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# Predictors of Condom Use in Mexican Migrant Laborers[1]

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*The purpose of this study was to explore predictors of condom use with occasional sex partners and regular sex partners, as well as carrying condoms in a new high-risk group for HIV infection, Mexican migrant laborers. This study extends previous findings by (1) exploring additional predictors not previously examined, (2) utilizing a large sample of male and female Mexican migrant laborers, (3) carefully controlling for the effects of various demographic and lifestyle variables related to condom use, and (4) assessing the interactive effects of gender on predictors of condom use. Snowball sampling was used to survey 501 adult Mexican migrant laborers. Results revealed that condom use with occasional sex partners was predicted by carrying condoms and condom self-efficacy and that women were more likely to use condoms with occasional partners when both men and women knew someone*

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*with HIV/AIDS. Condom use with regular sex partners was predicted by procondom social norms, less negative attitudes toward condoms, not knowing someone with HIV/AIDS, and condom self-efficacy. Carrying condoms was predicted by procondom social norms, less negative attitudes toward condoms, condom self-efficacy, worry about contracting HIV/AIDS, and women were more likely than men to carry condoms when both men and women were married. Understanding these findings, future research directions, and implications for condom promotion strategies with Mexican migrant laborers are discussed.*

**KEY WORDS:** Mexican migrants; condoms; HIV, AIDS; Latinos.

## Mexican Migrant Laborers and HIV

The Department of Labor (1990) estimates between 2.7 and 4.1 million migrant laborers and seasonal farmworkers in the United States predominantly of Mexican background. Over the past decade there has been increased research attention given to AIDS and HIV exposure in this population. A recent review of the literature on HIV and migrant laborers in the United States documents substantial risk for exposure to HIV, mixed knowledge of HIV transmission, poor knowledge of proper condom use, and low and inconsistent condom use in predominantly Mexican as well as Black migrant laborers (Organista & Balls Organista, 1997).

Although the results of two HIV screenings with Mexican farmworkers found HIV infection rates of less than 2% (Carrier & Magaña, 1991; Lopez & Ruiz, 1995), these studies documented the presence of significant precursors to an AIDS epidemic in this population. For example, Lopez and Ruiz (1995) conducted a HIV screening of 176 Mexican farmworkers in northern California. Nine percent of the farmworkers reported a history of STDs. In addition, there were two active cases of syphilis, and 9% of female respondents reported having sex with a partner who used injected drugs. Further, in their screening of 2000 migrant laborers, Carrier and Magaña (1991) noted that recent outbreaks of syphilis and chancroid had occurred in migrant laborers and prostitutes in Southern California. For example, between 1981 and 1983, 271 cases of chancroid were seen at the county STD clinic where Carrier and Magaña conducted their investigation, compared to no cases of chancroid in the previous year (Blackmore, Limpakarnjanarat, Rigau-Perez, Albritton, & Greenwood, 1985). Latino men accounted for 266 of the 271 cases of Chancroid, with female prostitutes comprising the remaining 5 cases.

In a previous report on the current sample of Mexican migrant laborers, Organista, Balls Organista, García de Alba G., Castillo Morán, and Ureta Carrillo (1997) found that 44% of 342 male respondents reported sex with

prostitutes while working in the United States. Married men in the survey were as likely as single men to have sex with prostitutes but less likely to use condoms, underscoring significant risk to their wives. Organista, Balls Organista, García de Alba G., Castillo Morán, and Ureta Carrillo (1997) also found a 2% prevalence of men having sex with men, compared to the 3.5% reported by Lopez and Ruiz (1995).

With regard to needle sharing, Lafferty (1991) reported a 3% prevalence of intravenous drug use in his survey of 411 Mexican migrant laborers. Perhaps more importantly, he found a 20% prevalence of "therapeutic" injection use on the part of migrants who self-administered antibiotics and vitamins, being too poor to afford proper medical care. Of this 20%, 3.5% reported sharing needles among family members.

## Predictors of Condom Use in Latinos

A review of the literature revealed three studies that explored predictors of condom use in Latinos. Mikawa *et al.* (1992) attempted to develop and test a scale of Mexican cultural factors related to condom use in a sample of 190 Mexican immigrants. Their Culture Conflict Questionnaire Associated with Condom Use (CCQACU) consisted of such cultural factors as fatalism, machismo, Catholicism, and communication about condoms between family members and within romantic relationships. Mikawa *et al.* used all of the CCQACU's individual items, rather than its factors, as predictors and found that condom use was predicted by the following six items: buys condoms, has the attitude that one should use condoms to protect the woman, insists on condom use regardless, talks to female friends about sex, talks to parents about sex practice, and does not discuss use of condoms with wife or girlfriend.

Mikawa *et al.* (1992) also found two important findings central to Mexican cultural norms. First, there was no relation between condom use and fatalism or Catholicism. The authors concluded that the notion of Mexicans as fatalistic is overly stereotypic and that Mexicans are able to compartmentalize condom use apart from Catholicism. Organista, Balls Organista, García de Alba G., Castillo Morán, and Carrillo (1996) similarly found no relationship between between condom use and the importance of Catholicism in Mexican migrant laborers. Further, Balls Organista, Organista, and Soloff (1998) found that over 50% of their female Mexican migrant sample used contraceptives such as the pill and IUD despite their Catholic backgrounds. The lack of a strong relation between Catholicism and contraceptive and reproductive decisions in Mexican American women has also been documented by Amaro (1988). These studies suggest that

the role of religion in condom and other contraceptive use is far less important that commonly believed. Second, Mikawa *et al.* found that condom use was predicted by the item, "insists on condoms regardless." This finding seems to reflect "condom self-efficacy," an important predictor of condom use in Latinos.

