Latinas and HIV/AIDS Risk Factors: Implications for Harm Reduction Strategies

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Objectives. We examined risk factors for HIV infection among Puerto Rican and Mexican American women aged 15 through 44 years.

Methods. We used data from the 1995 National Survey of Family Growth. Analyses focused on the relation between sex role attitudes, sex education, anxiety, and consistent condom use.

Results. Nearly 60% of Puerto Rican and Mexican American women received no sex education from parents. Twenty-one percent of Puerto Rican and 38.3% of Mexican American women reported no sex education in schools. Women with some sex education in school, less than 13 years of education, or higher sex role attitude scores were more likely than other women to have partners who consistently used condoms.

Conclusions. Harm reduction interventions must be designed to reach multiple Latino audiences by age, gender, and subgroup (*Am J Public Health.* 2004; 94:1152–1158)

Increases in the overall rate of HIV infection/AIDS (HIV/AIDS) in the last 2 decades have disproportionately burdened Latino women (hereinafter referred to as Latinas). HIV/AIDS is the fourth leading cause of death for Latinas aged 25 through 44 years in the United States. In 2000, Latinas represented 11.7% of the total female US population.[1] Women of Mexican origin (54.3%) are the largest subgroup followed by women of Puerto Rican origin (9%).[2] More than half of Mexican origin (51.8%) and Puerto Rican (65.5%) women have completed high school. Mexican American women are more likely to be married than Puerto Rican women but equally likely to be poor because of concentration in low-skilled and low-paying employment sectors.[1–5]

Latinas now represent 20% of women ever diagnosed with AIDS and have an AIDS case rate that is strikingly higher (14.9 per 100 000) than that of non-Hispanic White women (2.3 per 100 000).[6] More than half of all cases are reported to be caused by heterosexual intercourse (64%), whereas 34% are caused by injection drug use.[6,7] Latino men (hereinafter referred to as Latinos) have case rates that are 3 times higher than those of non-Hispanic White men, and the HIV/AIDS status of these men is important for 2 reasons: Latinos are the potential partners of Latinas, and attitudes regarding safe sex practices are particularly important for prevention of the transmission of HIV/AIDS.[7–9] Data on northeastern states suggest that Puerto Ricans have the highest case rates among Latino subgroups. Two of the regions with the highest female AIDS case rates are New York state (where Puerto Ricans are the predominant Latino subgroup) and Puerto Rico (29.9 per 100 000 and 21.2 per 100 000, respectively).[6,7] Among Latinos/as with AIDS, 55% were born on the island of Puerto Rico and 21% were born in Mexico.[8,10]

With few exceptions, prior investigations on risk factors associated with HIV/AIDS have focused on Latino adolescent risk behaviors[11,12]; Latino male sexual behavior associated with alcohol and drug use[13,14]; factors predictive of gay men's risk behavior[15–21]; and perceived vulnerability to risk.[3,16,22] Much less is known about the prevalence and nature of risk behaviors among Puerto Rican and Mexican-origin women.

Four major factors associated with risk for HIV/AIDS include social and cultural factors, such as traditional sex role socialization, low socioeconomic status that is associated with lack of knowledge, limited parent–child communication about contraceptive use, and limited exposure to sex education and health education in school and community-based settings.[23–28] Latinos are less likely to feel comfortable in negotiating the use of condoms and in using condoms than African Americans and non-Hispanic Whites.[29–31] Latinas are less likely than African American women and slightly more likely than non-Hispanic White women to get tested for HIV/AIDS.[32] These factors all constitute barriers to Latinas' ability to take protective steps against HIV/AIDS.

We (1) examined differences in demographics, sex role attitudes, sex education sources, and anxiety among Mexican American and Puerto Rican women; (2) examined differences in demographics, sex role attitudes, sex education sources, and anxiety within subgroups; and (3) assessed predictors of consistent condom use by subgroup. These data provide important information on the sexual behaviors and attitudes of the largest subgroups of Latinas and can guide ethnic-specific interventions that have health-promoting effects.

METHODS

Data were from cycle 5 of the 1995 National Survey of Family Growth.[33] The sample was selected from households that participated in the 1993 National Health Interview Survey. All respondents were asked what their main Hispanic national origin or ancestry was regardless of racial background. All respondents aged 15 through 44 years who identified as Mexican (n=833) or Puerto Rican (n=193) and who had responses for all items were included. The response rate was 79%. Results were weighted to reflect the US population according to the US Census Bureau 1995 March Current Population Survey.[34]

Measures

Data included sociodemographic (8 items), parental and school sources of sexual education (7 items), sexual behaviors (2 items), and

sex role attitude and anxiety scales. Sociodemographic data included age, marital status, annual individual income, educational level, language of interview, place of birth, and number of years in the United States. Two items on place of birth and length of time in the United States were used to group respondents into 3 groups. Group 1 included respondents born in the United States; Group 2 included women not born in the United States but who had resided in the United States for 5 years or less; and Group 3 included women not born in the United States but who had resided in the United States 6 years or more.

