

Correlates of Sexual Risk for HIV Among US-Born and Foreign-Born Latino Men Who Have Sex with Men (MSM): An Analysis from the Brothers y Hermanos Study

Yuko Mizuno · Craig B. Borkowf · George Ayala ·
Alex Carballo-Diéguez · Gregorio A. Millett

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Abstract Little research has been conducted to examine whether correlates of sexual risk vary by nativity among Latino men who have sex with men (MSM). We used cross sectional data collected from 870 Latino MSM recruited with respondent-driven sampling techniques. For each subsample (US-born and foreign-born), we assessed the association between each of the potential correlates (substance use, acculturation, social support, and social discrimination) and sexual risk behavior. Illicit drug use was associated with increased odds of sexual risk behavior in both US-born (OR = 2.17, 95 % CI 1.17–4.03) and foreign-born (OR = 1.86, 1.14–3.05) subgroups. Multivariate correlates specific to foreign-born men included binge drinking (OR = 1.91, 1.17–3.14), 15 years or longer spent in the US (OR = 1.79, 1.06–3.03) and exposure to social

discrimination (OR = 2.02, 1.03–3.99). Given the diversity of Latino MSM, information from research that identifies both common and different HIV risk factors across subgroups of Latino MSM may help better tailor HIV prevention programs.

Keywords Latino MSM · Nativity · Correlates · Sexual risk behavior

Introduction

Epidemiologic data indicate that Latino Men Who Have Sex with Men (MSM) is a priority population for HIV prevention interventions in the United States (US). The estimated rate of HIV diagnoses among Hispanic men in 2010 was about three times that among white men (44.7 per 100,000 vs. 15.3 per 100,000) [1]. Among Latino/Hispanic men, male-to-male sexual contact is the most commonly reported mode of HIV transmission, with 80 % of the estimated numbers of new HIV diagnoses occurring among MSM in 2010 [1].

The Latino population is “the largest, youngest, and fastest growing ethnic minority group in the United States” [2]. This population is diverse in many respects, including nativity status. According to the US Census Bureau, approximately 40 % of the Hispanic/Latino population in the US in 2006 was foreign-born [3], and the majority of foreign-born Latinos were from Central America (including Mexico) (70 %), followed by the Caribbean (18 %), and South America (13 %) [4]. Studies that compare health-related behaviors (including HIV risk behaviors) between US-born and foreign-born generally find that people who are US-born are more likely to engage in risky behaviors than foreign-born [5–7].

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

Y. Mizuno (✉) · C. B. Borkowf
Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention, 1600 Clifton Road, NE Mail Stop E37, Atlanta, GA 30333, USA
e-mail: ymizuno@cdc.gov

G. Ayala
The Global Forum on MSM and HIV, Oakland, CA, USA

A. Carballo-Diéguez
New York State Psychiatric Institute, New York, NY, USA

A. Carballo-Diéguez
Columbia University, New York, NY, USA

G. A. Millett
Centers for Disease Control and Prevention, Washington, DC, USA

Numerous studies have been conducted to identify correlates or risk factors of sexual risk behaviors among Latinos including Latino MSM. Correlates that are commonly identified and may particularly be relevant to Latino MSM include substance use including heavy alcohol use, acculturation, lack of social support, and perceived social discrimination [8–22]. Among these factors, substance use appears to be the most consistently identified risk factor among various subgroups of Latino MSM.

These previous studies, however, did not compare correlates or risk factors by nativity status even though some of the factors may theoretically be more relevant for a certain nativity group. For example, lack of social support may be more of an issue for foreign-born men as they may have limited access to social networks of MSM, and because they rely on their social network for day-to-day support including finding a job, transportation, and information about HIV prevention and care [18]. As Rhodes et al. [18] report from their qualitative study of immigrant Latino MSM, not having other sources of social support, some immigrant men may not prioritize condom as they “engage in sex to feel human connection, approval and affirmation with another.”

Acculturation may or may not be specifically relevant to a certain nativity status. Studies on Latino MSM suggest that foreign-born men start engaging in risk behaviors as they become socialized into sexual experiences in the US [15, 16]. However, acculturation may still be relevant within US-born people particularly for groups that have relatively recent immigration history. Thus, those with US-born parents (third generation and beyond) may be more likely to engage in risk behaviors than those with foreign-born parents (second generation) as suggested in studies of smoking behaviors [6, 23].