Marin, Gomez, and Tschann (1993) explored predictors of condom use with occasional sex partners in a nine-state, random-digit dialing survey of 361 U.S. Latino men. The focus on occasional sex partners is especially relevant to migrant laborers who report high numbers of sex partners while working in the United States (Organista, Balls Organista, García de Alba G., Castillo Morán, & Ureta Carrillo, 1997). Marin, Gomez, and Tschann (1993) found that condom use was predicted by the perception that friends carry and use condoms, a higher frequency of carrying condoms, personally knowing someone with HIV/AIDS, less negative attitudes toward condoms (e.g., will reduce sexual pleasure, etc.), and higher condom self-efficacy. The latter factor consisted of four items assessing confidence to insist on condom use in challenging sexual situations (e.g., a sex partner refuses to use condoms).

The significance of condom self-efficacy in the study by Marin, Gomez, and Tschann (1993) indicates the viability and need for further study of this factor with Latinos and other at-risk populations. To assist with such research, Marin, Tschann, Gomez, and Gregorich (1998) conducted a follow-up study in which they developed and validated a 20-item condom self-efficacy scale using a 10-state household sample of 1133 unmarried Latino men and women. The results revealed a 20-item scale with a good reliability and predictive validity as demonstrated by a strong relation between self-reported condom use and condom self-efficacy scores. This condom self-efficacy scale was used in the current study.

Marin, Gomez, and Tschann (1993) also explored predictors of carrying condoms. They found that carrying condoms was predicted by the perception that friends carry and use condoms, personally knowing someone with HIV/AIDS, less negative attitudes toward condoms, previous use of condoms, single marital status, low discomfort with sex, and low acculturation to the United States. The latter finding is surprising in view of previous research by Marin and Marin (1992) that showed higher acculturation to predict carrying condoms in a sample of 522 Latinos surveyed in San Francisco. Lower acculturation is also associated with less HIV/AIDS awareness (Epstein, Dusenbury, Botvin, & Diaz, 1994; Marin & Marin, 1992) in U.S. Latinos.

The San Francisco survey also revealed that carrying condoms was higher in men and was predicted by younger age and having multiple sex partners (versus one partner) (Marin & Marin, 1992). Such findings are

consistent with our previous report on the current sample that consistently found condom use to be associated with male gender, single marital status, younger age, having multiple sex partners, and higher education. Thus, predictor studies need to control carefully for demographic and lifestyle variables related to condom use. The effects of gender, in particular, must be carefully examined given that condom use is such a male sex-typed behavior among Mexican immigrants (Mikawa *et al.*, 1992) and Mexican migrant laborers (Organista, Balls Organista, García de Alba G., Castillo Morán, & Ureta Carrillo, 1997).

## Preliminary Research

The current authors adopted Marin *et al.*'s measures in a pilot study with 87 Mexican migrant laborers from a small "sending town" in Jalisco, Mexico, so called for the town's long history of out-migration to the United States (e.g., in this particular town, an average of two family members per household migrated to the United States to work) (Organista, Balls Organista, García de Alba G., Castillo Morán, & Carrillo, 1996). Prior to the survey, two focus groups conducted at the pilot study site led to modifications in the original measures. For example, questions were added about HIV transmission from casual sources because many members of the focus groups voiced misconceptions about acquiring HIV from mosquitoes, perspiration, the HIV test, etc. Also, the term "AIDS virus" was used instead of "HIV" because the former was part of the local vernacular.

Although limited by sample size, an analysis of predictors of condom use in the pilot sample revealed that condom use was most strongly influenced by the perception that friends carry and use condoms (Organista, Balls Organista, García de Alba G., & Castillo Morán, 1997). Specifically, condom use with both occasional and regular sex partners, as well as carrying condoms, was predicted by the perception that friends carry and use condoms. These three dependent variables were targeted because previous research on Mexican migrants (Organista, Balls Organista, García de Alba G., Castillo Morán, & Carrillo, 1996) and U.S. Latinos (Marin, Gomez, & Hearst, 1993) demonstrated that condom use is higher with occasional versus regular sex partners (i.e., that condom use varies depending on the type of partner). With respect to Latinos, there appears to be a culture-based sanctioning of condom use with secondary but not primary sex partners. Yet it is still important to understand condom use with primary partners given women's documented risk for HIV via high-risk male partners. Carrying condoms is particularly relevant to migrant laborers whose work is characterized by geographical isolation and frequent mobility. Preparedness to

engage in safer sex practices may depend heavily on migrant laborers keeping condoms handy.

Findings from the pilot study seemed to suggest that for Mexican migrants, condom use may be most influenced by what Fishbein, Middlestadt, and Trafimow (1993) call "perceived social norms" (i.e., friends' condom use, talking to friends and sex partners about condoms, etc.). Interestingly, Fishbein *et al.* (1993) studied condom use in the eastern Caribbean and found that perceived social norms had the strongest relation to condom use among several well-known theoretical variables such as disease knowledge, perceived risk, self-efficacy to avoid AIDS, and locus of control (global and AIDS-related). Fishbein *et al.* concluded that for condom promotion strategies to be maximally effective, they must assign a higher priority to the role of perceived social norms. For this reason, the current study explored the role of condom social norms in addition to such variables as disease knowledge and perceived risk in predicting condom use.

