

DRUG USE AND HISPANIC MEN WHO HAVE SEX WITH MEN IN SOUTH FLORIDA: IMPLICATIONS FOR INTERVENTION DEVELOPMENT

M. Isabel Fernández, Robin J. Jacobs, Jacob C. Warren,
Jesus Sanchez, and G. Stephen Bowen

Despite continued high HIV risk among Hispanic men who have sex with men (HMSM), culturally tailored, theoretically based interventions have yet to be developed and tested. As a first step toward intervention development, we collected quantitative and qualitative data on sociocultural and psychological factors associated with drug use and risky sex among 566 HMSM recruited from community and Internet venues. Participants reported high rates of drug use (43%), unprotected anal sex (45%), and multiple sex partners (median 4) in the past 6 months. In multivariate analyses, use of drugs was associated with HIV seropositivity, less orientation to the Hispanic community, stronger attachment to the gay community, lower levels of homophobia, higher numbers of sex partners and more unprotected anal sex. The need for acceptance and desire to please partners emerged as core drivers of HIV risk in the qualitative data. Findings were used to guide development of Proyecto SOL, a theoretically grounded intervention that targets core determinants of HIV risk, builds on protective cultural influences, and strengthens positive social connections.

In the United States, Hispanics, particularly Hispanic men who have sex with men (HMSM) continue to be at increased risk of HIV infection. Nationally, 57% of people living with AIDS among Hispanic males are men who have sex with men (MSM) (Centers for Disease Control and Prevention [CDC], 2008). In 2004 the

M. Isabel Fernández, Robin J. Jacobs, and G. Stephen Bowen are with Nova Southeastern University, Fort Lauderdale, FL. Jacob C. Warren is with Georgia Southern University, Statesboro. Jesus Sanchez is with Florida International University, Miami.

This study was supported by Grant R01 DA-16026 from the National Institute on Drug Abuse and Grant UR6 PS000433-02 from the Centers for Disease Control and Prevention. The authors thank the dedicated staff of the Behavioral Health Promotion Program (Nilda Hernandez, Leah Varga) for their contributions. They appreciate the support and advice of our Program Advisory Committee; their other community partners; their NIDA Project Officer, Dionne Jones, PhD; and their CDC project officer, Stephen Flores, PhD. They are particularly grateful to Dr. Bill Grace of the Office of AIDS Research, NIH for his thoughtful and thorough review of the manuscript. Finally, of course, this study would not have been completed if not for the men who willingly shared their experiences as study participants. The authors are grateful to all of them.

Address correspondence to M. Isabel Fernández, Ph.D., Professor, Public Health and Preventive Medicine, Nova Southeastern University, College of Osteopathic Medicine, 4th Floor Terry Bldg., 3200 S. University Dr., Fort Lauderdale, FL 33314; e-mail: mariafer@nova.edu

HIV diagnosis rate was almost three times higher for HMSM of all ages than for non-Hispanic White MSM, but among MSM aged 13-19 Hispanics were five times more likely to be diagnosed with HIV than were White non-Hispanic MSM (Hall, Byers, Ling, & Espinosa, 2007). Furthermore, HMSM are less likely than are White MSM to know their HIV infection status (CDC, 2005). In Florida, the estimated PL-WHA rate among HMSM through 2006 was 5.5%-14% and exceeded that (3.4%-8.3%) of white MSM (Lieb et al., 2008). HMSM living in AIDS epicenters, such as Miami-Dade County, Florida are particularly vulnerable to HIV. In 2005 and 2006, the Miami-Dade metropolitan statistical area had the highest AIDS case rate in the United States and ranked second after New York in the number of new AIDS cases reported in both of these years (CDC, 2007, 2008). In Miami-Dade, the majority of cumulative AIDS (61%) and HIV cases (67%) for whom risk behavior was reported are among MSM; Hispanics are 52% of cumulative AIDS cases and 54% of the cumulative HIV cases among MSM (*Miami-Dade County HIV/AIDS Surveillance Report*, 2007).

Contributing to this elevated risk are the alarmingly high rates of unprotected anal sex, inconsistent condom use, and multiple partnerships reported by HMSM (Carballo-Diéguez & Dolezal, 1996; Díaz, Stall, Hoff, Daigle, & Coates, 1996; Fernández et al., 2004; Fernández, Perrino, Bowen, Royal, & Varga, 2003; Marín et al., 2003; Dolezal, Carballo-Diéguez, Nieves-Rosa, & Díaz, 2000; Poppen, Relsen, Zea, Bianchi, & Echeverry, 2004). For instance, in a community sample of HMSM recruited in Miami-Dade, 60% of participants had multiple sex partners in the last 12 months, and approximately half of the 74% of men reporting anal sex in the last 3 months used condoms inconsistently (Fernández et al., 2003). Similar rates of inconsistent condom use and multiple sexual partners in other samples of HMSM have been reported (Carballo-Diéguez & Dolezal, 1996; Carballo-Diéguez, Dolezal, Nieves-Rosa, & Díaz, 2000; Díaz et al., 1996). Studies have also shown that rates of "barebacking" (intentionally choosing to have unprotected anal sex) among HMSM are comparable to those of White MSM (Mansergh et al., 2002) and widely practiced (Carballo-Diéguez, 2001).

Factors that have been associated with unprotected anal sex among HMSM include (a) drug use or intoxication by the participant or his partner (Akin, Fernández, Bowen, & Warren, 2008; Díaz, Morales, Bein, Dilan, & Rodriguez, 1999; Díaz et al., 1996; Wilson, 2004), (b) higher number of partners (Akin et al., 2008); (c) experiences of social oppression and stigma (Díaz, Ayala, & Bein, 2004; Díaz, Ayala, Bein, Henne, & Marín, 2001; Fernández et al., under review), (d) low levels of self-efficacy and safer sex behavioral intentions (Díaz et al., 1999), (e) lack of condom use discussions (Carballo-Diéguez & Dolezal, 1996; Wilson, 2004), (f) high levels of emotional closeness and connectedness with main/primary partner (Carballo-Diéguez, Remien, Dolezal, & Wagner, 1997), (g) younger age (Díaz et al., 1999), (h) psychological distress (Akin et al., 2008; Díaz et al., 2001; Fernández et al., under review), and (i) cultural and contextual factors. Cultural influences include culturally sanctioned beliefs regarding men's lack of control in sexual situations as justifications for unsafe sex (Wilson, 2004); having sex in public places to hide sexual orientation from family out of *respeto* (Díaz et al., 1996); having unprotected sex to reject repression, loneliness and moral taboos (Carballo-Diéguez, 1998); penetration as a sign of being *el hombre de verdad* (the real man) (Carballo-Diéguez et al., 1997), and more orientation to American and Hispanic culture (Akin et al., 2008). These studies highlight the diversity of factors driving sexual risk among HMSM

and heighten the importance of incorporating them into HIV prevention interventions.

