

Migration Patterns and Characteristics of Sexual Partners Associated with Unprotected Sexual Intercourse Among Hispanic Immigrant and Migrant Women in the United States

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Published online: 18 November 2014
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Abstract In 2011, Hispanic immigrant women comprised 44 % of HIV diagnoses among Hispanic women in the United States but little is known about factors that may place these women at risk for infection with HIV or sexually transmitted diseases. From March 2005 to February 2007, women were recruited at community-based organizations offering services to immigrant and migrant communities in five U.S. states. We report factors independently associated with unprotected anal and vaginal sex in the past 12 months among Hispanic immigrant and migrant women. Greater work-related mobility was associated with unprotected anal sex, while recency of immigration and prior refusal of HIV testing were associated with women's reports of unprotected vaginal sex. Prior sex with an injection drug user was associated with reports of both unprotected anal and vaginal sex. Findings highlight the need for HIV/STD risk reduction

interventions designed specifically for Hispanic immigrant and migrant women.

Keywords Immigrants · Migrants · Hispanic · Female · HIV

Background

According to the World Health Organization, the United States has the largest immigrant population (or population of foreign-born) among all countries [1]. Data from the 2010 U.S. census indicate that Hispanics are the fastest growing population in the country due in large part to immigration. In 2010, Hispanic immigrants accounted for 6.5 % of the total U.S. population [2], making them the largest immigrant population in the United States. Immigrants account for 38 % of all Hispanics and 58 % of Hispanic adults living in the United States [3]. It is unclear what proportion of Hispanic immigrants in the United States are labor migrants, i.e., have migrated to the United States for employment reasons [4], but at least among some Hispanic immigrant groups this number may be significant [5]. Like other immigrants arriving in the United States, Hispanic immigrants are predominantly younger and in better health compared to native born Americans [6]. However, among all foreign-born populations living in the United States, Hispanic immigrants have been disproportionately affected by HIV/AIDS [7] and therefore are a focus of the National HIV/AIDS Strategy Federal Implementation Plan [8].

The burden of HIV in the Hispanic immigrant population is reflected in data from the Centers for Disease Control and Prevention (CDC) that in 2011 showed that among an estimated 11,032 adult and adolescent Hispanic individuals who were diagnosed with HIV in 50 states and 6 U.S. dependent

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areas with confidential name-based HIV infection reporting, and who reported country of birth, half (50 %) reported that they were foreign-born (51 % of males and 44 % of females) [9]. Additionally, in a recent analysis of HIV infection trends among Hispanics, CDC scientists reported that during 2006–2009, ***the diagnosis rate among those born in Central America was the highest among all Hispanics [10].

Most research exploring immigration-related risk factors for HIV and other sexually transmitted diseases (STDs) on Hispanic immigrants and migrants has focused on men [11–18]. This is problematic given that in 2012, female Hispanic immigrants 18 years and older accounted for 52 % of all adult Hispanic immigrants [19]. Due to a lack of attention to this population, and problems regarding collecting health data on Hispanics in general [20, 21], existing knowledge on the health of Hispanic females is quite limited. This problem is exacerbated by the paucity of studies focusing exclusively on female Hispanic immigrants and the factors that can affect their risks for HIV and STDs [16, 22]. Among the few studies that have been published, Denner et al. [16] reported that in their sample of marginally housed Mexican migrants, women were more likely than men to report greater numbers of sex partners, riskier sexual behaviors, and less frequent condom use. Furthermore, Montealegre and colleagues reported that Hispanic immigrant women who had been in the United States for 5 years or less were more likely to have multiple and concurrent sexual partnerships than women who had been in the country for more time [22].

