Predictors of HIV Transmission Among Migrant and Marginally Housed Latinos

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This study examined predictors of HIV-related sexual risk taking in a high risk and under-studied convenience sample of 366 predominantly Mexican, migrant adults without stable housing. The sample included 27% men who have sex with men, 28% injectors of illegal drugs, and 21% sex workers. Hierarchical regression analysis showed that sexual risk taking was predicted by low condom self-efficacy, high-risk behavior, and being female. Interestingly, those who engaged in the highest-risk behaviors were more likely to use condoms consistently during sex, although they carried condoms less.

INTRODUCTION

Reviews of the literature on predominantly Mexican, Latino migrants document high risk for HIV infection due to many of the features of migratory labor in the U.S., as well as the background characteristics of Latino migrants themselves (Organista *et al.*, 1997; Organista *et al.*, 2004). For example, many types of migratory labor, such as farm work, are generally composed of young men far from home for prolonged periods of time (Rodriguez *et al.*, 2003). This situation frequently results in a high number of sexual partners, sex with commercial sex workers and sex between men. Further, migratory labor is frequently low paying, inconsistent, occasionally dangerous, exploitative, lonely, and disruptive of social, familial, and sexual relations in the country of origin. According to the National Agricultural Workers Survey (U.S. Department of Labor, 1998), 75% of

migrant farm workers earn less than $10,000 a year; two-thirds live below the poverty line.

Background characteristics of Latino migrants that exacerbate work-related risk factors include low education, low literacy and English non-proficiency, high rates of undocumented status, traditional gender roles, and low access to health and social services. Lack of adequate housing is a frequent feature of migratory labor, including occasional homelessness. Research has begun to show how economic vulnerability is linked to stress and survival strategies such as trading sex for money and other goods for some migrants, as well as excessive drinking and/or injecting drugs that—while providing some relief and pain management—also increase risk for HIV infection (Bronfman and Moreno, 1996; California Department of Health Services, 2000; Magaña, 1991; Ruiz and Molitor, 1998; Ruiz *et al.*, 1997).

A few studies examine how members of the Latino migrant population think about HIV risk and condom use, and identify differences by age, gender, marital status, and partner type. Organista *et al.* (1997) surveyed 501 Mexican migrant men and women and found that knowledge about HIV transmission was higher in migrants who were younger, single, more educated, and who had multiple sex partners during the past year. A study by Weatherby *et al.* (1997) found that 74% reported no condom use

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during vaginal sex, and McBride *et al.* (1999) found that perceived susceptibility to HIV was related to practicing safer sex. Organista *et al.* (1997) found that condom use was higher in men than women, and the frequency of condom use (during the past year) was "less than half of the time" with primary sex partners (e.g., wives), and "more than half of the time" with occasional sex partners. Over 40% of men and three-quarters of the women reported never carrying condoms, because the latter viewed carrying condoms as a promiscuous act for women.

A study by Organista *et al.* (2000) found that condom use with occasional sex partners was predicted by carrying condoms and by condom self-efficacy. They also found that among those who knew someone with HIV/AIDS, women were more likely than men to use condoms with occasional sex partners. Thus, while condom-related confidence and availability may drive use for migrant men in the U.S., concern about contracting HIV may also drive use for females. Condom self-efficacy also predicted condom use with regular sex partners, in addition to less negative attitudes towards condoms, pro-condom social norms within one's social circle, and *not* knowing someone with HIV/AIDS.

Migratory labor is generally considered a stressful experience, and research on mental health and substance use supports this view. A survey of 500 predominantly Mexican migrant farm workers in California found that 28% of men and 16% of women had lifetime rates of diagnosable psychiatric disorder (Alderete *et al.*, 2000). The link between migratory labor, stress, and substance abuse/dependence has important implications for HIV risk. For example, in studies focusing on substance using farm workers, 91% reported alcohol use in the last 30 days, and between 70–98% reported using crack cocaine (McBride *et al.*, 1999; Weatherby *et al.*, 1997). Alderete *et al.* (2000) also found that 9% of their farm worker sample had a lifetime prevalence rate of alcohol dependence, and 12% had a lifetime prevalence of any substance abuse/dependence disorder.