Consistent with Marin, Gomez, and Tschann (1993), our pilot study findings also showed that personally knowing someone with HIV/AIDS was a significant predictor of condom use with occasional sex partners and of carrying condoms (Organista, Balls Organista, García de Alba G., & Castillo Morán, 1997). In addition, worry about contracting HIV/AIDS was found to predict carrying condoms. Thus, while secondary to the condom social norm variable, items tapping perceived risk were noteworthy predictors. Finally, pilot study findings revealed that more time spent in the United States predicted condom use with occasional sex partners, perhaps because greater exposure to the United States heightens HIV awareness and perceived risk in Mexican migrants. Thus, migrants' length of time in the United States and their level of acculturation are included in the current study.

## The Current Study

The purpose of this study was to explore predictors of condom use with occasional sex partners and regular sex partners, as well as carrying condoms, in Mexican migrant laborers. This study extends previous findings by (1) exploring additional predictors not examined previously, (2) utilizing a large sample of male and female Mexican migrant laborers, (3) carefully controlling for the effects of various demographic and lifestyle variables related to condom use, and (4) assessing the interactive effects of gender on predictors of condom use.

The primary purpose of the study was to explore the relative importance of the predictors while controlling for gender, age, marital status,

education, and number of sex partners. Thus, no predictions were made. However, predictions were made about the directionality of the predictor factors. Specifically, it was expected that condom use would be predicted by procondom social norms, frequency of carrying condoms, worry about contracting HIV/AIDS, knowing a person with HIV/AIDS, condom self-efficacy, less negative attitudes toward condoms, knowledge of HIV transmission, acculturation to the United States, and time spent in the United States. In addition, four general research questions emerged from pilot study findings and the review of the literature: (1) Will condom social norms predict all three forms of condom use? (2) Will factors tapping perceived risk for contracting HIV/AIDS predict all three forms of condom use? (3) Will carrying condoms predict condom use with occasional and regular sex partners? and (4) Will condom self-efficacy predict all three forms of condom use?

## METHOD

### Participants

Participants were 501 Mexican migrant laborers who have lived and worked in the United States since 1982. The sample consisted of 342 men and 159 women with a mean age of 31.6 (SD = 11.4) years, 7.8 (SD = 3.8) years of education, and 5 (SD = 4.2) years spent in the United States since 1982 (i.e., during the major years of the AIDS epidemic). Study participants also averaged six trips to the United States during this time period. Fifty-six percent of respondents reported being married/living with someone, 39% were single, and 5% were divorced or widowed. One-third of the sample reported currently living in the United States.

### Procedure

The primary method used in this study was the survey method. Surveys were conducted in five "sending towns" in Jalisco, Mexico, so called because of their historically high rates of out-migration to the United States. At each of the five survey sites, a coordinator and interview team of Mexican medical students spent 5 days in the field conducting interviews. Because no other sampling strategy was feasible in these small, remote, rural towns, snowball sampling was used to approach homes, work, and social settings, inquiring for adults with a history of migration to the United States since 1982.

Participation was voluntary and anonymous. Respondents did not receive any monetary or material incentive for their participation. Nonetheless, no more than 10% of eligible individuals refused to participate. Men and women were interviewed by interviewers of their own sex in a private setting. Interviewers were of either Mexican or Mexican-American descent. All interviewers were trained by a Mexican doctoral student with 6 years of work experience at the San Francisco AIDS Foundation, where he instructed Hotline volunteers in talking openly and sensitively about sexuality, cultural norms, and AIDS-related topics. Six hours of interviewer training over a 2-day period included becoming familiar with the questionnaire, group discussions of how to discuss sexuality in a professional manner, having trainees interview each other in pairs, and, finally, an assessment of interviewing skills in which the trainer had each trainee interview him on especially sensitive sections of the questionnaire.

## Measures

Study participants were administered a modified version of the Hispanic Condom Questionnaire (HCQ), which assesses HIV/AIDS and condom-related knowledge, beliefs, and behaviors. Marin and associates used the HCQ to describe (Marin, Gomez, & Hearst, 1993) and to predict (Marin, Gomez, & Tschann, 1993) condom use in U.S. Latinos. Modifications of the HCQ were based on six presurvey focus groups conducted at the survey sites as well as the aforementioned pilot study. As with the original HCQ, all additions to the current study version were back translated into Spanish by a bilingual team of Latino researchers. Thus, all factors explored were originally developed on U.S. Latino samples (Marin, Gomez, & Tschann, 1993; Marin, Gomez, & Hearst, 1993) and then subsequently adapted to the current sample through a process involving presurvey focus groups and pilot testing, followed by analyses to derive reliable predictor factors specific to the study sample. Selected HCQ items and scales used as dependent variables and as predictor factors in the current study are described below.

*Condom Use Criterion Variables.* Condom use with occasional sex partners and with regular sex partners and carrying condoms were assessed as dependent variables. Single items assessed the frequency of condom use with each type of partner during the past 12 months on a 5-point scale ranging from "never" to "always," with the midpoint "half of the time." Frequency of carrying condoms was assessed by a 4-point scale (1 = never, 2 = almost never, 3 = sometimes, 4 = always).

*Condom Social Norms.* A 19-item scale was created to assess condom-related social norms as a predictor of condom use. Items assessed the

frequency at which respondents, as well as their family and friends, condoned condom use in a variety of ways. For example, respondents were asked how frequently they have told friends or family members that they use condoms. Respondents were then asked how frequently friends or family members have told them that they use condoms. Other items assessed the frequency of recommending, criticizing, giving, and asking for condoms. Items are scored on 4-point scales ranging from 1 (never) to 4 (very frequently). The scale demonstrated a high internal consistency (Cronbach's $\alpha = .80$) and had a mean score of 2.38 (SD = .45), indicating that participants "sometimes" sanctioned condom use.