From March 2005 to February 2007, the CDC's Advancing HIV Prevention initiative funded a demonstration project to provide rapid HIV testing services to immigrant communities in a range of non-traditional outreach settings. A primary objective of the demonstration project was to assess HIV infection rates among immigrant populations, but questions regarding HIV and STD risk behaviors were also asked of participants. The purpose of our analysis is to examine the association of factors such as immigration, labor migration, and characteristics of sexual partners with self-reported unprotected sexual intercourse by sexually active women that participated in the CDC demonstration project in order to contribute to the understanding of HIV and STD risks that Hispanic immigrant and migrant women face. In addition, because few studies have reported rates of HIV and STD infection for Hispanic immigrant women in the past decade [11, 23–25], we also report prevalence of HIV and bacterial STDs in this group.

Methods

Study Setting

Three community-based organizations (CBOs) were funded to offer rapid HIV testing to immigrant communities in

Georgia, Connecticut, Wisconsin, Minnesota, and South Dakota. All participants provided written informed consent for HIV testing as required by state and local laws. This demonstration project was determined by CDC to be a public health program activity and review by CDC's Institutional Review Board was not required.

Recruitment and Data Collection

The CBOs recruited individuals for rapid HIV testing who were 13 years of age or older and who described their serostatus as HIV-negative. The project recruited participants among clients currently utilizing CBO services, by outreach to settings frequented by the targeted populations, and via partnerships with existing clinical sites that served migrants and immigrants. Persons who agreed to HIV testing were asked to participate in a face-to-face survey collected by outreach workers that collected information in Spanish and English on their socio-demographic characteristics, immigration history, HIV/STD risk behaviors and testing history. In total, 3135 persons (1,821 men, 1,260 women, 2 transgender, and 52 with missing gender information) participated in the survey component. For this analysis, we focused on 992 Hispanic foreign-born women who completed a survey.

Dependent Variables

To assess unprotected anal sex, unprotected vaginal sex, and both unprotected anal and vaginal sex, we focused our analysis on participant's responses to two questions: "In the past 12 months, have you had vaginal sex without a condom?" and "In the past 12 months, have you had anal sex without a condom?" Three outcome variables were created from these two questions: unprotected vaginal sex only in the past 12 months; unprotected anal sex only in the past 12 months; and both unprotected anal and unprotected vaginal (unprotected anal/vaginal) sex in the past 12 months.

Independent Variables

Socio-demographic factors selected for this analysis included: age (15–19, 20–29, 30–39, and ≥ 40 years), education (\leq high school, high school, \geq high school), spoken English language fluency (for this analysis responses were dichotomized as not at all = No, and not well/well/very well = Yes), spouse or partner relationship status (no spouse/partner, live with spouse/partner, spouse/partner living elsewhere), and country of birth (Mexico, South America, Central America/Caribbean).

Immigration/migration-related factors included: length of time since arriving in the United States, number of times

travel occurred outside the United States for a period of 3 months or longer, number of moves for work in the past 2 years, and whether the participant was a labor migrant or an immigrant, based on where women intended to live permanently. Women who intended to return to their country of origin or another country to reside permanently were defined as labor migrants (“migrants” for the purpose of this analysis); women who intended to stay in the United States to reside permanently were defined as immigrants. This classification of migrants and immigrants is not based on legal status in the United States but has been used by other researchers to look at multilevel determinants affecting HIV/STD risk among labor migrants across the world [26].

Sexual risk behaviors reported by women during the past 12 months that were selected for our analysis included: the number of sexual partners for vaginal or anal sex (1, 2–5, >6), sex with a person who uses injection street drugs (Y/N); sex with a person of unknown HIV status (Y/N); sex while high on drugs or drunk (Y/N); and received money or goods in exchange for having sex (Y/N).

Rapid HIV testing was used to determine HIV infection. Participants were tested with rapid HIV test kits (Oral-Quick® Advance™ Rapid HIV-1/2 Antibody Tests [Orasure Technologies, Bethlehem, Pennsylvania]) using oral fluid or finger-stick whole blood specimens. Individuals with reactive rapid test results were asked to provide an oral specimen for confirmatory testing by Western blot (Orasure® Oral Specimen Collection Device [Orasure Technologies, Bethlehem, Pennsylvania]). Persons with negative rapid HIV test results were considered to be HIV uninfected. Persons with positive rapid test results and positive Western blot results were determined to have confirmed HIV infection. Infection with syphilis, gonorrhea, and chlamydia were assessed by responses from participants regarding whether a doctor, nurse, or other health care provider had diagnosed them with syphilis, gonorrhea, or chlamydia in the past 12 months.

