

Running Head: CLUB DRUG USE IN HISPANIC COLLEGE STUDENTS

Club Drug Use in Hispanic College Students

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Abstract

Club drug use and correlates were examined among 251 Hispanic college students on the Texas - México border. Participants completed questionnaires on substance use, club drug attitudes and beliefs, sexual risk-taking behaviors, depressive symptoms, and acculturation. One-quarter of participants reported club drug use. Regression analyses demonstrated that frequency and history of lifetime use were consistently associated with more permissive drug attitudes and other substance use but not sexual risk-taking, depression symptoms, or acculturation. Acculturation was negatively associated with frequency of club drug use, yet positively associated with use of other illicit substances. Avenues for future studies are suggested.

Keywords: Club drugs, Hispanic, college students, substance use, youth risk-taking behaviors

Club Drug Use in Hispanic College Students

Introduction

Studies suggest that club drugs such as MDMA (ecstasy), ketamine, GHB, and methamphetamine have been used in the past primarily by Non Hispanic Whites, but club drug usage is on the rise among ethnic minorities, including Hispanics.¹⁻⁵ For example, high rates of using methamphetamine have been shown to occur in Hispanics,⁵⁻⁶ and Hispanics with methamphetamine use disorders have evidenced shortened time to relapse.⁷ In samples of Hispanic men who have sex with men (MSM), Fernández and colleagues have found relatively high rates of club drug use, with around half of study participants reporting recent club drug use.⁸⁻¹⁰

College students also may be at risk for increased rates of club drug use and related consequences. Overall rates of illicit substance use among college populations have remained the same or declined slightly within recent years, but rates of using several club drugs among youth and young adults appear on the rise.^{6,11} For example, in a primarily Non Hispanic White college sample, 18% of participants reported ever using club drugs, and 11% reported use in the preceding year.¹² Further, one study assessing MDMA use among more than 14,000 college students found increases in MDMA use over time which was associated with more risky behaviors and less studying.¹³

Past studies have demonstrated club drug use may be associated with same-sex sexual activity, and increases in sexual risk-taking, depressive symptoms, and polysubstance use.^{8-11,13-18} In addition to studies assessing club drug use in MSM samples,⁸⁻¹⁰ one study conducted among college students indicated that club drug use was associated with gay, lesbian, and bisexual identification.¹⁷ The positive correlation between club drug use and risky sexual behavior has

also been demonstrated in a variety of samples.^{1,10,16-20} A relationship between depressive symptoms and club drug use has been found as well,²¹⁻²⁴ although evidence suggests that the mechanisms leading to this association are complex. In addition, individuals who use club drugs have reported more experience with other illicit substances and frequently report using multiple substances at once^{14, 25-28} which can lead to exponential increases in negative consequences experienced as the result of drug using behaviors. Despite the growing number of Hispanics using club drugs, data assessing club drug use and related concerns in Hispanic populations are limited, particularly among college students and heterosexual individuals.¹⁻³

Studies of acculturation, ethnic identity, and other cultural beliefs and values in Hispanic youth and young adults have primarily focused on alcohol or licit/illicit substance use other than club drugs. Mixed findings were reported in a review of studies that have assessed the relationship between acculturation and substance use among young Hispanics, leading to the conclusion that acculturation studies have not thoroughly examined the complexity of acculturation to U.S. culture and related factors informed by theory in this population.²⁹ Other noteworthy findings associated with Hispanic substance use include that: religious affiliation has been negatively associated with substance use,³⁰ the deterioration of cultural values, such as familismo, has been associated with acculturation, acculturative stress, and heavy alcohol use in young Hispanic males,³¹ and ethnic identity has been positively associated with both heavy alcohol use in Mexican American college males³² and substance use in early adolescents.³³

From a theoretical perspective, according to the Problem Behavior Theory (PBT), risky behaviors often cluster together³⁴ and can be indicative of a single underlying behavioral factor.³⁵ This model has received moderate support in research with Hispanic youth,³⁶ however, cultural factors are thought to influence the way PBT functions in varying groups through unclear

mechanisms.³⁶ Further, health behavior researchers have begun to explore the efficacy of multiple risk behavior change, with results often indicating that it is possible to successfully intervene upon several health behaviors simultaneously;³⁷⁻⁴⁰ thus, exploring how other risky behaviors correlate with club drug use is likely to promote the development and assessment of multi-component prevention and intervention efforts.

The current study aimed to assess rates of club drug use in Hispanic college students, measure knowledge and beliefs regarding club drug use, and explore the relationship of club drugs with past sexual experiences, risky sexual behavior, depression, polydrug use, attitudes about club drug use, and acculturation. It was hypothesized that same-sex sexual activity, risky sexual behavior, depressive symptoms, use of other substances, permissive attitudes toward club drug use, and acculturation would demonstrate significant positive relationships with club drug use.