Sharing needles is an important HIV risk factor for Mexican/Latino migrants because while some inject illegal drugs, economic and cultural factors result in high rates of lay *therapeutic injections* of vitamins and medicines such as antibiotics (Organista *et al.*, 1997). In Mexico, it is legal and common for people to purchase and use hypodermic needles to medicate themselves and family members. This practice continues in the U.S., due in part to the limited ac-

cess to affordable health care. For example, Lafferty (1991) found that 20% of 411 Mexican farm workers reported receiving lay therapeutic injections. Of these, 3.5% reported sharing the needle with family members, findings that have been extended in subsequent research (Lafferty, 1991; McBride *et al.*, 1999; McVea, 1997; Weatherby *et al.*, 1997).

Sex between men remains the highest risk factor for HIV in both the U.S. and Mexico, but little is known about this important exposure category in Latino migrants. Self-reported rates of sex between men in surveys of Mexican migrants are quite low, ranging from 2 to 4% (Organista and Balls Organista, 1997), likely due to the taboo nature of such behavior (Organista, 2004). Díaz *et al.* (2001) surveyed 901 predominantly immigrant gay and bisexual Latino men from three major U.S. cities and found several risk factors relevant to Latino migrants. Poverty and stress, including social isolation and low self-esteem, were associated with both sexually-related and drug-related HIV risk. For example, 45% of participants reported using at least one non-prescribed drug during the last six months, including 20% reporting use of methamphetamine (Díaz and Ayala, 2001).

The purpose of the current study was to investigate predictors of HIV-related sexual risk in a high-risk group of Latino migrants: marginally housed or homeless Latinos, who are at risk for HIV because of current risky sexual and/or substance use practices. Various sets of variables were examined, including psychosocial factors, such as condom self-efficacy, worry about HIV, social isolation, and self-esteem; behavioral risk factors such as not carrying condoms and heavy drinking; and participation in especially high-risk behaviors such as men having sex with men, doing sex work, and injection drug use. Demographic background control factors such as sex, age, education, level of acculturation, and number of sex partners, were also examined. There were two overarching research questions in the current study: Which variables predict HIV-related sexual behavior? and What relationships exist between key study variables and how do such relationships vary across subgroups of participants?

METHODS

Six community-based agencies provided three matched treatment-comparison group pairs: Two AIDS service organizations, two Latino-focused primary health care clinics, and two agencies serving

injection drug users. Three full-time case managers recruited, screened, surveyed, and did intensive case management with 55–60 clients each over two years. Case management participants were matched with 55–60 clients who received traditional local outreach services provided by Community Health Outreach Workers (CHOWs) working at the three comparison-group agencies. All case managers and CHOWs were bicultural and bilingual Latinos whose agencies are well known in the communities they serve and have reputations for providing accessible services to the migrant community.

Participants were recruited from a range of locations, including outdoor needle exchange sites, drop-in centers that include needle exchange, labor camps, health clinics, cantinas, laundromats and street corners. Some participants were referred by other agencies in the area. Case managers and CHOWs screened potential participants they encountered in their communities using the selection criteria. Persons who met the criteria were invited to participate in the project on a first-come, first served basis. Case managers in the treatment condition offered intensive case management services for up to 10 months, and all participants were provided with $25 for completing the baseline survey. Data for baseline surveys were collected between March 2002 and December 2003.

Participants

The 366 participants in the current report are predominantly Mexican, Spanish-speaking adults, ages 18-39. Participants lived in rural towns and small cities in three counties in Central California; most had limited access to health services due to poverty, limited English, and lack of immigrant documentation. Participants were recruited into the study if they engaged in, or had a primary sexual partner that engages in, one or more of the following risk behaviors during the past 90 days: Unprotected sex with someone other than a primary partner, injection drug use, use of alcohol to the point of intoxication, paid for or received money or goods in exchange for sex, sex between men, being HIV+, or having an HIV+ partner. Participants also had to be either migrant or "marginally housed," the latter term referring to being either homeless, living in substandard or overcrowded housing, or having no stable residence (i.e., living in vehicles, frequent moving between hotels or the residences of family members, friends, or acquaintances).