Analysis

Bivariate analyses were performed using Chi square or Fischer’s exact test (when the expected value in any of the cells was below 10). Only variables associated at $p < 0.05$ with each of the outcome variables in the bivariate analyses were entered in the respective multivariate logistic regression model for that outcome. Final multivariate logistic regression models (one for each outcome) include all variables that were adjusted for in the model, estimated adjusted odds ratios (aOR) for all variables in the model, and 95 % confidence intervals (CI) for these variables. Data was analyzed using SAS version 9.2 (SAS Corporation, Cary, NC).

Results

Of 992 Hispanic foreign-born women who completed a survey, 799 (81 %) provided information regarding engaging in unprotected anal and vaginal sex in the past 12 months. The median age of these women was 31 years [interquartile range (IQR) 25–37], and 69 % had less than a high school education. The majority of women were born in Mexico (66 %) and 43 % reported speaking no English. The median time the women had lived in the United States was 6 years (IQR = 3–10), with 41 % reporting having migrated to the United States less than 5 years prior to the interview. Fifty-five percent of the women were labor migrants. Sixteen percent of the women reported traveling outside the United States for 3 months or more in the previous 2 years, while 32 % reported migrating for work at least once in the past 2 years (Table 1).

Among women in the sample, the following sexual practices during the past 12 months were reported: unprotected vaginal sex (46 %), unprotected anal sex (6 %), and both unprotected anal and vaginal sex (7 %). HIV/STD risk behaviors reported during the past 12 months included sex with someone of unknown HIV serostatus (25 %), sex with more than one sexual partner (23 %), sex while high on drugs or alcohol (11 %), sex with an injection drug user (IDU) (4 %), and sex in exchange for money or goods (4 %). Approximately one-fourth of the women reported that they had previously been offered but had refused an HIV test at least once in the past (Table 1). Only one woman (0.1 %) tested positive for HIV. Of 660 women who provided information regarding a bacterial STD diagnosis in the past 12 months, three (0.5 %) were diagnosed with syphilis, 6 (0.9 %) with gonorrhea, and 14 (2.1 %) with chlamydia. In total, 20 women (3 %) reported a bacterial STD diagnosis in the past 12 months. Prevalence of bacterial STD infection was 1.5 % for women reporting unprotected vaginal sex, 2.4 % for women reporting unprotected anal sex, and 5.8 % for women reporting unprotected anal/vaginal sex.

In the bivariate analyses, we examined associations between characteristics of respondents and having unprotected vaginal and anal sex (see Table 1). Lower level of English fluency, arriving in the U.S. between 5–10 years ago, refusing an HIV test, having lower risk sexual partners (such as not having injection drug use partners, having no partners with unknown HIV status, and no exchange sex partners), not having sex while high on alcohol/drugs, and not having a bacterial STD diagnosis in the past year were significantly associated with having unprotected vaginal sex. For anal sex, having a spouse who lived somewhere else, travelling two or more times for work, sex with an injecting drug user, partner with unknown HIV status, sex while high on alcohol or drugs, or refusing a prior HIV test were associated with unprotected anal sex. Finally,

Table 1 Characteristics of sexually active Hispanic immigrant and migrant women engaging in unprotected vaginal and/or anal sex in the past 12 months—Advancing HIV Prevention Demonstration Project, 2005–2007