This scale was intended to assess actual condom-related interpersonal norms, in the study population, as opposed to merely "perceived" condom norms assessed in previous research (e.g., Fishbein *et al.,* 1993). Although such condom-related norms would be expected to be associated with the criterion variables, the use of interpersonal condom norms is designed to assess the relation between what people say or do interpersonally with regard to condoms and the behavioral act of using condoms during sex (i.e., assessing whether people practice what they preach).

*Perceived Risk.* Two items were used to assess perceived risk of contracting HIV/AIDS. Both of these items have frequently been used to assess perceived risk in Latinos (Biddlecom & Hardy, 1991; Kaiser Family Foundation, 1998) and have been found to predict condom use in Mexican migrant laborers (Organista, Balls Organista, García de Alba G., & Castillo Morán, 1997) and U.S. Latinos (Marin, Gomez, & Tschann, 1993). Participants were asked, "How often do you worry about contracting AIDS?" as an index of perceived risk. This item was assessed on a 4-point scale (1 = very frequently, 2 = frequently, 3 = sometimes, 4 = never) that was dichotomized and reversed in the current study (0 = never/sometimes, 1 = frequently/very frequently). This item had a mean of 0.37 (SD = 0.48), indicating that participants "sometimes" worried about contracting AIDS.

As a related indicator of perceived risk, respondents were asked, "Have you personally known someone with AIDS or infected with the AIDS virus?" This item was assessed on a 4-point scale (1 = yes, 2 = probably yes, 3 = probably no, 4 = no) that was dichotomized and reversed in the current study (0 = no/probably no, 1 = yes/probably yes). This item had a mean score of 0.32 (SD = 0.47), indicating that participants generally did not know someone with HIV/AIDS.

*Condom Self-Efficacy.* The condom efficacy scale consisted of 20 items that assessed how confident respondents felt about negotiating condom use with partners in a variety of challenging sexual situations. For example, subjects were asked how capable they would be of insisting on condom use if a prospective sex partner were to get angry, not want to use a condom,

threaten to leave, etc. Other items assessed condom use capability with a sex partner with whom the respondent was in love, who was using another form of birth control, who wanted to have a baby, etc. These items were scored on 5-point scales ranging from 1 (definitely no) to 5 (definitely yes), with 3 (maybe) as a midpoint. The authors of this scale reported a very good reliability (Cronbach's $\alpha$ = .88) and predictive validity with regard to condom use (Marin *et al.*, 1998). In the current study, this scale also demonstrated a high internal consistency (Cronbach's $\alpha$ = .91) and had a mean of 2.95 (SD = 0.87), indicating that participants believed that "maybe" they could insist on condom use in challenging sexual situations.

*Negative Attitudes Toward Condoms.* Negative attitudes about the consequences of using condoms were assessed with a 5-item scale: Would you feel embarrassed? Would you feel less sexual pleasure? Would your partner feel less sexual pleasure? Would it interrupt the sex act to put on a condom? and Would you feel an emotional barrier? These items were arranged on 4-point scales (1 = yes, 2 = probably yes, 3 = probably no, 4 = no) with a mean of 2.72 (SD = 0.60), indicating that participants generally said "probably no" to questions about possible negative consequences of condom use. Although this scale demonstrated a questionable reliability (Cronbach's $\alpha$ = .67), it was retained in the current study given that it has been found to predict condom use in U.S. Latinos (Marin, Gomez, & Tschann, 1993).

*AIDS Knowledge.* Ten items were used to assess knowledge and misconceptions about the transmission of HIV (e.g., getting AIDS from blood and from public toilets, respectively). The proportion of correct answers was used as an indicator of AIDS knowledge.

*Acculturation.* The HCQ contains an acculturation scale consisting of four language-related items from the Short Acculturation Scale (Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987). Items are arranged on 5-point scales ranging from "only Spanish" (1) to "only English" (5), with "both equally" (3) as a midpoint. This factor had a mean of 1.5 (SD = 0.71), indicating very low acculturation in this migrant sample (Cronbach's $\alpha$ =.85).

## RESULTS

### Data Analysis

Multiple regression analyses were conducted using an ordered probability maximum-likelihood approach in the econometric software LIMDEP (acronym from LIMited DEPendent variables) (Green, 1992). This ap-

proach makes optimal use of the information contained in ordered categorical dependent variables without imposing an (often inappropriate) interval-level data assumption as required by the more frequently used ordinary least-squares (OLS) regression method (McElvey & Zavoina, 1975).

For each dependent variable, one regression model was fit containing the predictor factors and control variables described above. The predictors and control variables were entered simultaneously using a blockwise procedure. To address the question of whether these variables operated differently for men and women, a set of two variable interactions was created to test for the interaction of gender with each of the other variables. This set of variables was entered as a block into each model, then, one by one, nonsignificant interaction terms were removed in a backward stepwise method, leaving only those variables indicating significant differences by gender. This method was chosen over conducting separate analyses for men and women because it provides tests of significance for differences by gender for each variable while allowing full use of the data set.

For each dependent variable, marginal effects were calculated to quantify the influence of a 1-unit change in an independent variable on the probability of membership in each of the categories of the ordered, categorical dependent variables. For example, one can calculate the influence of a 1-unit change in the independent variable, condom social norms (e.g., from "sometimes" to "always"), on the probability of membership in each of the five categories of the dependent variable, frequency of condom use with occasional sex partners (1 = never, 2 = less than half of the time, 3 = half of the time, 4 = more than half of the time, 5 = always). Such marginal effects create interpretations analogous to the interpretations of beta coefficients in OLS models. Changes in the probability of "never" and of "always" engaging in the behavior indicated by the criterion variable are reported. Results are organized in three sections, one per criterion variable.