Measures

Background Characteristics

Participants were asked about common background characteristics such as sex, age, education, and place of birth. Acculturation was measured using four language-related items from the Short Acculturation Scale (Marin *et al.*, 1987). For example, participants were asked, "What language do you read and speak?" . . . with friends? etc. Responses were on 5-point scale ranging from "Only Spanish" (1) to "Only English" (5), with "Both equally" (3) as a mid-point, $\alpha = .91$.

High Risk Behaviors

To determine participation in high-risk behaviors for HIV, a screening form was used to assess sex between men; exchanging sex for goods, money or housing; and injecting illegal drugs during the past 90 days. Participants were also asked to indicate their number of sex partners in the past 2 months.

Heavy Drinking

A single item assessed the number of days each participant used alcohol to the point of intoxication, during the last 30 days.

Condom Self-Efficacy

Ten items assessed how confident respondents felt about insisting on condom use with sex partners in a variety of challenging sexual situations. For example, interviewees were asked whether they could insist on condom use if a prospective sex partner were to: Get angry, not want to use a condom, threaten to leave, or was using another form of birth control. Responses were on a 5-point scale, 1 = Definitely no to 5 = Definitely yes. The 10 items come from two subscales with the highest internal consistency in Marín *et al.*'s (1997) Condom Self-efficacy scale, $\alpha = .90$. Organista *et al.* (1997) also found good internal consistency, $\alpha = .91$.

Carrying Condoms

Frequency of carrying condoms was assessed with one item, using a 4-point response scale ranging from Never to Always.

Social Isolation

A seven-item scale assessed isolation and loneliness by asking participants the frequency with which they lack company, feel alone, feel excluded, etc. (Díaz et al., 2001). Responses are on a 4-point scale, 1 = Always to 4 = Never. The scale also asked the degree to which respondents can find desirable company, have someone that understands them, etc.; on a 4-point scale, 1 = Definitely yes to 4 = Definitely no (reversed), α = .78.

Self-Esteem

Eight questions taken from Diaz et al. (2001) assessed self-esteem, responses 1 = Definitely yes to 4 = Definitely no. Items include: "Do you think that you deserve the same respect as others?," "In general, do you feel in control of your life?," "When you think about your life, do you feel satisfied?," "Do you feel that you take good care of yourself?" (α = .86).

Perceived Risk for HIV

A single item was used to assess perceived risk for acquiring HIV: "How often do you worry that you could become infected with the virus that causes AIDS?," responses on a 4-point scale, 1 = Very often to 4 = Never.

Confidence in Speaking to a Partner About HIV

This was assessed with one item: "Do you think there is the necessary trust between you and your partner(s) to be able to talk about HIV, the virus that causes AIDS, without shame or concern?," responses on a 4-point scale, 1 = No confidence to 4 = A lot of confidence.

HIV-Related Sexual Risk Index

A composite sexual risk index was created using the survey data on number of sex partners, types of sexual behaviors, and frequency of condom use. Participants reported whether they had sexual relations, first with women and then with men, during the past 2 months. Response choices were: Never, One partner, More than one partner, Don't know, and Don't want to answer. Next, they were asked if they had en-

gaged in any of the following behaviors that applied to indicated sex partners: vaginal sex, anal sex where you insert your penis, and anal sex where you receive the penis (response choices were Yes, No, and Refused to answer). Finally, for each type of sexual behavior reported, participants were asked how often they use a condom, Never, Sometimes, or Always.

To compute the risk index, number of partners (zero [0], one [0.5], two or more [2]) was multiplied by condom use for the specific sexual behavior, 1 = always, 2 = sometimes, 3 = never, and by a risk indicator, 1 = moderate risk, 2 = high risk. For number of partners, one partner was weighted .5 to represent the much lower risk involved as compared to two or more sexual partners. The moderate risk value of one for men was assigned to vaginal sex and anal insertive sex. High-risk sex (2) for men and women was anal receptive, while high-risk sex for women was also assigned to vaginal sex. For women, risk index = (number of sexual partners × frequency of condom use during vaginal sex × 2) + (number of sexual partners × frequency of condom use during anal sex × 2). For men, risk index = (number of sexual partners × frequency of condom use during vaginal sex with women × 1) + (number of sexual partners × frequency of condom use during anal insertive sex × 1) + (number of sexual partners × frequency of condom use during anal receptive sex × 2).