Characteristics	Unprotected vaginal sex		Unprotected anal sex		Unprotected anal & vaginal sex		
	Total (N = 799) No. (%)	Yes (n = 365) No. (%) ^d	No ^a (n = 434) No. (%) ^d	Yes (n = 51) No. (%) ^d	No ^b (n = 748) No. (%) ^d	Yes (n = 58) No. (%) ^d	No ^c (n = 741) No. (%) ^d
Age (years)							
15–19	45 (6)	17 (38)	28 (62)	2 (4)	43 (96)	0 (0)	45 (100)
20–29	304 (38)	144 (47)	160 (53)	22 (7)	282 (93)	26 (9)	278 (91)
30–39	290 (37)	129 (44)	161 (56)	21 (7)	269 (93)	21 (7)	269 (93)
40 and over	153 (19)	72 (47)	81 (53)	6 (4)	147 (96)	11 (7)	142 (93)
Education							
Less than high school	526 (69)	252 (48)	274 (52)	35 (7)	491 (93)	42 (8)	484 (92)
High school	154 (21)	67 (44)	87 (56)	10 (6)	144 (94)	11 (7)	143 (93)
More than High school	79 (10)	32 (41)	47 (59)	5 (6)	74 (94)	5 (6)	74 (94)
Residency with a Spouse/partner							
		(*)		(*)			
No spouse/partner	198 (26)	78 (39)	120 (61)	19 (10)	179 (90)	18 (9)	180 (91)
Live with spouse/partner	504 (67)	255 (51)	249 (49)	22 (4)	482 (96)	34 (7)	470 (93)
Spouse/partner living elsewhere	50 (7)	15 (30)	35 (70)	8 (16)	42 (84)	4 (8)	46 (92)
Mexico							
	524 (66)	242 (46)	282 (54)	29 (6)	495 (94)	45 (9)	479 (91)
South America							
	75 (9)	42 (56)	33 (44)	5 (7)	70 (93)	3 (4)	72 (96)
Central America/Caribbean							
	192 (24)	78 (41)	114 (59)	17 (9)	175 (91)	9 (5)	183 (95)
English language fluency							
		(*)					
No	332 (43)	175 (53)	157 (47)	16 (5)	316 (95)	24 (7)	308 (93)
Yes	445 (57)	182 (41)	263 (59)	33 (7)	412 (93)	34 (8)	411 (92)
Arrived in the United States							
Less than 5 years	294 (41)	146 (50)	148 (50)	22 (7)	272 (93)	31 (11)	263 (89)
5–10 years	250 (35)	132 (53)	118 (47)	14 (6)	236 (94)	16 (6)	234 (94)
More than 10 years	173 (24)	63 (36)	110 (64)	11 (6)	162 (94)	11 (6)	162 (94)
Times traveled outside the United States for ≥3 months past 2 years							
0	654 (84)	311 (48)	343 (52)	40 (6)	614 (94)	45 (7)	609 (93)
1 or more	126 (16)	49 (39)	77 (61)	10 (8)	116 (92)	13 (10)	113 (90)
Times travelled for work in past 2 years							
		(*)		(*)		(*)	
0	522 (68)	267 (51)	255 (49)	22 (4)	500 (96)	37 (7)	485 (93)
1–2	205 (27)	85 (41)	120(59)	20 (10)	185 (90)	14(7)	191(93)
>2	39 (5)	9 (23)	30 (77)	7 (18)	32 (82)	7 (18)	32 (82)
Immigrant status^e							
Labor migrant	415 (55)	194 (47)	221 (53)	34 (8)	381 (92)	30 (7)	385 (93)
Immigrant	339 (45)	149 (44)	190 (56)	17 (5)	322 (95)	26 (8)	313 (92)
Sexual partners (vaginal or anal sex) in past 12 months							
		(*)		(*)			
1	575 (77)	290 (50)	285 (50)	26 (5)	549 (95)	42 (7)	533 (93)
2–5	150 (20)	60 (40)	90 (60)	14 (9)	136 (91)	10 (7)	140 (93)
>6	19 (3)	3 (16)	16 (84)	8 (42)	11 (58)	4 (21)	15 (79)
Sex with injecting drug user in past 12 months							
		(*)		(*)		(*)	
Yes	35 (4)	6 (17)	29 (83)	6 (17)	29 (83)	10 (29)	25 (71)
No	764 (96)	359 (47)	405 (53)	45 (6)	719 (94)	48 (6)	716 (94)
Sex with unknown HIV status partner in past 12 months							
		(*)		(*)			
Yes	196 (25)	43 (22)	153 (78)	23 (12)	173 (88)	16 (8)	180 (92)
No	603 (75)	322 (53)	281 (47)	28 (5)	575 (95)	42 (7)	561 (93)
Sex while high on drugs or alcohol in past 12 months							
		(*)		(*)			