Not only are HMSM at risk because of sexual behavior, but studies suggest that they are using drugs at alarmingly high rates (Diaz, Heckert, & Sanchez, 2005; Dolezal et al., 2000; Fernández, Bowen, Varga, Collazo, & Perrino, 2005; Fernández et al., 2004). For instance, in a community sample of 262 HMSM recruited in Miami-Dade County (Fernández et al., 2005) more than 50% of men used drugs and 36% used them in the last 3 months. Polydrug use was also high; 55% of participants reporting drug use in the last 3 months were polydrug users. Drug users had significantly more sex partners in the last 12 months than did non-drug users. Men who reported polydrug use in the last 3 months were more likely to have had sex under the influence of drugs than did men who used a single drug (Fernández et al., 2005). Studies in other metropolitan areas, such as New York City, San Francisco, and Chicago (Bruce, Ramirez-Valles, & Campbell, 2008; Díaz et al., 2005; Halkitis et al., 2008), corroborate these findings.

Despite the elevated risks of HIV infection, few empirically tested, culturally tailored interventions for reducing HIV risk behaviors among HMSM exist (Herbst et al., 2007; Johnson et al., 2005). We found only one rigorously tested HIV prevention intervention specifically for HMSM in the published literature (Carballo-Diequez et al., 2005), but the findings indicated it was not efficacious. Although participants in both the intervention and control groups reported less unprotected anal sex at follow-up, differences between the groups were not statistically significant. There is an urgent need to develop and test theory based interventions to reduce HIV risk among HMSM. The present study directly addresses this gap.

We report on a large community sample of HMSM whose demographic characteristics reflect the rich diversity of nationalities among Hispanics in Miami-Dade County, Florida. These men participated in a mixed method study designed to compare the efficiency and cost of recruitment in Internet versus community venues and to gather qualitative and quantitative data on the sociocultural and psychological factors associated with HIV risk and protection necessary for intervention development. We previously published the comparison of Internet and community venues (Fernández et al., 2007) and the factors associated with unprotected anal sex among the 88% of participants who were born outside the United States (Akin et al., 2008). In this article we present the sociocultural and psychological factors associated with drug use and illustrate how risk and protective factors associated with drug use *and* risky sex guided development of Proyecto SOL, a theory-based, culturally tailored HIV risk reduction intervention for HMSM that is currently being testing as part of the CDC's Latino and African American Men's Project (UR6 PS000433).

METHODS

PARTICIPANTS

From October 2003 to February 2005 we recruited 566 HMSM from Internet and community venues who met the following criteria: (a) self-identified as Hispanic/Latino, (b) had sex with a man in the last 5 years, (c) were 18 years of age or older, (d) were a resident of South Florida, (e) had been directly approached by staff, and (f) visited our field offices for screening and enrollment. Approximately 97% of the men who visited the offices were eligible; 100% of eligible men enrolled. Recruitment approaches were implemented sequentially in cycles, alternating between

Internet and community venues (Fernández et al., 2004; Fernández et al., 2007). The protocol was approved in July 2003 by the institutional review board at University of Miami and in January 2005 at Nova Southeastern University.

RECRUITMENT PROCEDURES

We used time and space sampling (Stueve, O'Donnell, Duran, San Doval, & Blome, 2001) for community recruitment and our previously published adaptation of these procedures for Internet recruitment (Fernández et al., 2004; Fernández et al., 2007). We used a five-step script to determine whether or not each potential participant approached met the age, ethnicity, and residency requirements. If these criteria were met, recruits were invited to visit our field offices for screening and enrollment. So that referral could be confirmed, community recruits were given referral cards; Internet recruits were asked to remember the screen name used during the chat.

QUANTITATIVE ASSESSMENT PROCEDURES

Upon arrival at the field offices, referral was first confirmed (i.e., community recruits presented their referral card and Internet recruits provided the screen name). Recruits were then screened, and if eligible, invited to participate. After giving informed consent, the men completed an audio-computer assisted self-interview (ACASI) that lasted 60-90 minutes and were given \$50. We did not collect personally identifying information to reduce barriers to participation from individuals recruited via the Internet.

QUANTITATIVE ASSESSMENT

Demographics. Participants reported their age, education level, monthly income, employment status, sexual orientation, and place of birth. Participants born in other countries reported the number of years they had lived in the United States and their age at immigration to the United States.

HIV Status. Participants stated whether or not they had been tested for HIV. Those who had been tested were asked to report their most recent test result.

Cultural Orientation. We used two subscales of the Behavioral Acculturation Scale (Szapocznik, Kurtines, & Fernández, 1980), an instrument that assesses orientation toward mainstream English-speaking American culture ("Americanism") and orientation toward Hispanic culture ("Hispanicism"). The Hispanic orientation subscale has 21 items scored on a 5 point Likert scale ($\alpha = .93$), and the American orientation subscale has 21 items scored on a 5 point Likert scale ($\alpha = .93$). For this and all subsequent measures we calculated Cronbach's alpha coefficients using data from the current study.

Homophobia. We used Díaz et al.'s (2001) 11-item scale ($\alpha = .78$) that used 4 points ("never" to "many times") to assess how often a respondent had been the subject of discrimination based on his sexual orientation as a child and/or an adult (e.g., "As you were growing up, how often did you feel that your homosexuality hurt and embarrassed your family?"; "As an adult, how often you had to pretend that you are straight to be accepted?").

Racism. We used Díaz et al.'s (2001) 10-item scale ($\alpha = .79$) that used 4 points ("never" to "always") to assess how often a respondent had been the subject of racial discrimination (e.g., "How often have you been turned down for a job because of your race or ethnicity?").