Several studies showed that experience of social discrimination may be another specific risk factor for foreign-born men. Rhodes et al. [24] found that immigration experience (e.g., discrimination, substandard housing, and harsh working environments) contributed to increased stress that could lead to sexual risk and high-risk drinking among immigrant Latino men. Perceived discrimination based on ethnicity/race, perceived documentation status, economic status, and/or same-sex behavior was also reported to have significant effects on mental health and behaviors, such as depression and inconsistent condom use among immigrant Latino MSM [18]. Experiences of homophobia and or racism were associated with sexual risk behaviors among samples of Latino MSM who were primarily immigrants [19, 20].

Given unique social experiences and life circumstances of foreign-born Latino MSM compared to those of US-born men, it is conceivable that correlates of sexual risk may vary depending on the nativity status. Information on such

differential correlates can be used to better tailor HIV prevention programs for specific sub-groups of Latino MSM. Using cross-sectional data collected from Latino MSM recruited from Los Angeles County and New York City, which have sufficient numbers of US- and foreign-born men to allow stratified analyses, we compared the characteristics of US-born men and foreign-born men, including significant correlates of HIV sexual risk behavior. We were primarily interested in the association between HIV sexual risk behavior and substance use, acculturation, social support, and social discrimination, and whether the association is specific to a particular nativity status. Following Mizuno et al. [21] we used a measure of social discrimination that takes account of both racism and homophobia in order to examine whether the finding (significant association between exposure to both types of social discrimination and sexual risk) can be replicated here, particularly among foreign-born men.

Methods

Data were collected as part of the Brothers y Hermanos study, a large multi-site epidemiological study funded by the Centers for Disease Control and Prevention to investigate factors associated with HIV risk behavior and HIV infection among black MSM and Latino MSM. This paper presents data on Latino MSM recruited from May of 2005 through April of 2006 in Los Angeles County and New York City. Eligible participants had to identify as male, identify as Latino, be 18 years of age or older, report sex (oral sex, anal sex, or mutual masturbation) with a man in the past 12 months, and be a resident of the area in which they were recruited. Respondent-driven sampling [25], a form of chain-referral sampling, was used to recruit participants. A detailed description of the Brothers y Hermanos study and its recruitment methodology has been reported elsewhere [26–28]. The study protocol was approved by the Institutional Review Boards at the CDC and at each of the local study sites. A total of 1,081 Latino MSM were enrolled into the study. Of these men, 870 self-reported as being HIV-positive or HIV-negative and were included in the present analysis to assess factors associated with engaging in unprotected anal intercourse (UAI) with a partner of different or unknown HIV status [29]. We excluded men whose HIV status was unknown to avoid misclassification of these men in determining the value of the outcome variable. These excluded men were more likely than the men in our sample to be US-born and to have US-born parents, more likely to be from the New York site, younger, less likely to have higher than high school education but less likely to run of money, less likely to report binge drinking, more likely to report experiencing

racism only, but less likely to report experiencing both homophobia and racism.

Measures

Outcome Variable

For HIV sexual risk behavior, we assessed whether participants had engaged in any UAI with a partner of different HIV status or with a partner of unknown HIV status in the past 3 months. Following Tieu et al. [29], we will call this risk behavior “serodiscordant/serostatus unknown UAI.”

Potential Correlates of Serodiscordant/Serostatus Unknown UAI

Table 1 indicates how each variable was classified for this paper. Demographic and socioeconomic factors included study site, age, race, education, and how often a participant ran out of money for basic necessities in the past 12 months. Participant’s HIV status was self-reported. Measures of substance use included binge drinking and illicit drug use in the past 3 months. For drug use we assessed whether any of the following drug was used: methamphetamine, cocaine, crack, ecstasy, GHB, ketamine, or amyl nitrite (poppers). Measures of acculturation included parents’ place of birth (used only for the analysis of native-born men), years spent in the US (used only for the analysis of foreign-born men), and the primary language used (English, Spanish).