## Condom Use with Occasional Sex Partners

In testing the predictors of condom use with occasional sexual partners, a model was fit with independent variables representing the predictor factors and control variables described above. In addition, one extra variable representing the interaction between gender and the predictor factor, personally knowing a person with HIV/AIDS, remained significant throughout the backward step procedure and was thus retained and reported here. There were no other significant interactions between gender and any of the other variables.

As shown in Table I, condom use with occasional sex partners was predicted by a higher frequency of carrying condoms ($p < .05$) and higher condom self-efficacy ($p < .01$). The marginal effect for carrying condoms, located under the "always" marginal effect column (0.125), indicated that the probability of always using a condom with occasional sex partners increased 12.5% for every 1-unit change on this 4-point predictor factor scale. The marginal effect for condom self-efficacy (0.084), indicated that the probability of always using a condom with occasional sex partners increased 8.4% for every 1-unit change on this 5-point predictor factor scale.

With regard to control variables, condom use with occasional sex partners was also predicted by having more than one sex partner ($p < .05$) (which increased the probability of always using condoms by 13.7%) and by lower age ($p < .05$) (age decreased the probability of always using condoms by 6.8% for every 10-year interval increase in age).

With regard to the significant interaction between gender and person-

**Table I.** Predictors of Condom Use with Occasional Sex Partners ($N = 237$)[a]

| Variable | Marginal Effect | | *t* Ratio |
|---|---|---|---|
| | Never[b] | Always[c] | |
| Condom social norms | −0.103 | 0.159 | 1.606 |
| Carrying condoms | −0.093 | 0.125 | 2.034* |
| AIDS knowledge | −0.028 | 0.043 | 1.152 |
| Negative condom attitudes | 0.049 | −0.075 | −1.101 |
| Gender | −0.186 | 0.227 | 2.391* |
| Marital status | −0.188 | 0.227 | .345 |
| Age | 0.044 | −0.068 | −1.988* |
| Education | −0.007 | 0.011 | .199 |
| Number of sex partners | −0.105 | 0.137 | 1.968* |
| Condom self-efficacy | −0.055 | 0.084 | 2.969** |
| Worry about HIV/AIDS | −0.042 | 0.056 | .966 |
| Acculturation | −0.023 | 0.035 | .622 |
| Know person with HIV/AIDS | −0.241 | 0.305 | 2.847* |
| Years in U.S. | 0.010 | −0.016 | −1.639 |
| Know person with HIV/AIDS × Gender | 0.289 | −0.324 | −3.013** |

*Note.* Units of the independent variables are as follows: condom social norms, 1 unit on a 4-point scale; carrying condoms, 1 = more than half the time, 0 = less than half-time; AIDS knowledge, 1 unit = 17% correct answers (equal to 1 SD); negative attitudes toward condoms, 1 unit on a 4-point scale; gender, 1 = male, 0 = female; marital status, 1 = married, 0 = not married; age, 1 unit = 10 years; education, 1 unit = 5 years; number of sex partners, 1 = more than one partner, 0 = one partner; condom self-efficacy, 1 unit on a 4-point scale; worry about contracting HIV/AIDS, 1 = frequently, 0 = not; acculturation, 1 unit on a 5-point scale. *$p < .05$; **$p < .01$.

[a]Two hundred thirty-seven subjects reported occasional sex partners during the past year.

[b]Change in the probability of never using condoms with an occasional sexual partner as a result of a 1-unit change in the independent variable.

[c]Change in the probability of always using condoms with an occasional sexual partner as a result of a 1-unit change in the independent variable.

ally knowing a person with HIV/AIDS ($p < .01$), the results indicate two patterns. First, when men or women reported not knowing a person with HIV/AIDS, males were 22.7% more likely than females always to use condoms with occasional sex partners (marginal effect for gender = 0.227). This percentage drops to 20% when men reported knowing a person with HIV/AIDS. The figure of 20% is derived by adding the marginal effects for male gender (0.227), knowing a person with HIV/AIDS (0.305), and the gender × knowing a person with HIV/AIDS interaction (−0.324), which equal 0.020. Women who reported knowing a person with HIV/AIDS were 30.5% more likely always to use condoms with occasional sex partners (marginal effect for knowing a person with HIV/AIDS = 0.305). Thus, when both men and women reported personally knowing a person with HIV/AIDS, women were 10.5% more likely than men always to use condoms with occasional sex partners. The figure of 10.5% is derived by subtracting the 20% figure for men from the 30.5% figure for women.

Changes in all of the above variables also exerted corresponding influences on the probability of "never" using condoms with occasional sex partners. These effects can be deduced from the marginal effects under the "never" column in the tables. For example, carrying condoms decreased the probability of never using condoms with occasional sex partners by 9.3% for every 1-unit change in this 4-point predictor factor scale (marginal effect for carrying condoms located under the "never" marginal effect column = −0.093).

## Condom Use with Regular Sex Partners

In testing the predictors of condom use with regular sexual partners, a model was fit with independent variables representing the predictor factors and control variables described above. In addition, one extra variable representing the interaction between gender and the predictor factor, carrying condoms, remained significant throughout the backward step procedure and was thus retained and reported here. There were no other significant interactions between gender and any of the other variables.