Income. From the raw income data, we computed a binary variable representing a net monthly income of less than \$1,500 (0) compared with \$1,501 and greater (1).

Gay Community Attachment. We used McKirnan, Venable, and Stokes's (1992) eight-item Identification and Involvement with the Gay Community Scale to measure men's level of involvement in and perceptions of closeness to the gay community ($\alpha = .67$). Using a 5-point Likert scale ranging from "do not agree at all" to "strongly agree," participants rated how strongly they agreed with statements such as the following: (a) It is important to have some of my friends be gay or bisexual, (b) Being gay makes one feel part of a community, and (3) Being attracted to men is important to one's sense of self.

Social Connections. We used four items ("Do you feel you matter to people around you?"; "Are you satisfied with your friendships?"; "Are you satisfied with your romantic relationships?"; and "Are you satisfied with the relationship to your family?") to assess connections to family and friends. Responses were either yes, somewhat yes, or no ($\alpha = .70$).

Psychological Distress. We used the 10-item scale developed by Díaz, Carrillo, Williams, and Bein (2002). Using 7 points ranging from "daily" to "never," participants rated how frequently in the past 6 months they had experienced such things as: "feeling everything is an effort" and "feelings of worthlessness" ($\alpha = .90$).

Loneliness. We used an abridged version (4 items) of Díaz et al.'s (2001) Loneliness Scale (e.g., "How often do you feel you lack companionship?"). Response categories ranged from never (1) to many times (4) ($\alpha = .88$).

History of Suicide Attempts. Participants reported whether or not they had ever attempted to take their own life.

Sexual Behavior in the Last 6 Months. Participants reported their number of male sex partners, whether or not they engaged in insertive anal sex and/or receptive anal sex, and the frequency with which they had used a condom for each type of sex act.

Drug use in the Last 6 Months. Participants reported their use of each of the following drugs: cocaine, crystal methamphetamines (crystal), other amphetamines, poppers (amyl nitrites), ecstasy (N-methyl-3,4-methylenedioxyamphetamine), GHB (gamma-hydroxybutyrate), Special K (ketamine), and Viagra (sildenafil) in combination with other drugs.

QUALITATIVE INTERVIEW PROCEDURES

Given that the quantitative data were anonymous, it was not possible to select a purposive sample of men who used drugs and had risky sex and those who did

not from participants in the quantitative component. We enlisted the aid of key informants and our Program Advisory Committee to refer men with the high-risk behavior patterns we were examining. We interviewed 20 participants; 80% ($n = 16$) were HIV negative or of unknown serostatus; 75% ($n = 15$) used drugs and had risky sex.

Qualitative interviews were conducted in our field offices by trained interviewers who followed an interview guide to explore the following areas: (a) meaning, relationship, and role of drugs and sex; (b) context and motivation of drug use/no drug use and risky/protected sex; (c) role of Hispanic and gay culture in shaping their use/non-use of drugs and sexual behaviors; (d) role of family, partners, and friends in risk and protection, and (e) issues related to intervention development (e.g., format, length). The respondents were asked to reconstruct the interactions that occurred in several distinct episodes and the processes by which they decided to have (or not have) high-risk sex or to use (or not use) drugs. These narratives were followed by questions and probes to elicit details. Respondents often spontaneously offered information related to one topic area when responding to a prompt from another and offered additional information that was not part of the initial questions. Interviews were audiotaped and transcribed. Participants were given \$50 in appreciation for their time. Two independent raters coded each transcript using a structure that emerged from the data; standard methods were used to resolve discrepancies. We kept an ongoing set of memos to record the nascent hypotheses and used NVivo to assist with coding data, searching text, and conducting cross-case analysis.

ANALYSIS PLAN

For the quantitative analyses, we first classified participants as drug users (43%) or non-drug user (57%) based upon their self-reported 6-month history of using the following drugs: cocaine, crystal, other amphetamines, poppers, ecstasy, GHB, Special K, and Viagra in combination with other drugs. Men who exclusively used alcohol or marijuana were excluded. We then used chi-square and t tests to examine the univariate relationships between the independent variables and drug use. We next conducted a hierarchical logistic regression comparing drug users (1) with non-drug users (0). Following the recommendations of Hosmer and Lemeshow (2000), variables with p values of .20 or lower in the univariate analyses or of theoretical relevance (gay community attachment and homophobia) were included as predictors because use of more traditional significance values (i.e., .05) might fail to identify important relationships. Gay community attachment and homophobia were included because the literature was mixed regarding their role as risk or protective factors and our qualitative data suggested they might be relevant for intervention development. We checked for multicollinearity prior to entering the variables; previous HIV testing was not included because of multicollinearity with serostatus. In Block 1, we entered two control variables; recruitment venue to control for differences between the Internet and community samples and serostatus, because it was the one non-modifiable difference at the univariate level between drug users and non-drug users. In Block 2, Cultural Orientation, we entered Americanism and Hispanicism. In Block 3, Social Oppression, we entered homophobia, racism, and income. In Block 4, Social Support, we entered gay community attachment, loneliness, and social connection. In Block 5, Mental Health, we entered psychological distress and history of suicide attempts. In the final block, Sexual Risk Behaviors, we entered number of partners and unprotected anal sex.

TABLE 1. Sample Characteristics of Non-Drug Users Versus and Drug Users

	Total Sample (N = 566)	Non-Drug Users (n = 325)	Drug Users (n = 241)	p Value	Odds Ratio
Demographics					
Age	31.2 (SD = 6.9)	30.85 (SD = 6.85)	31.75 (SD = 6.97)	0.125 ^a	
Born Outside United States	88%	91%	83%	0.008 ^b	1.96
Interviewed in Spanish	71%	78%	61%	<0.001 ^b	0.46
Recruited Online	52%	49%	56%	0.095 ^b	n.s.
Education				0.508 ^b	
Less than high school	6%	6%	6%		
High school	23%	24%	21%		
Some college	28%	28%	29%		
Vocational degree	6%	7%	50%		
College degree	33%	27%	27%		
Graduate degree	10%	8%	12%		
Employed	79%	78%	80%	0.676 ^b	n.s.
Income (< \$1500/month)	59%	45%	35%	0.024 ^b	0.67
Sexual identification				0.523 ^b	n.s.
Gay	92%	92%	93%		
Bisexual	8%	8%	7%		
Previous HIV Testing	86%	82%	93%	< 0.001 ^b	2.98
Known to be Seropositive	16%	10%	23%	< 0.001 ^b	2.62

Note. ns = not significant. ^aContinuous variables assessed with Student's t tests (mean values reported). ^bCategorical variables assessed with χ^2 tests (percentages reported).

