introduced to the use of the club drugs while partaking in the gay club scene, where they gain access to these substances, and receive social support for use from their peers, which leads to both the progression to the use of “harder,” riskier club drugs as well as the phenomenon of poly-club-drug use.

RÉSUMÉ

Modélisation multivariante de l'usage initial des drogues de soirée chez les hommes homosexuels et bisexuels

L'objet de cet article est la modélisation de l'usage initial des “drogues de soirée” à partir d'un échantillon de 450 hommes homosexuels et bisexuels dans la ville de New York. Les données de référence quantitatives et qualitatives analysées sont issues d'une étude

pluri-annuelle qui a suivi la même population entre 2001 et 2005. L'étude a porté sur l'usage de cinq "drogues de soirée"—cocaïne, GHB, kétamine, ecstasy, et méthamphétamine—rapportant les taux d'utilisation donnés par ces individus sur chaque période de quatre mois précédant les entretiens. L'analyse des types de comportement dans l'usage de ces drogues parmi les homosexuels et les bisexuels a révélé que l'usage simultané de plusieurs de ces drogues est courant, et que les modèles d'usage peuvent se différencier en fonction de l'âge, la race, l'ethnicité, et l'orientation sexuelle; les personnes plus âgées, les personnes d'origine noire, et les bisexuels rapportant une utilisation moindre de ces drogues. La majorité de ces personnes rapporte avoir commencé à utiliser ces drogues dans l'ordre suivant: (a) cocaïne, (b) ecstasy, (c) kétamine, (d) méthamphétamine, et (e) GHB. Les fluctuations dans les types de comportement sont fonction à la fois de l'âge et de l'utilisation simultanée de plusieurs de ces drogues. L'ordre de consommation et/ou les types de comportement dans l'utilisation de ces drogues s'expliqueraient mieux par les processus de socialisation dans la communauté homosexuelle que par la "Gateway Theory," qui rend compte traditionnellement des types de comportement sur l'usage de la drogue dans la population générale. La recherche devrait à présent se pencher de plus près sur les effets décuplés des mélanges de ces drogues et devrait s'efforcer de quantifier plus précisément les effets de l'ordre dans lequel ces drogues sont prises.

RESUMEN

Modelo multivariado sobre la iniciación de consumo de drogas en clubes entre hombres homosexuales y bisexuales

Esta investigación describe los patrones y la secuencia de iniciación en el uso recreativo de drogas psicoactivas tomando una muestra de 450 hombres bisexuales y homosexuales en la ciudad de Nueva York. Los datos cuantitativos y cualitativos analizados corresponden a la línea base de un estudio longitudinal de un año de duración. El estudio se enfocó en el uso recreativo de cinco drogas psicoactivas—cocaína, ácido GHB, ketamina, éxtasis, y metanfetamina—usando medidas de auto-reporte durante un periodo de cuatro meses para obtener indicadores de consumo. Los patrones de consumo encontrados demostraron que el uso recreativo de drogas psicoactivas de manera estratégica es común. Además, los patrones de consumo pueden ser diferenciados de acuerdo a la edad, grupo racial/étnico, y orientación sexual, tal que los hombres de raza negra, bisexuales y de mayor edad reportan menor frecuencia en el uso recreativo de drogas psicoactivas. La mayoría de los hombres participantes iniciaron el uso recreativo de drogas psicoactivas en el siguiente orden: (a) cocaína, (b) éxtasis (c) ketamina, (d) metanfetamina, y (e) ácido GHB. Los patrones de consumo de las drogas psicoactivas se relacionan con la edad y con el uso de múltiples drogas psicoactivas. La secuencia y/o los patrones de consumo de drogas psicoactivas se puede explicar mejor a través de los procesos de socialización en la comunidad gay que a través de la *Teoría Portal de Entrada (Gateway Theory)*, la cual ha sido elegida tradicionalmente para explicar los patrones de consumo de drogas en esa población. Futuras investigaciones deben examinar mas detalladamente la sinergia de diferente combinaciones de drogas psicoactivas, enfatizando la medición de la frecuencia con la cual éstas se consumen simultáneamente.

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