Data Analysis

To predict sexual risk taking, hierarchical multiple regression was conducted. More specifically, four sets of predictor factors were regressed on HIV-related sexual risk: (a) psychosocial factors including condom self-efficacy, worry about HIV, social isolation, and self-esteem; (b) behavioral factors such as carrying condoms and heavy drinking; (c) participant behavior in especially high-risk behaviors such as MSM, sex work, and injection drug use; and (d) demographic background control variables such as age, sex, married/living with a partner, education, and level of acculturation. Before conducting the regression analysis, the distribution of the dependent variable was examined to make sure it was normally distributed.

To examine sub-group differences in study variables, a series of *t*-tests and ANOVAs was conducted, in addition to descriptive statistics on key variables overall and within subgroup categories. Further, we looked at whether condom use varied

Table I. Background Characteristics of Migrant and Marginally Housed Latinos ($N = 363$)

	M (SD)	Percent (n)
Age in years	26.9 (6.2)	(359)
Born in Mexico		77.6% (284)
Number of years living in U.S.	11.6 (9.7)	(363)
Number of years of education completed	9.1 (3.1)	(364)
Percent married or living with a partner		28% (366)
Biological sex		
Male		67.8% (248)
Female		32.2% (118)
Number of sexual partners in last 2 months		
Zero		9.0% (33)
One		41.9% (153)
More than one		49.1% (179)
Had an HIV test		60.7% (222)
Had an STD in the past		22.7% (83)
Annual income	$11,338 ($8667)	(349)
Hours worked per week	28.5 (19.9)	(364)
Average number of livelihoods	1.7	
Types of livelihoods		
Farm work		50.2% (152)
Sex work		21.1% (64)
Day laborer/construction/roofer/painter		13.5% (41)
Restaurant/bar worker/fast food worker		11.2% (34)
Cannery/packing shed/warehouse work		10.6% (32)
Drug dealer		5.9% (18)
Government assistance		5.6% (17)
Supported by spouse/housewife		5.3% (16)

across demographic subgroups, and if it was associated with psychosocial and behavioral factors.

RESULTS

As can be seen in Table I, most participants in the study were born in Mexico and averaged almost 12 years living in the U.S. However, acculturation level was generally low as indicated by a mean score of 1.80 ($SD = 1.24$) on the acculturation scale. On average, participants had less than a high school education and most were single. To best capture risk, we used current biological anatomy to designate sex, but 8% of the sample were transgendered (all but one were male to female). Almost two-thirds of the sample had been tested for HIV, with 6% reporting positive results. Just under a quarter of participants reported having a sexually transmitted disease such as syphilis or gonorrhea in the past.

High Risk Behaviors

Men who had sex with men in the last 90 days made up 27% of the total sample, or 37% of all men in the sample. Twelve percent of MSM also reported sex with women, and 39% reported doing sex work. MSM averaged almost 11 sexual partners (in the past 2 months) as compared with three partners for non-MSM (2 partners for men, 4.3 for women). Sex workers comprised 21% of the sample, were two-thirds male, and reported an average of over 15 sex partners in the past 60 days, as compared with less than three for non sex workers. Twenty eight percent of participants reported injecting illegal drugs during the last 30 days, with 19% of the total sample injecting at least once a day. Heroin was the most common drug injected; just under half shared needles with others, 61% used bleach to clean needles, and 87% reported using needle exchange programs. There were no differences in the number of sexual partners of injectors compared to non-injectors.

Heavy Drinking

Participants reported drinking to the point of intoxication (i.e., 5 or more drinks in one sitting) an average of three times during the last 30 days, and just under half (47%) reported drinking to the point of intoxication at least one time.