We used four successive levels of qualitative analysis. We used descriptive analyses to describe the respondents' life situations and characteristics and used thematic analyses to elaborate the structure of the constructs that emerged. We conducted comparative analyses to clarify differences among the participants to help ensure that our model incorporated both differences and similarities. We used meta-matrices, semantic tables, and node tree diagrams to assist with the interpretation of the comparative analysis findings. After summarizing the concepts and themes that emerged from the qualitative analyses we used a concurrent triangulation approach (Creswell, 2003) and incorporated theoretical elements critical to HIV risk behavior change (Kelly, 1995) using an interactive process. From this integration, we identified key conceptual components and cross cutting themes that guided development of Proyecto SOL (SOL is "sun" in Spanish, but it also stands for Safer Options for Life), a theoretically and culturally grounded, multi-session, group intervention to reduce HIV risk among HMSM.

RESULTS

SAMPLE CHARACTERISTICS

The main demographic characteristics of the overall sample are summarized in Table 1. The sample was relatively young ($M = 31.2$, $SD = 6.9$, range 18 to 88 years) and born outside the U.S. (87.6%). The breakdown by country of origin (with a minimum of 10 participants) was as follows: Argentina (34), Chile (12), Colom-

bia (101), Cuba (122), Ecuador (16), Nicaragua (20), Peru (21), Puerto Rico (31), Venezuela (60) and other Latin American and Caribbean countries (53). The majority (79%) was employed and 94% had at least a high school education. Although 43% were college graduates, 59% earned less than \$1,500 per month. The majority (92%) self-identified as gay and almost 16% were HIV-seropositive. Almost half (45%) reported having had unprotected sex in the past 6 months and 43% used drugs during the same time period; nearly half (49%) of the drug users were poly-drug users (used 2 or more drugs). The proportion of drug users who reported using each of the following drugs in the last 6 months were: poppers (65%); ecstasy (29%); cocaine (27%); crystal methamphetamine (24%); GHB (11%); ketamine (10%); other amphetamines (6%), and Viagra in combination with other drugs (40%) (data not shown).

UNIVARIATE COMPARISONS OF DRUG USERS WITH NON-DRUG USERS

As seen in Tables 1 and 2, drug users were more likely than non-drug users to be U.S. born, interviewed in English, have higher monthly incomes, have been previously tested for HIV, and to be HIV-positive. Drug users were more oriented to American culture (Americanism) and less oriented to Hispanic culture (Hispanicism) than non-drug users. Drug users had more sex partners and more unprotected anal intercourse in the last 6 months than did nonusers. Drug users reported higher levels of loneliness, more psychological distress, more experiences of racism, and less social connections than did non-drug users. They were also more likely to have attempted suicide than non-drug users.

MULTIVARIATE MODEL OF FACTORS ASSOCIATED WITH DRUG USE

The results of the multivariate analysis are presented in Table 3. In the final model, drug users were more likely to be seropositive, were more attached to the gay community, and reported more sexual risk behaviors than non-drug users. They also reported lower levels of Hispanicism and less experiences of homophobia. The final model was significant ($\chi^2_{14df} = 117.12; p < .000$) and correctly classified 70.7% of participants on drug use. We conducted posthoc analyses to examine the interaction between homophobia and gay community attachment by adding an interaction term to the model. This interaction term was significant at the $\alpha = .031$ level.

SUMMARY OF QUALITATIVE FINDINGS AND THEIR IMPLICATIONS FOR DEVELOPMENT OF PROYECTO SOL

Four main themes emerged from the qualitative data. The first theme was that the quest for acceptance from partners and family often led to risky sex and/or drug use. Participants recounted incidents when they had intended to use condoms but did not do so to please their partner and avoid rejection. Similarly many participants who did not routinely use drugs would use them at their partner's insistence to gain his approval and to feel closer and more connected with him. Participants recounted painful instances when familial rejection or jabs regarding their sexual orientation triggered their having unprotected sex or using drugs. The stories were so poignant and the ensuing behaviors so risky, that we incorporated a role-play scenario on this issue in the intervention. Not only was acceptance from others important, but the lack of self-acceptance, particularly around sexuality and manhood, was also associated with risky behaviors. We saw evidence of internalized homophobia, when men expressed shame, guilt and the need to hide their sexual orientation from family and

TABLE 2. Univariate Comparison of Non-Drug Users Versus Drug Users

	Non-Drug Users (<i>n</i> = 325)	Drug Users (<i>n</i> = 241)	<i>p</i> Value	Odds Ratio
Cultural Orientation				
Americanism	76.38 (<i>SD</i> = 15.15)	80.66 (<i>SD</i> = 13.58)	0.001 ^a	
Hispanicism	84.18 (<i>SD</i> = 14.12)	77.54 (<i>SD</i> = 14.91)	< 0.001 ^a	
Social oppression				
Homophobia	1.96 (<i>SD</i> = 0.48)	1.95 (<i>SD</i> = 0.52)	.844 ^a	
Racism	1.24 (<i>SD</i> = 0.30)	1.33 (<i>SD</i> = 0.36)	.002 ^a	
Social support				
Gay community attachment	3.08 (<i>SD</i> = 0.70)	3.15 (<i>SD</i> = 0.72)	.224 ^a	
Loneliness	2.14 (<i>SD</i> = 0.82)	2.37 (<i>SD</i> = 0.92)	.002 ^a	
Social connection	2.58 (<i>SD</i> = 0.44)	2.41 (<i>SD</i> = 0.48)	< .001 ^a	
Psychological distress	2.18 (<i>SD</i> = 1.14)	2.49 (<i>SD</i> = 1.22)	.002 ^a	
History of suicide attempt	9.0%	20%	< .001b	2.46
Sexual risk behaviors ^c				
Number of sexual partners ^c	Median = 3	Median = 7	< .001 ^a	
Anal intercourse ^c	74%	79%	.226b	ns
Unprotected insertive anal intercourse ^c	26%	42%	< .001b	2.05
Unprotected receptive anal intercourse ^c	25%	42%	< .001b	2.12
Unprotected anal intercourse ^c	36%	58%	< .001 ^b	2.53

Note. ^aContinuous variables assessed with Student's *t*-tests (mean values reported). ^bCategorical variables assessed with χ^2 tests (percentages reported). ^cAll sexual history questions are for the "past six months."

friends. In efforts to alleviate these feelings, many men had unprotected sex or used drugs.