Methods

Participants

Participants were 251 Hispanic students at a university located near the U.S.-México border. Most reported Mexican origin (76% identified themselves as Mexican American, 9% as Mexican National) with 15% identifying with other Latin or Hispanic origin. The mean age was 20.67 years ($SD = 3.76$); 61% were female, 39% were male. Participant characteristics are displayed in Table 1.

Measures

In addition to measuring age, gender and race/ethnicity, participants completed measures assessing substance use, attitudes and beliefs about club drugs, past sexual experiences, depressive symptoms, and acculturation. Participants also reported their smoking status, which

remained a categorical variable in inferential analyses (e.g., daily smoking, weekly smoking, monthly smoking, never smoking, quit smoking).

Substance Use. A club drug use questionnaire asked participants to report any history of using various club drugs. Use was measured for past month, past year, and lifetime. The term “club drugs” is defined in different ways in the literature; for this pilot study we chose to use guidelines suggested by the National Institute on Drug abuse⁴¹ to determine substances that would be categorized as club drugs. Additional literature reviews and internet searches were conducted to research lesser known substances identified by some as club drugs so that participants could be presented with a comprehensive list of club drugs and common slang terms. The list included the following substances: MDMA, GHB (gamma-hydroxybutyrate), GBL (gamma butyrolactone), BD (butanediol), Rohypnol, Ketamine, non-prescribed Viagra, LSD, Psilocybin Mushrooms, and Methamphetamine.

An alcohol, tobacco, and drug use frequency questionnaire asked participants to report past and present usage of other substances (past month, past year, lifetime). Some numerical response options for frequency of individual substance use were incorporated from the Adolescent Problem Severity Index⁴² to capture the range of usage frequency and patterns. For both questionnaires, use of each substance within the past month was chosen from 0 (coded as 0), 1-3 (coded as 1), 4-8 (coded as 2), or >8 (coded as 3). Use for the past year was chosen from 0 (coded as 0), 1-5 (coded as 1), 6-20 (coded as 2), or >20 (coded as 3); these categories were used for lifetime usage as well.

Attitudes and Beliefs about Club Drugs. In a survey measuring club drug attitudes and beliefs, participants were asked to indicate their level of agreement with ten statements (e.g., Using club drugs can be safe if proper precautions are taken) from a questionnaire previously used to assess

attitudes about ecstasy and speed.⁴³ These items were internally consistent in the original study,⁴³ and the Cronbach's alpha for the current sample was .82. Two items were added to assess attitudes specific to the border region.

Sexual Experiences. The Kinsey Scale⁴⁴ asked participants to self-report their sexual behaviors on a Likert-type scale ranging from 0 (exclusively heterosexual experiences) to 6 (exclusively homosexual experiences). Most participants (81%) reported only having heterosexual experiences; 16 % reported at least some homosexual experiences and 3% of participants did not report the nature of their sexual experiences. The Sexual Risk subscale of the HIV Risk-taking Behavior Scale⁴⁵ was used to assess sexual risk taking behavior. This measure has demonstrated satisfactory reliability and validity in participants reporting opiate use.⁴⁵ For each item (e.g., How many people have you had sex with during each of the following time periods?), participants were asked to report how often they had engaged in the behavior during the past month, past year, and throughout their lifetime. In the current study this measure demonstrated good internal consistency ($\alpha = .88$).

Depressive Symptoms. The Primary Care Evaluation of Mental Disorders⁴⁶ patient questionnaire nine symptom checklist is composed of a list of depressive symptoms (e.g., suicidal ideations, concentration problems). Participants were asked to indicate how frequently they had experienced each problem in the last two weeks. This measure has shown reliability and validity in primary care samples,⁴⁷ and reliability in this study was adequate ($\alpha = .84$).

Acculturation. The Short Acculturation Scale for Hispanics⁴⁸ contains 12 items measuring the degree to which Hispanics have adopted American culture (e.g., In what language(s) are the TV programs you usually watch?). Scores are obtained by calculating the scale mean. Adequate psychometric properties have been demonstrated for this measure,⁴⁸ and internal consistency was

demonstrated in this sample ($\alpha = .92$).