Table 1 continued

Characteristics	Total (N = 799) No. (%)	Unprotected vaginal sex		Unprotected anal sex		Unprotected anal & vaginal sex	
		Yes (n = 365) No. (%) ^d	No ^a (n = 434) No. (%) ^d	Yes (n = 51) No. (%) ^d	No ^b (n = 748) No. (%) ^d	Yes (n = 58) No. (%) ^d	No ^c (n = 741) No. (%) ^d
		Yes	89 (11)	23 (26)	66 (74)	16(18)	73 (82)
No	710 (89)	342 (48)	368 (52)	35 (5)	675 (95)	50 (7)	660 (93)
Exchange sex in past 12 months		(*)		(*)		(*)	
Yes	28 (4)	4 (14)	24 (86)	11 (39)	17 (61)	6 (21)	22 (79)
No	752 (96)	354 (47)	398 (53)	40 (5)	712 (95)	52 (7)	700 (93)
Refused prior HIV test		(*)		(*)			
Yes	187 (26)	104 (56)	83 (44)	18 (10)	169 (90)	11 (6)	176 (94)
No	523 (74)	243 (46)	280 (54)	26 (5)	497 (95)	43 (8)	480 (92)
Bacterial STD diagnosis ^f		(*)					
Yes	20 (3)	5 (25)	15 (75)	1 (5)	19 (95)	3 (15)	17 (85)
No	640 (97)	323 (50)	317 (50)	41 (6)	599 (94)	49 (8)	591 (92)

Numbers may not add to total for a given column because of missing data

STD sexually transmitted disease

* $p < 0.05$

^a Protected or no vaginal sex; ^b protected or no anal sex; ^c protected or no anal/vaginal sex; ^d indicates row percent; ^e based on self-reported intention to return to nation of origin; ^f syphilis, gonorrhea, and/or Chlamydia (N = 660)

traveling 2 or more times for work, sex with an injecting drug user in the past 12 months and exchange sex in the past 12 months were significantly associated with having both unprotected anal and vaginal sex in the past year.

Multivariate Analysis

In the multivariate analyses (Table 2), women who reported sex with someone of unknown HIV serostatus had lower odds [adjusted odds ratio (aOR) = 0.2, 95 % confidence interval (CI) = 0.1–0.4] of reporting unprotected vaginal intercourse, while those who had arrived in the United States less than 5 years ago, and from 5 to 10 years ago had higher odds (aOR = 2.1, 95 % CI = 1.2–3.4 and aOR = 1.6, 95 % CI = 1.0–2.7, respectively) of reporting unprotected vaginal sex than women who had come to the United States ≥ 10 years ago. Women who had previously refused HIV testing also had higher odds (aOR = 1.9, 95 % CI = 1.3–3.0) of reporting unprotected vaginal sex than those who had not.

Women who had migrated more than twice for work in the past 2 years had higher odds (aOR = 4.7, 95 %, CI = 1.5–15.4) of reporting unprotected anal sex than those who had not.

Finally, women who reported sex with an IDU had higher odds (aOR = 5.4, 95 %, CI = 2.1–14.2) of reporting having had unprotected anal and vaginal sex than those who did not report sex with an IDU (Table 2).

Discussion

Findings from our large sample of Hispanic immigrant and migrant women in five states indicate that self-reports of unprotected anal and/or vaginal sex were associated with mobility, having spent less time in the United States, IDU-related sex, and prior refusal of HIV testing.

No significant difference in unprotected vaginal sex, unprotected anal sex, or unprotected anal and vaginal sex was noted between immigrant and labor migrant women.