Social support was measured by a scale consisting of five-items that were modified from published scales [30] (Cronbach’s $\alpha = 0.83$). A mean score across the five items was computed for each participant. For the present paper, the social support score was further categorized into two groups (high and low) based on a median split.

The measure of social discrimination was assessed using the procedures described in Mizuno et al. [21] and includes four mutually exclusive categories: [1] experienced neither homophobia nor racism (no experience of social discrimination), [2] experienced homophobia only, [3] experienced racism only, and [4] experienced both homophobia and racism.

Statistical Analyses

First, we grouped the sample into US-born (born in one of the 50 states in the US. Men who were born in US territories like Puerto Rico or Guam were not categorized into the US-born group) and foreign-born and for each sample, computed summary frequencies of the outcome and potential correlates, and compared these characteristics

across nativity status using Chi squared tests of independence. Next, for each sample, we conducted Chi squared tests and unadjusted logistic regression analyses to assess the association between each of the potential correlates and the outcome. We then entered variables that were significant at $p < 0.1$ in unadjusted analysis into a multivariate model. For multivariate analyses we adjusted for city, age, education, economic insecurity, and HIV status. All analyses were conducted with unweighted data as our goal was to describe patterns of associations and not make population estimates.

Results

Comparison of US-born Men and Foreign-born Men

Table 1 compares the characteristics of US-born Latino MSM and foreign-born Latino MSM. No significant differences were observed between the two groups in proportions reporting serodiscordant/unknown status UAI, binge drinking, and exposure to social discrimination. Significant differences ($p < 0.05$) were observed for the rest of the variables. Compared to foreign-born men, US-born men were more likely to be younger, high school graduates, and reside in New York City. They were less likely to report that they ran out of money for basic necessities in the last 12 months and also less likely to be HIV-positive, but were more likely to report illicit drug use. US-born men were more likely to have at least one US-born parent and to speak mostly English. A higher level of social support was reported by US-born men.

Analyses of US-born Men

Table 2 shows the results of unadjusted and multivariate logistic regression analyses for US-born men. Among the potential correlates of interest, variables that were associated with discordant/unknown status UAI in univariate analysis ($p < 0.1$) were illicit drug use, “having any parent who was born in the US (US-born parent)” (those who had any parent who was born in the US were more likely to engage in sexual risk behavior), and low social support. In the multivariate model that included these three variables that also adjusted for city, age, education, economic insecurity, and HIV status, the variable “US-born parent” was not significant ($p = 0.398$). Drug use ($p = 0.080$) and social support ($p = 0.051$) were border-line statistically significant. Additional analysis found that “US-born parent” and drug use were significantly correlated ($\chi^2 = 80.00$, $df = 1$, $p < 0.001$). When we fit a separate multivariate model that only included “US-born parent” and drug use, the border significance ($p = 0.085$) of the variable “US-born parent” in the univariate analysis completely

Table 1 Sample characteristics by nativity status: Brothers y Hermanos Study, conducted in Los Angeles and New York from 2005 to 2006, N = 870

	Native-born (n = 344)		Foreign-born (n = 526)		Test statistics χ^2 , df, p value
	N	%	N	%	
Serodiscordant/unknown status UAI					
Yes	61	18	103	20	$\chi^2 = 0.47$, df = 1
No	283	82	423	80	$p = 0.495$
<i>Demographic and socioeconomic factors, HIV status</i>					
Site					
Los Angeles	135	39	367	70	$\chi^2 = 79.41$, df = 1
New York	209	61	159	30	$p < 0.001$
Age					
18–29	170	49	110	21	$\chi^2 = 84.27$, df = 3
30–39	105	31	203	39	$p < 0.001$
40–49	52	15	137	26	
50 and older	17	5	74	14	
Education					
<High school graduate	59	17	133	25	$\chi^2 = 10.28$, df = 2
High school graduate/GED	153	45	188	36	$p = 0.006$
>High school	132	38	203	39	
Ran out of \$ for basic necessities in the past 12 months					
Never	179	52	203	39	$\chi^2 = 18.40$, df = 3
Once	28	8	79	15	$p < 0.001$
Twice	47	14	81	16	
3 times or more	90	26	161	30	
Self-reported HIV status					
HIV-positive	79	23	296	56	$\chi^2 = 94.09$, df = 1
HIV-negative	265	77	230	44	$p < 0.001$
<i>Substance Use</i>					
Used drugs in the past 3 months					
Yes	135	39	166	32	$\chi^2 = 5.34$, df = 1
No	209	61	359	68	$p = 0.021$
Had binge drinking in the past 3 months					
Yes	148	43	219	42	$\chi^2 = 0.16$, df = 1
No	196	57	307	58	$p = 0.685$
<i>Acculturation</i>					
Any parent born in US					
Yes	146	43	7	1	$\chi^2 = 245.35$, df = 1
No	197	57	519	99	$p < 0.001$
Years in the US					
Less than 15 years	–	–	256	49	
15 years or more	–	–	269	51	
Language used					
Mostly Spanish	47	14	450	86	$\chi^2 = 475.42$, df = 2
Both equally	114	33	56	11	$p < 0.001$
Mostly English	183	53	14	3	
Social support					
Low	148	43	307	59	$\chi^2 = 20.29$, df = 1
High	194	57	214	41	$p < 0.001$