Social Isolation and Self-Esteem

There were low to moderate ($M = 2.06$, $SD = .63$, $n = 361$) levels of social isolation reported in the current sample, and fairly high levels of self-esteem ($M = 14.57$, $SD = 4.82$, $n = 363$).

Condom-Use

Participants reported fairly high levels of condom self-efficacy ($M = 3.62$, $SD = .94$, $n = 360$), and a range in the frequency of carrying condoms: 28% said they never carry them while 22% reported always carrying condoms.

Worry About HIV and Confidence to Talk About HIV

With regard to perceptions of HIV risk, 16% reported that they "very often" worry about becoming infected with the HIV virus, while 21% "never" worry. Participants had a range of confidence to talk with a partner about HIV: 13% reported no such confidence while 28% reported a lot of confidence.

Associations Between Key Study Variables

With regard to condom use, only 32% of sexually active participants said they always used condoms. As compared to participants who never or inconsistently used condoms, consistent condom users reported higher condom self-efficacy ($t(1, 321) = -8.03$, $p < .01$), yet carried condoms less frequently ($t(1, 325) = 8.68$, $p < .01$), worried more about getting HIV ($t(1, 324) = 3.13$, $p < .01$), had more confidence to talk about HIV with a partner ($t(1, 258) = -2.12$, $p < .05$), and completed more years of schooling ($t(1, 324) = -2.03$, $p < .05$).

Compared with men, women were more likely to carry condoms ($t(1, 364) = -4.35$, $p < .01$), had higher self esteem ($t(1, 361) = -3.51$, $p < .01$), and drank less alcohol ($t(1, 363) = 2.39$, $p < .05$). However, a higher percentage of men (39%) used condoms consistently as compared to women (18%) ($\chi^2(1, 327) = 14.73$, $p < .01$). There were also some differences between those with and without a regular partner. Single participants had higher condom self-efficacy ($t(1, 358) = 2.34$, $p < .05$) and worried more about getting HIV ($t(1, 363) = -2.35$, $p < .05$). More single people (38%) than those with partners (16%) used condoms consistently ($\chi^2(1, 327) =$

15.83, $p < .01$), but they carried condoms less often ($t(1, 364) = -4.27$, $p < .01$).

Regarding participation in high-risk behaviors, MSM reported higher condom self-efficacy than other participants ($t(1, 358) = -4.85$, $p < .01$). MSM were also more likely to use condoms consistently (58%) than non MSM (24%) ($\chi^2(1, 327) = 32.95$, $p < .01$), but were less likely to carry condoms ($t(1, 364) = 5.71$, $p < .01$). MSM were also more worried about becoming infected with HIV ($t(1, 363) = 4.99$, $p < .01$) and had lower self esteem ($t(1, 361) = 2.48$, $p < .05$).

Those who inject illegal drugs had higher self esteem than non injectors ($t(1, 358) = -6.24$, $p < .01$) and more confidence to talk with their partners about HIV ($t(1, 277) = -2.87$, $p < .01$). Injectors also used alcohol less ($t(1, 350) = 2.20$, $p < .05$), and carried condoms less frequently ($t(1, 361) = 2.48$, $p < .05$). Fifty-four percent of sex workers used condoms consistently as compared to 25% of non sex workers ($\chi^2(1, 294) = 17.17$, $p < .01$), but sex workers carried condoms less ($t(1, 326) = 4.37$, $p < .01$). Sex workers also worried more about getting HIV ($t(1, 325) = 2.23$, $p < .05$), and reported less confidence to talk with their partner(s) about HIV ($t(1, 262) = 2.61$, $p < .05$).

Sexual Risk for HIV

While 9% of participants reported no sexual partners during the past 2 months, 49% reported more than one. Of the 42% who had only one partner, 82% had a partner engaged in risky sexual behaviors. For the 166 participants reporting sex with women, 98% reported vaginal sex, and 24% reported anal insertive sex. For the 109 participants who had sex with men, 57% reported having vaginal sex, 48% reported anal receptive sex, and 24% reported anal insertive sex. Men who have sex with other men had over three times as many sex partners ($M = 10.89$) as all other participants ($M = 2.95$) ($t(1, 363) = -4.23$, $p < .01$); and sex workers reported five times as many sex partners ($M = 15.58$) as non sex worker participants ($M = 2.46$) ($t(1, 325) = -6.03$, $p < .01$).