Data regarding sources and type of sex education were self-reported by a response of yes or no to specific questions. Four items asked whether respondents had ever had sex education in schools on safe sex, sexually transmitted diseases (STDs), abstinence, or birth control methods. Three items asked whether parents ever talked about STDs, birth control methods, or how pregnancy occurs. An additive scale (0 to 4 sources) was used to summarize the number of information sources reported by the respondent from school and another scale (from 0 to 3) was used to summarize the number of reported information sources from parents.

Two questions about sexual behaviors were asked. One asked for the number of lifetime male sexual partners of both married and unmarried women who reported having sexual intercourse. The other, "How often did you or your partner use condoms for disease protection in the last 12 months" was a self-report item with 5 response options regarding the frequency of condom use by the respondent's male partner. (Self-reported behaviors may not be representative of actual behavior, correctness of the use of the condoms, or the quality of the brand of condom used.)

Two standardized scales on sex role attitudes and anxiety were used. The sex role attitude scale had 18 Likert-type items rated on a 4-point scale (from strongly agree to strongly disagree). Using the National Center for Health Statistics recommendation for summing the scores on the scales, we computed a separate variable based on the distribution of responses. Summed scores ranged from 3 to 55, with higher scores indicating more egalitarian sex role attitudes. Reported scores of 41 or higher out of a possible score of 55 (one third of the responses) were classified as having a high sex role score. The anxiety scale consisted of 9 items (with each of the options recoded so that the response "yes" was coded as 1 and the response "no" was coded as 0). Summed scores ranged from 1 to 9, with higher scores indicating higher anxiety. Data reported are for those who scored 5 or higher by subgroup (this reflected 39% of the Latino subgroup) (oral communication from M.D. Bramlett, PhD, October 2000).

Multivariate Analyses and Tests of Significance

The major dependent variable in the logistic regressions was consistent condom use. It was recoded for all respondents who reported using a condom "all of the time" versus all others. Seven independent variables were included in the logistic regressions: age, income, years of schooling, interview language, high sex role attitude score, sources of sex education (these are dichotomized [1=0, 2=1 or more sources]), and high anxiety score (high=scores of ≥5; low=scores of ≤4). We conducted 2 parallel multiple regressions to acknowledge known differences in risk factors within and between ethnic subgroups.[1,3,5,7]

Tests of significance were conducted (using SUDAAN; Research Triangle Institute, Research Triangle Park, NC) to determine the statistical significance of the findings. SUDAAN is designed to account for the multistage sampling strategies used in National Center for Health Statistics health surveys. The Student *t* test was used to determine the statistical significance of 2% or means being compared in the analysis and to test the significance of the coefficients reported in the regression analyses. Only statistically significant differences ($P<.05$) are discussed.

RESULTS

Table 1 displays selected sociodemographic characteristics of Puerto Rican and Mexican American women. Significant differences between Puerto Ricans and Mexican Americans by age, marital status, educational level, and nativity were observed. Puerto Rican women were more than twice as likely as Mexican American women to be in the youngest age group and were all US born (i.e., in any of the 50 states) compared with only 57.1% of Mexican American women. In contrast, Mexican American women were more likely to have ever been married and to have completed less than 7 years of schooling.

Sources of Sex Education

Table 2 displays the reported number and sources of sex education received by subgroup. Mexican American women were almost twice as likely as Puerto Rican women to report no school-based sex education. More than half of the Puerto Rican and Mexican American women did not receive parental sex education on STDs, birth control, or how pregnancy occurs. Only about one quarter of Mexican American women, compared with about one third of Puerto Rican women, reported that parents talked to them about STDs and birth control.

The lower panel of Table 2 presents selected reported sexual behaviors, anxiety, and sex role scores by subgroup. Thirty percent of Puerto Rican women compared with 19.2% of Mexican American women reported using a condom for disease protection "all of the time." One of the factors that may influence consistent condom use is sex role attitudes. Mexican American women (52.9%) were almost twice as likely as Puerto Rican women (31.4%) to report more traditional sex roles. Slightly over one half (51.5%) of the Puerto Rican women reported high anxiety over the last 6 months compared with 44% of the Mexican American women.