Table 1 continued

	Native-born (n = 344)		Foreign-born (n = 526)		Test statistics χ^2 , df, p value
	N	%	N	%	
<i>Social discrimination in the past 12 months</i>					
Four-level social discrimination					
None	83	24	144	27	$\chi^2 = 1.51$, df = 3 p = 0.680
Homophobia only	56	16	77	15	
Racism only	45	13	62	12	
Both	160	47	241	46	

Table 2 Correlates of serodiscordant/unknown status UAI among US-born Latino MSM (n = 344): Brothers y Hermanos Study, Conducted in Los Angeles and New York from 2005 to 2006

	Serodiscordant UAI in the past 3 months		Chi square, df, p value	OR (95 % CI)	AOR ^a (95 % CI)
	Yes n (%)	No n (%)			
<i>Substance use</i>					
Used drugs in the past 3 months					
Yes	36 (27)	99 (73)	$\chi^2 = 12.16$, df = 1 p < 0.001	2.68 (1.52–4.71)	1.88 (0.93–3.83)
No	25 (12)	184 (88)			
Had binge drinking in the past 3 months					
Yes	32 (22)	116 (78)	$\chi^2 = 2.69$, df = 1 p = 0.101	1.59 (0.91–2.77)	Ref
No	29 (15)	167 (85)			
<i>Acculturation</i>					
Any parent born in US					
Yes	32 (22)	114 (78)	$\chi^2 = 2.97$, df = 1 p = 0.085	1.63 (0.93–2.84)	1.36 (0.66–2.79)
No	29 (15)	168 (85)			
Language used					
Mostly Spanish	33 (18)	150 (82)	$\chi^2 = 0.31$, df = 1 p = 0.86	1.03 (0.56–1.88)	Ref
Both equally	21 (18)	93 (82)			
Mostly English	7 (15)	40 (85)			
Social support					
Low	34 (23)	114 (77)	$\chi^2 = 5.32$, df = 1 p = 0.021	Ref	Ref
High	26 (13)	168 (87)			
<i>Social discrimination in the past 12 months</i>					
Four-level social discrimination					
None	11 (13)	72 (87)	$\chi^2 = 2.83$, df = 3 p = 0.419	Ref	1.79 (0.73–4.39)
Homophobia only	12 (21)	44 (79)			
Racism only	6 (13)	39 (87)			
Both	32 (20)	128 (80)			

^a Adjusted for city, age, education, economic insecurity, and HIV status

disappeared (result not shown in Table 2). When the variable “US-born parent” was removed from the multivariate model, drug use was significantly associated with discordant/unknown status UAI (OR = 2.17, 95 % CI 1.17–4.03). The removal of the variable did not change the association between social support and discordant/unknown status UAI.