Risk Index

A higher composite sexual risk (CSR) index suggests increased risk for HIV. The CSR ranged from 0 to 24, with a mean of 3.80 ($SD = 4.07$). Women had a higher risk index than men ($t(1, 364) = -4.00$,

Table II. Correlations Between Continuous Predictor Variables

	Self esteem	Social isolation	Condom self efficacy	Confidence	Worry	Alcohol	Carrying condoms	Age	Acculturation	Education
Self esteem										
Social isolation	.57**									
Condom self efficacy	−.16**	−.23**								
Confidence to talk about HIV	−.12*	−.30**	.41**							
Worry about HIV	−.07	.08	.17**	.01						
Alcohol to intoxication	.01	.11*	−.15**	−.13*	.08					
Carrying condoms	.05	.05	−.34**	−.07	.26**	.06				
Age	.00	.07	−.02	−.04	.03	.01	.04			
Acculturation	.11*	−.15**	.14*	.12*	−.14*	−.07	.00	−.09		
Education	.24**	.02	.09	.07	−.04	−.10	.01	−.05	.37**	
CSR	.05	.10	−.19**	−.18**	.00	.00	.00	.06	.04	−.02

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

$p < .01$). There were no risk index differences between single participants and those married or living with a partner, or between those who inject drugs and those who do not. Comparing MSM with other participants, the risk index was higher for MSM ($t(1, 246) = -5.17$, $p < .01$). Sex workers had a higher risk index than non sex workers ($t(1, 326) = -4.06$, $p < .01$).

As can be seen in Table II, bivariate correlations showed that lower risk was related to higher condom self-efficacy and more confidence to talk with a partner about HIV.

Results of the hierarchical multiple regression used to predict the CSR are listed in Table III. As can be seen, higher condom self-efficacy was the only psychosocial variable that predicted lower HIV-related sexual risk, with social isolation approaching significance. Participation in each of the three high-risk behaviors predicted HIV-related sexual risk, and the only demographic variable that predicted greater sexual risk was being female.

DISCUSSION

The purpose of this study was to explore a wide variety of psychosocial, behavioral, and demographic background factors related to HIV risk in migrant and marginally housed Latinos who are currently

Table III. Summary of Hierarchical Regression Analysis for Predictors of Sexual Risk Composite ($N = 363$)

	B	SE B	β	$R^2 \Delta$
Block 1: Psychosocial factors				.09
Social isolation	.13	.07	.14†	
Self esteem	−.09	.07	−.11	
Condom self efficacy	−.08	.03	−.21**	
Confidence to talk about HIV	−.21	.27	−.05	
Worry about HIV	−.40	.27	−.05	
Block 2: Behaviors				.00
Alcohol to intoxication	.02	.04	.03	
Carrying condoms	.17	.24	.05	
Block 3: High risk behaviors				.11
Men having sex with men	2.56	.70	.28**	
Sex work	2.16	.70	.21**	
Inject illegal drugs	1.89	.66	.20**	
Block 4				.05
Age	.03	.04	.05	
Sex	1.93	.63	.24**	
Partner/no partner	.42	.56	.05	
Acculturation	−.05	.07	−.06	
Education	.06	.08	.01	

$†p = .05; **p < .01;$ Adj $R^2 = .20.$

engaged in, or have a sex partner engaged in, risky sexual and/or substance use behaviors. A unique feature of the current study is its focus on a convenience sample of extremely high-risk migrant Latinos currently using a variety of community-based outreach or case management services (e.g., HIV prevention; needle exchange). While such a naturalistic sampling strategy adds noise to conventional research, it does allow for preliminary risk assessment and documentation of a socially invisible and under-researched population whose many needs are responded to by dedicated service providers at the local level with limited resources.

As compared with other studies of Mexican/Latino migrants and HIV, the current sample was unique in its high numbers of MSM, sex workers, injection drug users, and transgendered individuals. Further, while level of acculturation and annual income were as low as other samples in the literature (Organista et al., 1997; Organista and Kubo, in press), participants in the current study averaged twice as many years in the U.S. This may indicate heightened marginality in that participants have not progressed past more recent migrants in terms of both income and social integration.