As shown in Table II, condom social norms exerted a strong effect on condom use with regular sex partners ($p < .05$). Marginal effects for this predictor indicated that condom social norms increased the probability of always using condoms with regular sex partners by 9.6% (per 1-unit change on this 4-point predictor scale) and that condom social norms decreased the probability of never using condoms by 18.7% (per 1-unit change). Having negative attitudes towards condoms exerted a significant effect ($p < .01$) by decreasing the probability of always using condoms by 9.4%,

**Table II.** Predictors of Condom Use with Regular Sex Partners ($N = 369$)[a]

| Variable | Marginal Effect | | $t$ Ratio |
|---|---|---|---|
| | Never[b] | Always[c] | |
| Condom social norms | −0.187 | 0.096 | 2.477* |
| Carrying condoms | −0.499 | 0.371 | 3.911** |
| AIDS knowledge | 0.043 | −0.022 | −1.426 |
| Negative condom attitudes | 0.183 | −0.094 | −3.807** |
| Gender | 0.056 | −0.039 | −.914 |
| Marital status | 0.057 | −0.019 | −3.292** |
| Age | 0.058 | −0.030 | −1.776 |
| Education | 0.013 | −0.007 | −.304 |
| Number of sex partners | −0.043 | 0.029 | .871 |
| Condom self-efficacy | −0.043 | 0.022 | 1.868 |
| Worry about HIV/AIDS | 0.046 | −0.031 | −1.078 |
| Acculturation | −0.048 | 0.025 | 1.104 |
| Know person with HIV/AIDS | 0.090 | −0.061 | −1.972* |
| Years in U.S. | 0.003 | −0.002 | −.446 |
| Carrying condoms × Gender | 0.210 | −0.157 | −2.099* |

*Note.* Units of the independent variables are as follows: condom social norms, 1 unit on a 4-point scale; carrying condoms, 1 = more than half the time, 0 = less than half the time; AIDS knowledge, 1 unit = 17% correct answers (equal to 1 SD); negative attitudes toward condoms, 1 unit on a 4-point scale; gender, 1 = male, 0 = female; marital status, 1 = married, 0 = not married; age, 1 unit = 10 years; education, 1 unit = 5 years; number of sex partners, 1 = more than one partner, 0 = one partner; condom self-efficacy, 1 unit on a 4-point scale; worry about contracting HIV/AIDS, 1 = frequently, 0 = not; acculturation, 1 unit on a 5-point scale. *$p < .05$; **$p < .01$.

[a]Three hundred sixty-nine subjects reported regular sex partners during the past year.

[b]Change in the probability of never using condoms with an occasional sexual partner as a result of a 1-unit change in the independent variable.

[c]Change in the probability of always using condoms with an occasional sexual partner as a result of a 1-unit change in the independent variable.

and by increasing the probability of never using condoms by 18.3%, per 1-unit change on this 4-point predictor scale. Personally knowing a person with HIV/AIDS was significant ($p < .05$) but in the direction opposite from that expected (decreased the probability of always using condoms by 6.1%). Condom efficacy exerted a marginally significant ($p = .06$) influence, increasing the probability of always using condoms by 2.2% per 1-unit change on this 5-point predictor scale.

With regard to control variables, condom use with regular sex partners was predicted by being married ($p < .01$) (decreases the probability of always using condoms by 1.9%). With regard to the significant interaction between gender and carrying condoms ($p < .05$), the results indicated the following patterns. First, when men or women reported that they did not carry condoms, males were 3.9% less likely than females always to use condoms with regular sex partners (marginal effect for gender = −0.039), but this difference is not statistically significant. However, men who re-

ported carrying condoms were 17.5% more likely always to use condoms with regular sex partners. The figure of 17.5% is derived by adding the marginal effects for carrying condoms (0.371), gender (−0.039), and the gender × carrying condoms interaction (−0.157), which equal 0.175. Women who reported carrying condoms were 37.1% more likely always to use condoms with regular sex partners (marginal effect for carrying condoms = 0.371). Thus, when both men and women reported carrying condoms, women were 19.6% more likely than men always to use condoms with regular sex partner (19.6% is derived by subtracting the 17.5% figure for men from the 37.1% figure for women).

## Carrying Condoms

In testing the predictors of carrying condoms, a model was fit with independent variables representing the predictor factors and control variables described above minus the criterion variable itself. In addition, two extra variables, representing the interaction between gender and education and the interaction between gender and marital status, remained significant throughout the backward step procedure and were thus retained and are reported here. Because both of these interactions were with gender, the possibility of a third-order interaction among all three variables was checked and ruled out.

As shown in Table III, condom social norms exerted a strong effect on carrying condoms ($p < .01$) (increasing the probability of always carrying condoms by 11.7% per 1-unit change on this 4-point predictor scale and decreasing the probability of never carrying condoms by 27.5%). Carrying condoms was also predicted by having negative attitudes toward condoms ($p < .01$) (decreased the probability of always carrying condoms by 6.7% per 1-unit change on this 4-point predictor scale and increased the probability of never carrying condoms by 15.9%), condom self-efficacy ($p < .05$) (increased the probability of always carrying condoms by 2.1% per 1-unit change on this 5-point scale), and worry about contracting HIV/AIDS ($p < .05$) (increased the probability of always carrying condoms by 5.5% per 1-unit change on this dichotomous predictor).

With regard to control variables, carrying condoms was also predicted by age ($p < .01$) (decreased the probability of always carrying condoms by 3.5% for every 10-year unit change in this variable) and having more than one sex partner (increased the probability of always carrying by 15.6% on this dichotomous predictor).