One woman was identified with HIV infection whereas in other recent studies among immigrant and migrant women, no HIV-infected women have been identified [11, 23, 25].

Only two studies to our knowledge have reported STD rates among Hispanic immigrant women [11, 24]. The proportions of women in our sample who reported being diagnosed by a doctor, nurse, or other health care provider with gonorrhea and chlamydia in the past year were higher than those reported in both studies, whereas the proportion reporting being diagnosed with syphilis was similar to the proportion reported by Brammeier and colleagues [24], and higher than that reported in the Sanchez et al. [11] study. Additionally, many of the women in our sample reported risk behaviors; nearly one-fourth reported sex with multiple partners, higher than what has been reported previously [22].

Table 2 Multivariate logistic regression models assessing factors associated with unprotected anal and vaginal sex among sexually active Hispanic immigrant and migrant women in the past 12 months—Advancing HIV Prevention Demonstration Project, 2005–2007

Characteristics	Unprotected vaginal sex ^b		Unprotected anal sex ^b		Unprotected anal and vaginal sex ^b	
	aOR (95 % CI)	P value	aOR (95 % CI)	P value	aOR (95 % CI)	P value
Spouse/partner status		0.56		0.16		–
No spouse/partner	1.4 (0.6–3.4)		0.4 (0.1–1.2)			
Live with spouse/partner	1.5 (0.7–3.4)		0.3 (0.1–1.1)			
Spouse/partner living elsewhere	Referent		Referent			
English language fluency		0.87		–		–
No	0.9 (0.6–1.7)					
Yes	Referent					
Migrated to the United States		0.01		–		–
<5 years	2.1 (1.2–3.4)					
5–10 years	1.6 (1.0–2.7)					
>10 years	Referent					
Times migrated for work in past 2 years		0.10		0.03		0.20
0	Referent		Referent		Referent	
1–2	0.9 (0.6–1.4)		1.8 (0.8–4.0)		0.8 (0.4–1.5)	
>2	0.2 (0.1–0.8)		4.7 (1.5–15.4)		1.8 (0.7–5.1)	
Sexual partners (vaginal or anal sex) in past 12 months		0.93		0.9		–
1	Referent		Referent			
2–5	1.1 (0.6–1.9)		1.1 (0.4–2.9)			
>6	1.1 (0.2–8.6)		1.7 (0.2–13.4)			
Sex with injecting drug user in past 12 months		0.17		0.55		<0.01
Yes	0.4 (0.1–1.4)		0.6 (0.1–3.0)		5.4 (2.1–14.2)	
No	Referent		Referent		Referent	
Sex with unknown HIV status partner in past 12 months		<0.01		0.42		–
Yes	0.2 (0.1–0.4)		1.4 (0.6–3.2)			–
No	Referent		Referent			
Sex while high on drugs or alcohol in past 12 months		0.78		0.37		–
Yes	0.8 (0.4–2.2)		1.7 (0.6–5.1)			
No	Referent		Referent			
Exchange sex in past 12 months		0.71		0.37		0.64
Yes	1.4 (0.2–8.6)		2.3 (0.3–15.6)		1.3 (0.4–4.6)	
No	Referent		Referent		Referent	
Refused prior HIV test ever in the past		<0.01		0.38		–
Yes	1.9 (1.3–3.0)		1.4 (0.7–3.0)			
No	Referent		Referent			
Bacterial STD Diagnosis ^a		0.52		–		
Yes	Referent					
No	1.5 (0.4–5.4)					

aOR adjusted odds ratio; CI confidence interval; STD sexually transmitted disease

^a Syphilis, gonorrhea, and/or Chlamydia

^b Only variables associated at $p < 0.05$ with the three outcome variables in the bivariate analyses were entered in the three separate multivariate logistic regression models (one for each outcome variable)

Nearly half of the women in our study (46 %) engaged in unprotected vaginal sex and a large proportion of those women had also previously refused HIV testing.