Procedure

Prior to data collection, institutional review board approval was obtained at the university where this study was conducted on the Texas / México border. Participants were undergraduate psychology students aged 18 and older recruited online through the Psychology department participant pool; there were no other inclusion or exclusion criteria. They were informed that the survey contained personal questions regarding substance use and sexual behavior and that responses would remain anonymous. Participants were given a chance to discuss questions with the researchers and then were asked to indicate their consent to participate. Contact information for the university counseling center was provided in the event that students wanted to speak to a counselor about their survey responses. Students received course credit for participation; alternate options for obtaining course credit were available. Students were instructed not to write their names or any identifying marks on the questionnaires, and surveys were filed separately from consent forms.

Approach to Analyses

Descriptives were used to assess participant characteristics on variables of interest. Dependent variables included frequency of club drug use in one's lifetime and lifetime history of club drug use. Independent variables were selected to assess relevant demographic (e.g., gender), theoretically-based (e.g., other substance use), and empirically-derived (e.g., depressive symptoms) correlates. As frequency of club drug use is a continuous dependent variable, multiple linear regression was employed to assess the effects of gender, other substance use, smoking status, attitudes toward club drugs, past sexual experiences, risky sex, depressive symptoms, and acculturation on frequency of lifetime club drug use. As lifetime history of club

drug use (vs. no reported history) is a dichotomous dependent variable, logistic regression was used to examine the relationship between potential correlates and reported lifetime history of club drug use.

Results

Participant characteristics are displayed in Table 1. Lifetime use of at least one club drug was reported by 61 participants (25%). Use of any club drug within the past year was reported by 10.7% of participants, and 5.6% reported club use in the preceding month. The most commonly used club drug was psilocybin mushrooms (14% of total sample), followed by MDMA (6% of sample). The most commonly used non club drug illicit substances were marijuana (41%), barbiturates/sedatives (18%), and cocaine (18%).

The multiple regression model was statistically significant, $F(8, 201) = 18.20, p < .001$ (see Table 2). The independent variables accounted for 42% of the variance in club drug use. Lifetime use of other substances was the strongest correlate of club drug use in this model. Other significant correlates were attitudes and beliefs about club drugs and acculturation scores. Club drug use was positively associated with more positive attitudes toward club drugs, and acculturation was negatively associated with club drug use. Interestingly, statistically significant positive relationships were observed between acculturation scores and use of other substances for each time period assessed (i.e., previous month [$r = .135, p = .036$], previous year [$r = .165, p = .010$], lifetime [$r = .190, p = .003$]), indicating a complex relationship between drug use and acculturation in this sample.

The overall logistic regression model was statistically significant ($\chi^2 = 70.779, df = 8, p < .001$; see Table 3). PRIME-MD scores, while not found to predict frequency of club drug use in the multiple linear regression model, were significantly higher for participants who had ever used

club drugs in the logistic regression model. For every unit increase in depression scores, students were 1.12 times more likely to have used club drugs. In addition to greater likelihood of reporting depressive symptomatology, for every unit increase in polysubstance use individuals were 1.84 times more likely to report club drug use. Finally, for every unit increase in more permissive attitudes toward club drugs, individuals were 1.09 times more likely to have used club drugs.

Discussion

This study sought to evaluate rates of club drug use and factors associated with club drug use in a Hispanic college population. Consistent with hypotheses, club drug use was found to be associated with use of other substances and attitudes and beliefs about club drugs. Inconsistent with hypotheses, sexual risk was not found to correlate with club drug use, which is contrary to findings of several previous studies.^{1,8,12, 16-20} Frequency of club drug use, but not history of use, was negatively associated with acculturation, while lifetime history of club drug use, but not frequency of use, was positively associated with depressive symptoms. Particularly given the cross sectional nature of this study, interpretation of the latter relationship between club drug use and depression is limited; however, future studies may wish to prospectively assess this relationship, while considering the possibility that depression is implicated in experimentation with club drug use rather than frequency of use.

The finding of polydrug use is consistent with other studies demonstrating risky behaviors clustering (i.e., PBT) and those showing a relationship between club drug use and other substance use.^{14, 25-28} These factors should be taken into account during the formation of strategies designed to help individuals reduce negative consequences associated with use of club drugs. For example, discussing the use of substances other than club drugs, including the

possible effects of drug combinations, may be necessary to address in this population. Also, challenging beliefs and expectancies about the effects of club drugs may be a useful and promising approach to reducing club drug use.