With regard to the significant interaction between gender and marital status ($p < .01$), the results indicated that when men or women were not

**Table III.** Predictors of Carrying Condoms ($N = 490$)[a]

| Variable | Marginal Effect: Never[b] | Marginal Effect: Always[c] | *t* Ratio |
|---|---|---|---|
| Condom social norms | −0.275 | 0.117 | 4.282** |
| AIDS knowledge | 0.037 | −0.016 | −1.472 |
| Negative condom attitudes | 0.159 | −0.067 | −3.529** |
| Gender | −0.125 | 0.074 | 1.034 |
| Marital status | −0.111 | 0.060 | −1.833 |
| Age | 0.082 | −0.035 | −2.781** |
| Education | 0.187 | −0.079 | −2.490* |
| Number of sex partners | −0.228 | −0.156 | 5.463** |
| Condom self-efficacy | −0.048 | 0.021 | 2.297* |
| Worry about HIV/AIDS | −0.088 | 0.055 | 2.317* |
| Acculturation | −0.040 | 0.017 | 1.008 |
| Know person with HIV/AIDS | −0.060 | 0.040 | 1.627 |
| Years in U.S. | −0.005 | 0.002 | .799 |
| Education × Gender | −0.126 | 0.064 | −2.790** |
| Married × Gender | 0.233 | −0.156 | 2.174** |

*Note.* Units of the independent variables are as follows: condom social norms, 1 unit on a 4-point scale; knowing a person with HIV/AIDS, 1 = yes, 0 = no; AIDS knowledge, 1 unit = 17% correct answers (equal to 1 SD); negative attitudes toward condoms, 1 unit on a 4-point scale; gender, 1 = male, 0 = female; marital status, 1 = married, 0 = not married; age, 1 unit = 10 years; education, 1 unit = 5 years; number of sex partners, 1 = more than one partner, 0 = one partner; condom self-efficacy, 1 unit on a 4-point scale; worry about contracting HIV/AIDS, 1 = frequently, 0 = not; acculturation, 1 unit on a 5-point scale. $*p < .05$; $**p < .01$.

[a]Eleven subjects dropped from analysis due to missing data.

[b]Change in the probability of never using condoms with an occasional sexual partner as a result of a 1-unit change in the independent variable.

[c]Change in the probability of always using condoms with an occasional sexual partner as a result of a 1-unit change in the independent variable.

married, males were 7.4% more likely than females always to carry condoms (marginal effect for gender = 0.074) but this difference was not statistically significant. However, when both men and women were married, women were 6% more likely always to carry condoms (marginal effect for marital status = 0.060) and men were 2.2% less likely. The 2.2% figure is derived by adding the marginal effects for gender (0.074), marital status (0.060), and the gender × marital status interaction (−0.156), which equal −0.022). Thus, when both men and women were married, women were 8.2% more likely than men always to carry condoms. The figure of 8.2% is derived by subtracting the −0.022 figure for men from the 0.060 figure for women, which equals 0.082.

The variable representing education exerted an influence on carrying condoms ($p < .01$) which was in the opposite direction expected and for both men and women. Women were 7.9% less likely to always carry condoms for every 5-year interval increase in education. They were also 18.7% more

likely never to carry condoms for every 5-year interval increase in education. Men were 1.5% less likely to always carry condoms and 6.1% more likely never to carry them for every 5-year interval of education.

## DISCUSSION

Results of the current study were instructive in better understanding condom use in Mexican migrant laborers. Condom social norms strongly predicted carrying condoms, as well as condom use with regular sex partners, but did not predict condom use with occasional sex partners. Thus, procondom social norms appear to play an important role in preparedness to use condoms (i.e., carrying condoms), as well as condom use in presumably more intimate sexual relationships, but they may play a less important role than other factors when it comes to occasional sex partners. This link between reported condom social norms and condom use builds upon prior research linking condom use to perceived condom social norms in U.S. Latinos (Marin, Gomez, & Tschann, 1993) and Mexican migrant laborers (Organista, Balls Organista, García de Alba G., & Castillo Morán, 1997).

With regard to the second research question, items tapping perceived risk for contracting HIV predicted carrying condoms, as well as condom use with occasional sex partners. These are important findings given that 82% of single men, and 27% of married men, in this sample reported multiple sex partners during the past year (Organista, Balls Organista, García de Alba G., Castillo Morán, & Ureta Carrillo, 1997). It may be important to increase individuals' awareness of potential risk given that participants reported that they only "sometimes" worry about contracting HIV/AIDS and that they generally do not know anybody with HIV/AIDS.

There was an interesting interaction between gender and personally knowing a person with HIV/AIDS in the analysis that predicted condom use with occasional partners. Men were more likely than women to always use condoms when both men and women reported not knowing a person with HIV/AIDS. However, women were actually 10% more likely than men to always use condoms when both men and women reported knowing a person with HIV/AIDS. This finding suggests that migrant women may be more responsive to perceived risk than migrant men, perhaps because of their central role in protecting the health of their families.

The finding that personally knowing a person with HIV/AIDS predicted less condom use with regular sex partners is puzzling but suggests that while this predictor may increase condom use with occasional sex partners, it may not do so in ongoing relationships where it is culturally inappropriate to use condoms (Marin, Gomez, & Tschann, 1993). Previous research on Mexican

migrants (Organista, Balls Organista, García de Alba G., Castillo Morán, & Carrillo, 1996; Organista, Balls Organista, García de Alba G., Castillo Morán, & Ureta Carrillo, 1997) and U.S. Latinos (Marin, Gomez, & Hearst, 1993) has consistently shown that the frequency of condom use with a regular sex partner is significantly lower than that with occasional partners. Reasons speculated for this consistent difference include viewing condoms as a threat to primary relationships, couples attempting to get pregnant, and the use of other contraceptives. In one study Marin, Gomez, and Hearst (1993) even concluded that it is far more feasible to focus condom promotion efforts on getting men to use condoms consistently with occasional sex partners than it is to use condoms consistently with a primary partner. Although this seems to be the logical priority, previous research documenting risk in the regular sex partners of male migrant laborers warrants continued attention to this group (e.g., Lopez & Ruiz, 1995).