The rates of single marital status were higher than most reports on Mexican/Latino migrant laborers yet similar to the drug-using sample in Weatherby et al. (1997). Participants also differed from other studies in that while half are involved in farm-related work, a fifth reported commercial sex work as a livelihood. In addition, our sample reported more years of education than the average farm worker in California (Rodriguez et al., 2003). Further, 6% of the sample reported being HIV positive, as compared to 3–4% HIV prevalence in other samples of drug-using migrant laborers (Inciardi et al., 1997; Weatherby et al., 1997).

Predictors of sexually-related HIV risk generally confirm, but also expand, service provider knowledge about the current sample, despite some of the close associations between the criterion variable and some of the risky predictor variables. For example, men having sex with men, sex workers, and injection drug users each engaged in the sexual behaviors that increase risk for HIV. This is not surprising in view of the high number of sexual partners reported by these three groups, as well as risk associated with anal sex. The first two groups also worried about contracting HIV more than others, suggesting that this may be an outcome of, rather than something that prevents, risk behavior.

It is interesting that both MSM and sex workers used condoms more consistently yet carried them less frequently than the remaining participants. In the case of MSM, consistent condom use might be the result of intensive local efforts beginning early in the epidemic to provide prevention education to MSM. It may also have to do with the power dynamics in traditional heterosexual relationships, which leave many women less able to insist on condom use (Gómez and Marín, 1996; Pivnick, 1993; Pulerwitz et al., 2002). For example, in a study of 100 rural women in Mexico who were the wives of Mexican migrants working in the U.S., Salgado de Snyder et al. (1996) found that two-thirds did not practice safer sex when having sex with husbands during their visits to Mexico, despite being knowledgeable about HIV transmission, and despite feeling at risk because of known or suspected infidelity on the part of their husbands.

Injection drug users composed over a quarter of participants in this study, and engaged in higher sexual risk than non-IDU, perhaps because of their need to trade sex for drugs or money. Half reported sharing needles, but two-thirds cleaned needles with bleach, and the vast majority used needle exchange programs. Thus, those who participate in this high-risk behavior may also be implementing the HIV prevention messages provided by the two agencies serving clients who inject illegal drugs. On a related note, no relationship was found between sexual risk behavior and heavy drinking, despite the hypothesis of impaired judgment associated with high-risk behaviors, consistent with studies of other drug-using migrant workers (Gillmore et al., 2002; Weatherby et al., 1997).

HIV-related sexual risk was related to condom self-efficacy. This finding is consistent with other studies of Mexican migrant laborers, which found that condom self-efficacy predicts condom use with occasional and regular sex partners, as well as the likelihood of carrying condoms (Organista et al., 1997). Thus, increasing peoples' confidence to insist on condom use in challenging sexual situations appears to have potential for enhancing prevention efforts with this population. Interestingly, carrying condoms was not found to be a significant predictor of lower HIV-related sexual risk. In fact, consistent condom users in the current study reported low rates of carrying condoms, which may be due to other ways of accessing condoms, such as keeping them in their homes or other places they regularly have sex,

or carrying condoms only when they intend to have sex.

There are several implications for targeting case management and other approaches that go beyond promoting condom use to prevent HIV transmission. First, the results show the importance of increasing condom self-efficacy, rather than focusing only on carrying condoms. In addition, the data suggest that efforts to increase the consistency of condom use among those engaging in especially high-risk behaviors such as men having sex with men and sex work, as well as safer injection practices among drug injecting participants, may be paying off. Next steps include helping such individuals to reduce their number of partners and to attain less risky ways to generate income. And finally, health departments and community-based agencies must redouble their efforts to reach at-risk, vulnerable women and assist them in self-empowerment, skills to negotiate safer sex, and safer injection practices (Zea et al., 2003). This study sets the stage for further research with this understudied population of Mexican/Latino migrants involved in high-risk sexual and substance-using behaviors and lifestyles.

ACKNOWLEDGMENTS

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