Findings with regard to acculturation were mixed; higher levels of acculturation were associated with higher levels of non club drug use, while lower levels of acculturation were associated with higher frequency of club drug use. This inconsistency is also reflected in the acculturation and substance use literature, which indicates some studies find positive associations between acculturation and substance use, some find positive relationships between ethnic identity and substance use, while still others find no relationship between acculturation related constructs and substance use.^{29, 32, 33} Potential reasons for our findings include using club drugs for spiritual practices, lack of knowledge or misperceptions regarding club drug use, greater access and opportunity for use, and the potential for other constructs not measured in this study to inform the relationship. First, in one study of a predominantly Hispanic adolescent sample, using drugs for spiritual or religious purposes was associated with hallucinogen use, yet not with the use of alcohol, marijuana, or stimulants.⁴⁹ The present finding with acculturation is highly similar and may suggest spiritual / religious motives for use. Second, education, both formal and informal (e.g., familial influence), has likely focused on the hazards associated with non club drug substance use for some time, while the dangers of club drug use have been focused on far less. In fact, many club drugs have been made illegal in the U.S. relatively recently⁵⁰ and may still be available over the counter in Mexican farmacias. Third, it may be that club drug access and opportunities to use club drugs are more prominent in México. Not only are club drugs possibly more accessible in pharmacies but also they may be more available in club and/or rave settings. As an example, border region raves may be more prevalent on the Mexican side of the

border; thus, lesser acculturated individuals may be more comfortable and/or socially skilled in such venues. Further, in less acculturated individuals, accessibility (e.g., attending raves) may start at an earlier age than for more acculturated or U.S. residing Hispanics which may be related to club drug use frequency yet not history of use. Finally, it may be that the measurement of other theoretically and empirically relevant constructs not assessed in this study will help clarify the relationship between acculturation and substance use. For example, assessment of constructs such as stress and birthplace may enhance theoretical understandings,²⁹ while the measurement of constructs such as familismo and self esteem may further empirically-based mediational models interpreting this complex relationship.^{31,33}

Limitations

There are limitations of this study that should be noted. College students typically do not report high levels of substance use, so patterns observed in this study may not generalize to other young adult or treatment populations. An additional limitation is the nature of the data provided; interpretations of results should take into consideration the limitations associated with reliance on self report and correlational data.

Strengths and Future Directions

Strengths of this study include the assessment of a novel, often underserved population, as well as the assessment of the relationship between club drug use and acculturation on the U.S. – México border.

Future studies should employ longitudinal designs so that the temporal relationships between club drug use and correlates may be examined in depth. This may serve to increase our understanding of the connections between various problem behaviors and possible contributors to these behaviors. Further examination of ethnocultural factors is necessary as well.

Specifically, acculturation and its relation to use of individual substances among Hispanic populations should be investigated, and factors that may mediate or moderate this association should be assessed. Such studies will enhance theory-based research into the use of club drugs in underserved populations and promote the empirical development, implementation, and assessment of future prevention and intervention efforts.

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Table 1

Participant Characteristics

Variable	Frequency	
Gender		
Male	39%	
Female	61%	
Hispanic Identification		
Mexican American	76%	
Mexican National	9%	
Other Hispanic	15%	
Variable	Mean	Standard Deviation
Age (years)	20.67	3.76
Kinsey (past sexual experiences)	.42	1.24
Sexual risk	6.66	5.51
Attitudes and beliefs about club drugs	17.24	5.52
PRIME-MD (depressive symptoms)	6.85	5.15
SASH (acculturation)	3.25	.77

Table 2

Summary of Regression Analysis for Variables Predicting Frequency of Lifetime Club Drug Use

Variable	<i>B</i>	<i>SE B</i>	<i>B</i>
Gender	.247	.169	.080
Lifetime use of other substances	.465	.050	.636**
Attitudes and beliefs about club drugs	.039	.017	.144*
Sexual risk	-.022	.016	-.079
PRIME-MD (depressive symptoms)	.014	.016	.048
SASH (acculturation)	-.269	.110	-.139*
Smoking status	.054	.043	.078
Kinsey (past sexual experiences)	-.007	.067	-.006

Note. $R^2 = .42$; * $p < .05$; ** $p < .001$

Table 3

Summary of Logistic Regression Analysis for Variables Predicting Reported Lifetime History of Club Drug Use

Variable	Odds ratio	95% Confidence interval
Gender	.767	[.336, 1.747]
Lifetime use of other substances	1.843***	[1.422, 2.388]
Attitudes and beliefs about club drugs	1.090*	[1.005, 1.181]
Sexual risk	1.040	[.964, 1.122]
PRIME-MD (depressive symptoms)	1.116**	[1.038, 1.200]
SASH (acculturation)	.698	[.288, 1.254]
Smoking status	1.127	[.911, 1.396]
Kinsey (past sexual experiences)	.934	[.676, 1.292]

Note. Model $X^2 = 70.779$, $df = 8$, $p < .001$,

Nagelkerke R-square = .432.

* $p < .05$; ** $p < .01$; *** $p < .001$.