Analysis of Foreign-born Men

Table 3 shows the results of unadjusted and multivariate logistic regression analyses for foreign-born men. Among the potential correlates of interest, variables that were associated with discordant/unknown status UAI in univariate analysis (p < 0.1) were illicit drug use, binge drinking,

Table 3 Correlates of HIV serodiscordant/unknown status UAI among foreign-born Latino MSM (n = 526): Brothers y Hermanos Study conducted in Los Angeles and New York from 2005 to 2006

	Serodiscordant UAI in the past 3 months		Chi square, df, p value	OR (95 % CI)	AOR ^a (95 % CI)
	Yes n (%)	No n (%)			
<i>Substance use</i>					
Used drugs in the past 3 months					
Yes	49 (30)	117 (70)	$\chi^2 = 15.08$, df = 1	2.37 (1.52–3.68)	1.86 (1.14–3.05)
No	54 (15)	305 (85)	$p < 0.001$	Ref	Ref
Had binge drinking in the past 3 months					
Yes	59 (27)	160 (73)	$\chi^2 = 12.90$, df = 1	2.20 (1.42–3.41)	1.91 (1.17–3.14)
No	44 (14)	263 (86)	$p < 0.001$	Ref	Ref
<i>Acculturation</i>					
Years in the US					
Less than 15 years	40 (16)	216 (84)	$\chi^2 = 4.62$, df = 1	Ref	
15 years or more	62 (23)	207 (77)	$p = 0.032$	1.62 (1.04–2.51)	1.79 (1.06–3.03)
Language used					
Mostly Spanish	88 (20)	362 (80)	$\chi^2 = 0.03$, df = 2	0.90 (0.21–3.77)	
Both equally	11 (20)	45 (80)	$p = 0.985$	0.89 (0.24–3.26)	
Mostly English	3 (21)	11 (79)		Ref	
Social support					
Low	73 (24)	234 (76)	$\chi^2 = 7.57$, df = 1	Ref	Ref
High	30 (14)	184 (86)	$p = 0.006$	0.52 (0.33–0.83)	0.80 (0.46–1.38)
<i>Social Discrimination in the past 12 months</i>					
Four-level social discrimination					
None	15 (10)	129 (90)	$\chi^2 = 15.30$, df = 3	Ref	Ref
Homophobia only	16 (21)	61 (79)	$p = 0.002$	2.26 (1.05–4.86)	1.87 (0.81–4.31)
Racism only	9 (15)	53 (85)		1.46 (0.60–3.54)	1.21 (0.47–3.07)
Both	63 (26)	178 (74)		3.04 (1.66–5.59)	2.02 (1.03–3.99)

^a Adjusted for city, age, education, economic insecurity, and HIV status

years spent in the US (those who were in the US for 15 years or longer were more likely to engage in sexual risk behavior), low social support, and experiences of homophobia only and both types of social discrimination (vs. men who were exposed to neither form of social discrimination). In the multivariate model, social support and experience of homophobia only were no longer significant, however, drug use, binge drinking, years spent in the US, and experience of both types of social discrimination remained significantly ($p < 0.05$) associated with discordant/unknown status UAI.

Discussion

This study examined whether correlates of sexual risk behavior varied depending on the place of birth (i.e., US-born vs. foreign-born) among Latino MSM. Unlike some of

the previous studies [5–7] we did not find a significant difference in the level of serodiscordant/unknown status UAI by nativity status; in both groups, about one in five men reported this risk behavior. Among US-born men, no correlates among the list of measures for substance use, acculturation, social support and social discrimination remained significant in the multivariate model. However, we found a pattern suggesting multicollinearity between the variable “US-born parent” and illicit drug use, and that having a parent who was born in the US may have led to increased illicit drug use. When the variable “US-born parent” was removed from the multivariate model, drug use was associated with a two-fold increase in the odds of reporting discordant/unknown status UAI. Given these findings, it is reasonable to conclude that illicit drug use is a significant correlate of sexual risk behavior among US-born men.

Illicit drug use was a significant correlate for foreign-born men, and was associated with an 86 % increase in the

odds of reporting discordant/unknown status UAI. Among foreign-born men, we also found that binge drinking was independently associated with a 91 % increase in the odds of reporting discordant/unknown status UAI, regardless of the level of drug use. According to Lee et al. [31], negative social and health effects of substance use, particularly alcohol use, is greater among Latinos than other racial/ethnic groups, even though the level of drinking among Latinos is not necessarily higher than other racial/ethnic groups. The association between alcohol use and sexual risk behavior among Latino men suggested in the literature [11–14, 18], is now replicated in the present study, specifically among foreign-born men, suggesting that drinking also needs to be separately addressed particularly for foreign-born men. Studies suggest that perceived language barriers, legal status barriers, and discrimination may lead to binge drinking [18, 32] among immigrant Latino men. Future research might investigate how these and other potential triggers of binge drinking could be managed in this population.