Second is the intertwined and complex relationship between drug use and unprotected sex. Even though men provided varied reasons for using drugs, some positive (e.g., recreation, socialization, relaxation, reducing inhibition, improving sex) and others negative (e.g., relieve loneliness, get back at a partner), there was a strong association between drug use and risky sex even among men who were casual or infrequent users. This underscores the importance of addressing both risk behaviors and not focusing the intervention exclusively on drug users. The third theme addressed cultural influences and the often conflicting messages men receive from the Hispanic, the mainstream American, and the gay cultures. Men described these cultural influences as sometimes protective and at other times risky. They needed strategies for navigating these influences, building on the protective factors and reducing the risky ones. The last theme centered on loneliness and the need for social connections. Despite being surrounded by people and living in a city with a thriving gay community, many participants were lonely and sought refuge by going to bars and clubs or using the Internet to find sex partners. Many of these men did not know about community events and alternative social groups where they could meet and socialize with other gay men.

In addition, participants provided recommendations regarding the delivery format of the intervention and the number of intervention sessions. Unequivocally, they preferred multisession interventions but there was no consensus on delivery format

TABLE 3. Hierarchical Logistic Regression of Factors Predicting Drug Use

	Step One ^a : Control Variables		Step Two ^b : Cultural Orientation		Step Three ^c : Social Oppression		Step Four ^d : Social Support		Step Five ^e : Mental Health		Step Six ^f : Sexual Risk Behaviors	
	OR	95% CI of OR	OR	95% CI of OR	OR	95% CI of OR	OR	95% CI of OR	OR	95% CI of OR	OR	95% CI of OR
Community Venues	0.766	(0.540, 1.086)	0.783	(0.545, 1.126)	0.756	(0.524, 1.092)	0.713	(0.489, 1.039)	0.712	(0.488, 1.039)	0.710	(0.479, 1.051)
Seropositive	2.404***	(1.485, 3.890)	2.394***	(1.461, 3.924)	2.375***	(1.437, 3.925)	2.439***	(1.461, 4.071)	2.456***	(1.467, 4.112)	2.094**	(1.219, 3.595)
Hispanicism ^g			0.970***	(0.957, 0.983)	0.973***	(0.960, 0.986)	0.978***	(0.964, 0.992)	0.979**	(0.965, 0.993)	0.980*	(0.965, 0.996)
Americanism ^g			1.014*	(1.000, 1.028)	1.012	(0.998, 1.027)	1.014	(1.000, 1.029)	1.014	(0.999, 1.028)	1.010	(0.994, 1.025)
Homophobia ^g					0.754	(0.491, 1.159)	0.555*	(0.347, 0.889)	0.544*	(0.336, 0.879)	0.510**	(0.311, 0.835)
Racism ^g					2.131*	(1.128, 4.027)	1.854	(0.967, 3.558)	1.791	(0.926, 3.462)	1.757	(0.883, 3.494)
Income					1.404	(0.965, 2.045)	1.502*	(1.021, 2.208)	1.536*	(1.043, 2.262)	1.488	(0.996, 2.227)
Gay Community Attachment ^g							1.388*	(1.062, 1.814)	1.376*	(1.052, 1.800)	1.381*	(1.044, 1.826)
Social Connection ^g							0.556*	(0.326, 0.950)	0.569*	(0.329, 0.982)	0.659	(0.375, 1.157)
Loneliness ^g							1.184	(0.867, 1.617)	1.136	(0.801, 1.610)	1.119	(0.778, 1.608)
Psychological Distress ^g									0.983	(0.772, 1.251)	0.958	(0.744, 1.234)
History of Suicide At- tempts									1.736	(0.942, 3.197)	1.590	(0.839, 3.013)
Number of Sexual Partners ^g											1.041***	(1.021, 1.061)
Unprotected Intercourse											1.861**	(1.247, 2.776)

^aStep One: $\chi^2_{2df} = 16.421$; $p < .000$; 60.6% correctly classified. ^bStep Two: $\chi^2_{2df} = 34.298$; $p < .000$; 63.2% correctly classified. ^cStep Three: $\chi^2_{3df} = 9.041$; $p = .029$; 65.9% correctly classified. ^dStep Four: $\chi^2_{3df} = 15.922$; $p = .001$; 65.9% correctly classified. ^eStep Five: $\chi^2_{3df} = 3.222$; $p = .200$; 66.6% correctly classified. ^fStep Six: $\chi^2_{2df} = 38.218$; $p < .000$; Total Model $\chi^2_{14df} = 117.122$; $p < .000$; 70.7% correctly classified. ^gOdds Ratios for continuous variables represent the change in odds for one unit change in the independent variable. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

(group vs. individual). They also strongly recommended that we separate participants by serostatus to promote more free and more relevant discussions.

DISCUSSION

This is one of the few studies that examined risk and protective factors associated with drug use among Hispanic MSM with the intent of using them for intervention development. The alarmingly high levels of drug use including polydrug use and unprotected sex as well as the significant associations between use of drugs and high-risk sex (multiple partners and unprotected anal sex) in the multivariate model heighten the urgency to develop tailored interventions to reduce HIV risk in this population. Development of these much needed interventions necessitate understanding the sociocultural and psychological factors contributing to these intertwined risks and using the findings to guide intervention development as we did in the present study.