Traditional gender norms accentuated by the migration process that shape power dynamics and women’s vulnerability may be a possible explanation [27, 28]. Amaro and

Raj discuss how ‘silencing’ in the context of HIV occurs when women do not negotiate condom use due to fear of stigma, or attempts to negotiate condom use are ignored by their partners [27], while Cashman reports how Hispanic immigrant women may not access health care services because of partner disapproval, or defer health care related decisions to their male partners [28]. Given that migration may increase male partners’ influence on whether Hispanic immigrant women engage in HIV/STD preventive practices, it is important that public health professionals discuss HIV/STD issues with these women in settings where they can feel safe from their partners’ influence. Schools, churches, and community centers are settings where Hispanic immigrant women may feel safe to discuss sexual health matters [28], suggesting that these settings may also serve as excellent venues to discuss the importance of HIV/STD testing.

The association between women’s reports of unprotected anal sex and frequent work-related mobility was another finding of our study. Our limited data do not allow us to understand this association and there are no studies to our knowledge that have explored this relationship. One possible explanation is that this relationship may be a consequence of the instability of social and sexual networks that can result from movement from place to place and the economic necessity that drives this movement. Nevertheless, the relationship between greater mobility among immigrant women and unprotected anal intercourse needs to be examined further given the 18-fold increased risk of HIV infection through unprotected anal intercourse compared to unprotected vaginal intercourse [29].

Our findings also indicate that women who reported sexual intercourse with IDUs in the previous 12 months were more likely to engage in unprotected anal and vaginal sex. Although a small proportion of women in our study reported this very high-risk sexual practice, this finding is of great concern given the high prevalence of HIV among IDUs and the high likelihood of HIV transmission through unprotected anal sex [29]. Additionally, the proportion of women reporting a bacterial STD infection was higher among women having both unprotected vaginal and anal sex (5.8 %) than among those who engaged in either unprotected vaginal or unprotected anal sex.

A small number of efficacious risk reduction behavioral interventions have been designed for and are available for use with Hispanic women [30]. However, none of these interventions focuses specifically on Hispanic immigrant or migrant women. Although the paucity of effective prevention resources for Hispanic women in general is striking [31, 32], it is even more so in the case of female Hispanic immigrants and migrants [33].

This analysis is subject to at least two limitations. First, women in our study were not randomly selected but were

recruited from a small number of CBOs in states that are not among those states where the majority of this population settles. This underscores that our findings may not be representative of all Hispanic immigrant and migrant women in the United States nor the states in which the demonstration project was conducted. Nevertheless, CBOs that participated in this project were chosen based on their ability to implement rapid HIV testing in migrant communities and their capacity to implement the proposed rapid HIV testing program in these communities. Additionally, at least 2 of the states where project activities took place (Georgia and South Dakota) are currently considered “rapid growth states” in terms of Hispanic migration [20, 33]. Second, data were self-reported by participants and may be subject to social desirability and/or recall bias. This is particularly important to take into consideration when interpreting STD rates in our study. These STD rates were based on responses by participants of being diagnosed by a doctor, nurse, or other health care provider with gonorrhea, chlamydia, or syphilis in the past year. Both Brammeier [24] and Sanchez [11] conducted confirmatory laboratory testing in their studies, which was not possible to do in the current study. Nonetheless, studies that have assessed self-reports of gonorrhea, chlamydia and syphilis infection history have found self-reports to have high reliability, excellent specificity, and moderate sensitivity [34, 35], which allows us to present our data with confidence. However these same studies recommend validation using confirmatory laboratory testing given that under-reporting by self-report is likely to occur (particularly for gonorrhea) [34].

Our analysis contributes to the picture of the HIV/STD risks that Hispanic immigrants and migrants face by examining factors that are associated with self-reported unprotected vaginal and anal intercourse by sexually active women. Additionally, we describe the prevalence of bacterial STDs and HIV in this group. With Hispanic immigrant and migrant women comprising almost half of all Hispanic women diagnosed with HIV in the United States, there is a great need for risk reduction interventions specifically designed for, or effective with, this population.

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