We found two other significant correlates that were unique to foreign-born men, that is, years spent in the US and social discrimination. Years spent in the US is one of the indicators of acculturation, and we found that those who spent 15 years or more in the US had an 80 % increase in the odds of reporting serodiscordant/unknown status UAI, confirming the findings of previous studies showing acculturation as a significant risk factor for HIV among foreign-born Latino MSM [15, 16]. We also found that foreign-born men who were exposed to both homophobia and racism were more likely than men who were exposed to neither form of social discrimination to report sexual risk behavior; the exposure to both forms of discrimination was associated with a two-fold increase in the odds of reporting serodiscordant/unknown status UAI. Exposure to homophobia only or racism only was not significantly associated with increased odds of sexual risk, compared with no experience of social discrimination. The pattern of association between social discrimination and sexual risk replicates a previous finding among Latino MSM in which nativity status was not considered [21]. The present finding confirms some of the previous studies [18–20, 24] in which experience of discrimination was identified as an HIV risk factor among foreign-born Latino men. It is noteworthy that approximately the same proportions of men (47 % among US-born vs. 46 % among foreign-born) reported experiencing both homophobia and racism, yet, this variable was significantly associated with sexual risk behavior only among foreign-born men. It is important to further examine why exposure to social discrimination is not associated with sexual risk among US-born men and whether any factors can be identified that are alleviating the negative effects of social discrimination among US-

born men, and whether such factors can be applicable to foreign-born men.

Our study has the following limitations. First, our data are cross-sectional and thus, any causal inferences should be viewed with caution. Second, we used a network-based approach for recruiting MSM, and the composition of our final sample might have been different if other probability-based sampling methods had been used. Also, participants' responses to the questions regarding social support may have been influenced by this recruitment approach. Thus the results cannot be generalized to the population of Latino MSM. Third, we relied on participants' self-reported sexual risk and substance use behaviors. Although the use of ACASI may have reduced underreporting of their risk behaviors, the possibility of social desirability bias still exists. The correlates examined here were not exhaustive and missing potentially important correlates such as Latino cultural beliefs (e.g., machismo attitudes, beliefs about Latino men's sexuality, degree to which Latino culture is internalized) [11, 12, 20] and self-efficacy [16, 33]. In addition, we did not collect information on the specific country of birth or ethnicity (e.g., Mexican, Puerto Rican, Cuban, Dominican, etc.), thus we were unable to test whether specific cultural background/ethnicity is associated with sexual risk and whether the association varies by nativity status.

Despite these limitations, this paper contributes to the field of HIV prevention research for Latino MSM as it directly compares the correlates of sexual risk between US and foreign-born men. The Brothers y Hermanos study data offers the opportunity to pursue this research question by providing sufficient sample sizes of men in each nativity status group. The implications of our findings are as follows: First, illicit drug use, which has been consistently found in the literature as an HIV risk factor for Latinos, appears to be a risk factor for Latino MSM regardless of nativity status and may need to be addressed in HIV prevention interventions that targets Latino MSM. For foreign-born men, intense substance use intervention may be necessary that separately addresses the contexts of illicit drug use and alcohol use. Second, interventions targeting foreign-born men may want to consider how they can better assist those who are in the US for an extended time period. More research may help understand acculturation processes and their impact on health among Latino MSM. Finally, social discrimination, one of the major determinants of health, was found to be a significant risk factor for foreign-born men in this and previous studies. Our results also suggest that HIV prevention programs for Latino MSM might address both homophobia and racism.

Currently, no evidence-based behavioral interventions are available specifically for Latino MSM in CDC's Compendium of Evidence-Based Interventions [34]. Because of the

diversity of this group in many different respects, including nativity status, more research is suggested to identify common and different HIV risk factors across subgroups of Latino MSM. Such information can be used to address the needs to reduce HIV infection among Latino MSM and may help reduce the HIV-related health disparity in the US, which is one of the goals of the National HIV/AIDS Strategy [35].

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