DRUG USE, CULTURAL ORIENTATION, AND GAY COMMUNITY ATTACHMENT

An important consideration is the relationship that emerged between drug use and cultural orientation. In the final multivariate model, it was *less* Hispanicism and not more Americanism that was associated with drug use, suggesting a protective role for Hispanic culture. It appears that for HMSM in South Florida, maintaining a high degree of orientation to Hispanic culture buffers the effect of a higher degree of orientation to American culture, which others have found to be associated with increased rates of HIV risk behaviors (Díaz et al., 2005; Dolezal et al., 2000). Our findings suggest that it is being less connected with Hispanic culture that is critical to drug use, not the process of acculturation to the U.S. culture per se. This highlights the importance of identifying cultural resources as well as “cycles of disempowerment” (Marín, 2003) relevant for HMSM and weaving them into preventive interventions. For example, family acceptance can be a powerful cultural resource (Díaz et al., 2001) whereas homophobia can be disempowering and lead to HIV risk behaviors (Marín, 2003).

Another point is the association between drug use and the community attachment. Although some studies have shown that strong attachment to the gay community is protective (Ramirez-Valles, 2002; Ridge, Plummer, & Minichiello, 1994; Rosario, Hunter, Maguen, Gwadz, & Smith, 2001), in our study it was associated with drug use. Yet the role that gay community attachment plays, whether protective or risky, may depend on the type of social interactions (e.g., clubs/bars vs. sporting events) and type of social networks. In our qualitative interviews we found that HMSM who were more involved in positive social activities, such as activism, gay sports teams, and community volunteering reported fewer high-risk behaviors than those whose social circles and activities center around clubs/bars, drug use, sex, and the party scene. Thus, interventions should strive to enhance the protective aspects of the gay community (e.g., sense of community and acceptance, positive social connections) and reduce aspects that promote risk (e.g., idealization of the sexual marketplace, recreational drugs).

To more fully understand the associations among loss of Hispanicism, strong gay community attachment, and drug use, it is important to consider the environmental context in which the study was executed. Miami-Dade County, where more

than 56% of the population is Hispanic (U.S. Census Bureau, 2004), is different from other metropolitan areas with large Hispanic populations because Hispanics hold leadership positions in business, government, and other sectors (Fernández et al., 2005). However, Miami-Dade also has a thriving gay district, South Beach, which attracts HMSM from all parts of Latin America and White MSM from all over the United States. Eighty-eight percent of our sample was born abroad and a large proportion of these men reported having moved to Miami to live their lives more openly and with less fear of discrimination. Although some HMSM come to Miami and live with or near family maintaining strong roots in the Hispanic community, many others come alone. Some may choose to live in the gay district which is less integrated to Miami's mainstream Hispanic community. In their efforts to assimilate to the gay community, many may lose their Hispanic roots and familial ties which may lead to risk behaviors. Thus, learning to navigate these dual cultural influences should be a key component of interventions for HMSM.

DRUG USE AND SOCIAL OPPRESSION

What emerged with the social oppression variables (i.e., homophobia, racism) is also noteworthy. In the final model, only homophobia remained significant and the direction was opposite from what we predicted. The lack of association between racism and drug use may be due, in part, to the environmental context of Miami-Dade County as previously discussed. The association between less homophobia and more drug use could stem from HMSM's membership in two distinct communities with differing values and norms: the Hispanic and the gay communities. The Hispanic community has low tolerance for homosexuality, but it also expects that a high level of familial and community connections be maintained. Although HMSM who are more integrated in the Hispanic community may report more experiences of homophobia, their strong connection to the Hispanic community could also buffer their involvement in HIV risk behaviors. One study found that young HMSM were less likely to report unprotected anal intercourse with a casual sex partner if they had strong Hispanic community attachment (O'Donnell et al., 2002). Likewise, a strong attachment to the Hispanic community may lead to more perceived homophobia but less drug use as our study showed.

Of relevance to intervention development is that homophobia, although not related initially to drug use, became a strong predictor once gay community attachment was entered (Step 4) suggesting a possible moderating relationship. We performed posthoc moderation tests, and a significant interaction between homophobia and gay community attachment emerged. Gay community attachment did not predict drug use for men with fewer experiences of homophobia, whereas for men with more experiences of homophobia, higher gay community attachment predicted drug use. In other words, being attached to the gay community facilitates drug use for HMSM who experience homophobia. Although this was somewhat surprising, our qualitative work indicated that use of drugs and high-risk sex are driven in substantial ways by a strong need for acceptance, desire to overcome feelings of inadequacy, loneliness, and a desire for relationships. Drugs were also used to facilitate sex and to have more and better sex. Men also reported being introduced to drugs by a significant other. These qualitative findings suggest that the need for acceptance can be a strong driver of HIV risk behavior. From an intervention development perspective, this points toward including exercises and activities to help participants understand how the need for acceptance may play a role in promoting their risk behaviors and developing skills and resources to address this.

LIMITATIONS

Notwithstanding the large sample size, there are several limitations that should be considered. First, the data are cross-sectional and do not permit longitudinal examination of the associations or change over time. Second, although we used time and sampling, our sample is not necessarily representative of the broader population of HMSM in South Florida. Rather, our generalizability is limited to HMSM who visit Internet and/or community venues catering to or frequented by HMSM. Because of the unique characteristics of Miami-Dade County, there is a possibility that findings from our study may not be fully generalizable to other metropolitan areas. However, participants in Díaz et al.'s (1999, 2004) study in which Miami was one of three study sites were not significantly different from those in the other two cities. Even though we did not classify men who exclusively used alcohol and marijuana as drug users and only included those who used substances typically associated with the club scene, our dichotomous classification of drug users is not without limitation. Despite this, we found a strong relationship between drug use and unprotected sex regardless of which of the factors is used as the dependent variable. Not only does this have implications for intervention development, but it supports using all drug users rather than only polydrug users in these analyses so that the intervention can have applicability to a wider group of Hispanic men.

DEVELOPMENT OF PROYECTO SOL

Development of Proyecto SOL was guided by the findings presented in this article as well as those that are previously published or currently under review. At the core of Proyecto SOL is the recognition of the intertwined nature of sexual behavior and drug use and importance of addressing both throughout the intervention. An important component of Proyecto SOL is to help participants understand how relationships, culture, and context influence HIV risk behaviors. Hispanic and gay cultures are prominently featured throughout the sessions. Through the "Who Is in *Mi Casa*?" exercise, participants identify their meaningful relationships by putting them in their *casas* (houses) and recognize how these relationships influence their behaviors in positive and negative ways. Through a series of exercises beginning with the "Man Drawing," participants are challenged to reflect on who they are, how they see themselves (as a man, a Hispanic man, and a gay man), and how they behave in different cultural contexts. Because Hispanic and gay cultures buffer as well as enhance risk behaviors, participants complete a set of exercises to identify the positive and negative influences from each culture and to understand how they respond to these influences. To address the theme of acceptance, scenarios and role-plays provide opportunities to recognize that the need for acceptance from lovers, family, or friends often drives risk behaviors and to see how cultural influences can ameliorate or enhance this risk.