With regard to the third research question, carrying condoms did indeed predict both condom use with occasional and condom use with regular sex partners, consistent with past research on U.S. Latinos (Marin, Gomez, & Tschann, 1993) and Mexican migrant laborers (Organista, Balls Organista, García de Alba G., & Castillo Morán, 1997). For example, participants were 12.5% more likely to always use condoms with occasional sex partners for every 1-unit change in the 4-point predictor scale representing the frequency of carrying condoms (1 = never, 2 = almost never, 3 = sometimes, 4 = always). Theoretically, this means that changing Mexican migrants 4 units, from "never" to "always" carrying condoms, will increase their probability of always using condoms with occasional sex partners to 50% (i.e., 4 units × 12.5%).

The above point is important to underscore considering that 66% of the current sample reported "never" or "almost never" carrying condoms (Organista, Balls Organista, García de Alba G., Castillo Morán, & Ureta Carrillo, 1997). In fact, 76.6% of migrant women in the sample reported "never" carrying condoms and believed that they would be perceived as promiscuous for doing so. Hence, a culture- and gender-sensitive approach to promoting carrying condoms is highly warranted and can be informed by this study. For example, carrying condoms could be enhanced by decreasing negative attitudes toward condoms and by raising condom self-efficacy.

In addition, the marital status of men and women must be considered in condom promotion efforts. For example, even though men generally carried condoms more frequently than women, married men reported that they were less likely to carry condoms than married women. This finding underscores the need to target married men not only to carry condoms but to use them with their sexual partners. Efforts are needed especially considering that married men are just as likely as single men to have sex

with prostitutes while in the United States, yet they are less likely to use condoms (Organista, Balls Organista, García de Alba G., Castillo Morán, & Ureta Carrillo, 1997). Being married was also found to be related to less condom use with regular sex partners, reinforcing the above argument.

Although few, married women who carry condoms would be an important subgroup of migrant women to study in the future given the pronounced stigma attached to carrying condoms and the preference of these women for nonbarrier contraceptives for birth control. For example, between 40% and 60% of migrant women surveyed reported some form of nonbarrier contraceptive use (Balls Organista *et al.*, 1998; Organista, Balls Organista, García de Alba G., Castillo Morán, & Ureta Carrillo, 1997). Perhaps being married decreases the stigma of carrying condoms, especially if used as a method of birth control.

On a related note, the gender × carrying condoms interaction that we found in the analysis of condom use with regular sex partners revealed that when both men and women carry condoms, women are much more likely than men to always use condoms. Considering that 77% of women in this sample reported never carrying condoms (Organista, Balls Organista, García de Alba G., Castillo Morán, & Ureta Carrillo, 1997), this finding suggests that the few women who carry condoms do so for use in ongoing intimate relationships, probably as a form of birth control. The gender × education interaction that we found revealed an inverse relation between education and carrying condoms. It is difficult to know how to account for this counterintuitive finding. Given that participants averaged less than 8 years of education, this finding may have limited meaning.

With regard to the fourth research question, condom self-efficacy did indeed predict carrying condoms and condom use with occasional sex partners, consistent with recent research on U.S. Latinos (Marin, Gomez, & Tschann, 1993). Condom self-efficacy was also a marginally significant predictor of condom use with regular sex partners ($p = .06$). As such, condom self-efficacy appears to be a particularly important factor to consider in condom promotion efforts with Mexican migrant laborers. Strategies to increase the ability to insist on condom use in challenging sexual situations will need to identify carefully specific high-risk situations that are most difficult for migrant laborers (e.g., when sexually deprived migrant men are approached by prostitutes in bars where the men have been drinking; when two men find themselves wanting to have sex with each other either because of the unavailability of women or because of homosexual/bisexual attraction).

In summary, it appears that factors such as condom social norms, perceived risk, carrying condoms, and condom self-efficacy have overlapping influence across the three forms of condom use explored. These factors warrant inclusion in condom promotion efforts with Mexican migrant labor-

ers. For example, all four of these important factors could be addressed simultaneously by involving Mexican migrants themselves in condom promotion efforts that (1) increase perceived risk (e.g., by reviewing pertinent HIV exposure categories related to migratory labor, perhaps by arranging for Mexican migrants with HIV to participate in prevention efforts), (2) communicate positive attitudes toward condoms (e.g., that condoms do not decrease sexual pleasure as much as anticipated), (3) normalize and endorse condom use (e.g., via self-disclosure of use), and (4) increase condom self-efficacy (e.g., through role-playing or showing video vignettes of negotiating condom use in high risk situations) (Balls Organista & Organista, 1998).

It appears that promoting the behavior of carrying condoms, or at least keeping condoms handy, may be a crucial first step in preparing Mexican migrant laborers for safer sexual relations, given that carrying condoms predicts condom use with both occasional and regular sex partners. In addition, condom use with occasional sex partners (e.g., with prostitutes, sex between men) should be targeted given that migratory labor accentuates this major HIV exposure category (Organista & Balls Organista, 1997). Finally, although condom use with regular sex partners is secondary to occasional sex partners in the target population, our findings suggest that even this infrequent and interpersonally sensitive form of condom use might be enhanced as discussed above.

Although demographic and lifestyle variables were included as control variables in the current analyses, a couple of noteworthy patterns suggest areas for special emphasis when implementing condom promotion services. First, older age consistently predicted less condom use with occasional partners and carrying condoms, suggesting that extra measures must be taken to target reluctant older migrants. Having multiple sex partners predicted condom use with occasional sex partners, as well as carrying condoms, suggesting that migrants with fewer sex partners will need more persuasion. Interestingly, level of acculturation, as well as time spent in the United States, did not predict condom use, indicating that either these variables are relatively less important than the significant predictors reviewed or there was too little variance in these variables in the current sample.

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