Because Proyecto SOL incorporates the key theoretical components necessary for behavior change (Kelly, 1995), increasing behavioral skills (e.g., problem solving, communication, and negotiation) and self efficacy regarding condom use and condom use negotiations are central. With the aid of mnemonics such as IDEA (identify, develop, evaluate, and act), or TALK (timing, assertive communication, location, knowing what to say), participants develop action plans to reduce triggers and promote safe behaviors with the ultimate goal of developing and sustaining a Safer Options for Life Plan (SOL Plan). Because sexual health is only one aspect of overall health, the SOL plan is not exclusively focused on HIV risk behaviors. Participants are encouraged to include other aspects of health (physical, emotional, and spiritual)

in their SOL plans and to incorporate routine preventive health screenings such as regular HIV testing. Group activities and homework exercises promote skill acquisition by providing practice opportunities with coaching and feedback from the facilitators as well as group members.

Participating in alternative social groups emerged as a protective factor. Thus, our intervention fosters development of positive social connections and informs participants of the resources available in the community. Recognizing the critical need for supportive relationships in the maintenance of participants' SOL plans, participants are exposed to social activities, such as gay book clubs and sporting events, and are encouraged to explore them as alternatives to the club/party scene. In the last session, through "Who Is in Mi Nueva Casa?" exercise, participants revisit the relationships they included in their original "casas" and assess whether or not they are supportive of their SOL plan. They are given the opportunity to create a *nueva casa* (new house) that includes supportive relationships. At the conclusion of the last sessions, participants are offered a free rapid HIV test. Although HIV testing is not part of the intervention per se, we make it available because: (a) routine HIV testing is an important component of preventive health care for MSM; (b) HMSM are less likely than White MSM to know their HIV infection status (CDC, 2005), and (3) we link participants who test positive to quality care.

CONCLUSION

In this article, we illustrate how we used data on risk and protective factors associated with sexual behavior and drug use to guide development of a preventive intervention for HMSM. However, intervention development is only the first step in the process because the utility of an intervention can only be gauged by its ultimate effectiveness in reducing HIV risk behaviors. To this end, we are currently engaged in an initial efficacy trial of Proyecto SOL as part of CDC's Latino and African American Men's Project. If Proyecto SOL is efficacious in reducing HIV risk behaviors in the short term (3 and 6 month post intervention) we will be well positioned to launch a full scale efficacy trial to examine longer term outcomes. Nonetheless, this study moves us one step closer to the public health goal of an efficacious intervention for reducing HIV risk among HMSM.

REFERENCES

- Akin, M., Fernández, M.I., Bowen, G.S., & Warren, J.C. (2008). HIV risk and immigrants: Behaviors of MSM from Latin America and the Caribbean in Miami, FL. *Pan American Journal of Public Health, 23*(5), 341-380.
- Bruce, D., Ramirez-Valles, J., & Campbell, R. (2008). Stigmatization, substance use, and risk behavior among Latin gay and bisexual and transgender persons. *Journal of Drug Issues, 38*(1), 235-260.
- Carballo-Diéguez, A. (1998). The challenge of staying HIV-negative for Latin American immigrants. *Journal of Gay and Lesbian Social Services, 8*, 61-82.
- Carballo-Diéguez, A. (2001). HIV, barebacking, and gay men's sexuality. *Journal of Sex Education and Therapy, 26*, 225-233.
- Carballo-Diéguez, A., & Dolezal, C. (1996). HIV risk behaviors and obstacles to condom use among Puerto Rican men in New York City who have sex with men. *American Journal of Public Health, 86*, 1619-1622.
- Carballo-Diéguez, A., Dolezal, C., Lue, C. S., Niever, L., Díaz, F., & Decena, C., et al. (2005). A randomized controlled trial to test an HIV-prevention intervention for Latino gay and bisexual men: Lessons learned. *AIDS Care, 17*(3), 314-328.

- Carballo-Diéguez, A., Dolezal, C., Nieves-Rosa, L., & Díaz, F. (2000). Similarities in the sexual behavior and HIV risk factors of Colombian, Dominican, Mexican, and Puerto Rican MSM residing in New York City. *Journal of Psychology and Human Sexuality, 12*, 49-67.
- Carballo-Dieguez, A., Remien, R. H., Dolezal, C., & Wagner, G. (1997). Unsafe sex in the primary relationship of Puerto Rican men who have sex with men. *AIDS Behavior, 1*, 9-17.
- Centers for Disease Control and Prevention. (2005). HIV prevalence, unrecognized infection and HIV testing among men who have sex with men—five US cities, June 2004-April 2005. *Morbidity and Mortality Weekly Reports, 54*, 597-601.
- Centers for Disease Control and Prevention. (2007). *HIV/AIDS surveillance report: Cases of HIV infection and AIDS in the United States and dependent areas, 2005* (Vol. 17). Atlanta, GA: Author.
- Centers for Disease Control and Prevention. (2008). *HIV/AIDS surveillance report: Cases of HIV infection and AIDS in the United States and dependent areas, 2006* (Vol. 18). Atlanta, GA: Author.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.
- Díaz, R. M., Ayala, G., & Bein, E. (2004). Sexual risk as an outcome of social oppression: Data from a probability sample of Latino gay men in three U.S. cities. *Cultural Diversity and Ethnic Minority Psychology, 10*, 255-267.
- Díaz, R. M., Ayala, G., Bein, E., Henne, J., & Marín, B. V. (2001). The impact of homophobia, poverty, and racism on the mental health of gay and bisexual Latino men: Findings from 3 U.S. cities. *American Journal of Public Health, 91*, 927-932.
- Díaz, R. M., Carrillo, H., Williams, A., & Bein, E. (2002). *Drug use and HIV risk among Latino gay men*. Unpublished survey, San Francisco, CA.
- Díaz, R. M., Heckert, A. L., & Sanchez, J. (2005). Reasons for stimulant use among Latino gay men in San Francisco: A comparison between methamphetamine and cocaine users. *Journal of Urban Health, 82*(Suppl.1), i71-i78.
- Díaz, R. M., Morales, E. S., Bein, E., Dilan, E., Rodriguez, R. A. (1999). Predictors of sexual risk in Latino gay/bisexual men: The role of demographic, developmental, social and behavioral variables. *Hispanic Journal of Behavioral Science, 21*, 480-501.
- Díaz, R. M., Stall, R. D., Hoff, C., Daigle, D., & Coates, T. J. (1996). HIV risk among Latino gay men in the Southwestern United States. *AIDS Education and Prevention, 8*, 415-429.
- Dolezal, C., Carballo-Diéguez, A., Nieves-Rosa, L., & Díaz, F. (2000). Substance use and sexual risk behavior: Understanding their association among four ethnic groups of Latino men who have sex with men. *Journal of Substance Abuse, 11*, 323-336.
- Fernández, M. I., Bowen, G. S., Varga, L. M., Collazo, J. B., & Perrino, T. (2005). High rates of club drug use and risky sexual practices among Hispanic men who have sex with men in Miami, Florida. *Substance Use & Misuse, 40*, 1347-1362.
- Fernández, M. I., Perrino, T., Bowen, G. S., Royal, S., & Varga, L. (2003). Repeat HIV testing among Hispanic men who have sex with men—a sign of risk, prevention, or reassurance? *AIDS Education and Prevention, 15*(Suppl. A), 105-116.
- Fernández, M.I., Varga, L., Perrino, J., Collazo, F., Rehbein, A., & Torrez, H., et al. (2004). The Internet as recruitment tool for HIV studies: Viable strategy for reaching at-risk Hispanic MSM in Miami. *AIDS Care, 16*(8), 953-963.
- Fernández, M. I., Warren, J. C., Varga, L. M., Prado, G., Hernandez, N., & Bowen, G. S. (2007). Cruising in cyber space: Comparing Internet chat room versus community venues for recruiting Hispanic men who have sex with men to participate in prevention studies. *Journal of Ethnicity in Substance Abuse, 6*, 146-162.
- Halkitis, P. N., Moeller, R. W., Siconolfi, D. E., Jerome, R.C., Rogers, M., & Schillinger, J. (2008). Methamphetamine and poly-substance use among gym attending men who have sex with men in New York City. *Annals of Behavioral Medicine, 35*(1), 41-48.
- Hall, H. I., Byers, R. H., Ling, Q., & Espinosa, L. (2007). Racial/ethnic and age disparities in HIV prevalence and disease progression among MSM in the United States. *American Journal of Public Health, 97* (6), 1060-1066.
- Herbst, J., Beeker, C., Mathew, A., McNally, T., Passin, W. F., & Kay, L.S., et al. (2007). The effectiveness of individual, group, and community-level HIV behavioral risk-reduction intervention for adult men who have sex with men. *American Journal of Preventive Medicine, 32*(Suppl. 4.), S38-S67.
- Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression*. New York: Wiley.
- Johnson, W. D., Holtgrave, D. R., McClellan, W. M., Flanders, W. D., Hill, A. N., & Goodman, M. (2005). HIV intervention research for men who have sex with men: A 7-year update. *AIDS Education and Prevention, 17*, 568-589.

- Kelly, J. A. (1995). Advances in HIV/AIDS education and prevention. *Family Relations, 44*, 345-352.
- Lieb, S., Arons, P., Thompson, D. R., Santana, A. M., Liberti, T. M., & Maddox, L. et al. (2009). Men Who have Sex with Men: Racial/Ethnic Disparities in Estimated HIV/AIDS Prevalence at the State and County Level, Florida. *AIDS Behavior, 13*, 716-723.
- Mansergh, G., Marks, G., Colfax, G. N., Guzman, R., Rader, M., & Buchbinder, S. (2002). "Barebacking" in a diverse sample of men who have sex with men. *AIDS, 16*, 653-659.
- Marín, B. V. (2003). HIV prevention in the Hispanic community: Sex, culture, and empowerment. *Journal of Transcultural Nursing, 14*, 186-192.
- McKirnan, D.J., Venable, P.A., & Stokes, J. P. (1992). Identification and involvement with the gay community scale (IGCS). In C. M. Davis, R. Bauserman, G. Schreer, & S.L. Davis (Eds.), *Handbook of sexuality-related measures* (pp. 407-409). Thousand Oaks, CA: SAGE Publications.
- Miami-Dade County HIV/AIDS Surveillance Report, 2007.
- O'Donnell, L., Agronick, G., San Doval, A., Duran, R., Myint-U, A., & Stueve, A. (2002). Ethnic and gay community attachments and sexual risk behaviors among urban Latino young men who have sex with men. *AIDS Education and Prevention, 14*, 457-471.
- Poppen, P., Relsen, C., Zea, M., Blanche, F., & Echeverry, J. (2004) Predictors of unprotected anal intercourse among HIV-positive Latino gay and bisexual men. *AIDS and Behavior, 8*(4), 379-389.
- Ramirez-Valles, J. (2002). The protective effects of community involvement for HIV risk behavior: A conceptual framework. *Health Education Research, 17*, 389-403.
- Ridge, D. T., Plummer, D. C., & Minichiello, V. (1994). Knowledge and practice of sexual safety in Melbourne gay men in the nineties. *Australian Journal of Public Health, 18*, 319-325.
- Rosario, M., Hunter, J., Maguen, S., Gwadz, M., & Smith, R. (2001). The coming-out process and its adaptational and health-related associations among gay, lesbian, and bisexual youths: Stipulation and exploration of a model. *American Journal of Community Psychology, 29*, 133-160.
- Stueve, A., O'Donnell, L. N., Duran, R., San Doval, A., & Blome, J. (2001). Time-space sampling in minority communities: results with young Latino men who have sex with men. *American Journal of Public Health, 91*(6), 922-926.
- Szapocznik, J., Kurtines, W. M., & Fernández, T. (1980). Bicultural involvement and adjustment in Hispanic-American youth. *International Journal of Intercultural Relations, 4*, 353-365.