Correlates of Consistent Condom Use

Table 3 displays the odds ratios and confidence intervals of those factors that are associated with consistent use of condoms for disease protection "all of the time" for each group. Similar relations were found between age, educational level, sex role attitudes, sex education, and reported consistent condom use by the male partners of both the Puerto Rican and the Mexican American women. Puerto Rican and Mexican American women—who had some sex education in the schools, completed less than 13 years of education ($P<.01$), or reported higher sex role attitude scores ($P<.001$)—were more likely than other Puerto

TABLE 1—Selected Sociodemographic Characteristics of Puerto Rican and Mexican American Women Aged 14 Through 44 Years: United States, 1995[a]

	Puerto Rican (n = 816), %	Mexican American (n = 3 415), %	Student *t* Test
Age, y			3.22*
14–19	19.7	9.9	
20–29	34.4	38.9	
30–44	45.8	51.2	
Marital status			4.41*
Ever married	55.4	72.6	
Never married	44.6	27.4	
Income, $			NS
< 16 000	39.6	32.7	
16 000–29 999	19.4	30.1	
≥ 30 000	41.0	37.3	
Educational level, y			5.29*
< 7	5.1	15.8	
7–11	35.8	32.3	
12	33.3	31.0	
≥ 13	25.8	21.0	
Language of interview			NS
English	76.3	68.9	
Spanish	7.2	17.3	
Spanish and English	16.4	14.6	
Place of birth and length of time in United States			25.02**
US born	100.0	57.1	
Lived in US < 5 y	0.0	8.9	
Lived in US ≥ 5 y	0.0	34.0	

Note. NS = Not significant.
[a]Total population for each group is in thousands. Results were weighted to proportionately represent the 1995 US population according to the 1995 March Current Population Survey.[34]
*P = .01 ; ** P = .001.

Rican and Mexican American women to have partners who consistently used condoms. In addition, younger (aged 14 through 19 years) Puerto Rican and Mexican American women were more likely than older Puerto Rican and Mexican American women to have partners who consistently used condoms (P<.001).

In contrast, the relation between reported consistent condom use and income, the language of the interview, and the anxiety scale score varied within subgroup. Puerto Rican women who had high anxiety scores (P< .001), whose interview language was not English (P<.05), and who lived in families with incomes between $16 000 and $29 999 ($P$<.05) were less likely than other Puerto Rican women to have male partners who consistently used condoms. Mexican American women who had low anxiety scores (P<.05), whose interview language was English (P<.001), and who lived in families with incomes above $16 000 per year ($P$<.001) were less likely than other Mexican American women to have male partners who consistently used a condom.

DISCUSSION

We sought with this study to enhance our understanding of sexual behaviors among Latinas that may increase the risk of HIV/AIDS transmission. The sociodemographic profile, parent–communication patterns, and sexual behavior patterns appear to be representative and confirm other findings.[3,35–40] The most striking findings are that about 60% of the sample received no sex education from parents, and about one fifth of Puerto Ricans and almost 40% of Mexican Americans reported no sex education in schools. Transmission of information on safe sex practices is viewed as the primary domain of parents and schools. When a mother speaks to her daughter about protective sexual practices, she reduces her daughter's risk of becoming sexually active, becoming pregnant, and contracting an STD.[36,38,41] Latino parents tend not to discuss sexuality with daughters. Several reasons may account for this. Religious beliefs in practices such as abstinence and virginity until marriage, cultural-specific beliefs that sexual knowledge may promote sexual activity, lack of knowledge, and discomfort with the topic are barriers to daughter–parent communication. In addition, traditional religious institutions may not be as significant a source of sex education for Latinas as has been witnessed in other interfaith and denominational organizations.[42]

Receipt of sex and health education in schools is an important source of information to increase knowledge and reduce high-risk health behaviors.[43,44] Standards and types of sex education provided by public schools reveal strong state differences in philosophic orientation to sex education, and few states have a comprehensive sex education program for secondary school students.[45,46] Schools in those states of highest Latino concentration are most likely to not require any sex education or teach abstinence only (7 states). Only 3 states—New Jersey, New Mexico, and California—provide sex education in both abstinence and contraceptive options.[45] Because about half of the people in the study sample did not complete high school, it may be that schools are not the most viable vehicle for sex education.[4] For those who remain in school, sex education is not often required. Thus, an important opportunity to transmit this information is lost.

It is noteworthy that 33% of the Puerto Rican sample and 45% of the Mexican American sample said they do not use condoms at all, which places them at high risk for transmission of HIV/AIDS. For Puerto Rican women, more consistent use of condoms may be associated with more education, higher incomes,

TABLE 2—Sources of Sex Education, Reported Sexual Behaviors, Anxiety, and Sex Role Attitude Scores for Puerto Rican and Mexican American Women Aged 14 Through 44 Years: United States, 1995

	Puerto Ricans (n = 816 000), %	Mexican Americans (n = 3 415 000), %	Student *t* Test
Source of sex education			
Reported number of school sex education sources			2.49*
0	21.0	38.3	
1–2	22.7	19.4	
3–4	56.3	42.3	
Ever had sex education on safe sex?			
Yes	69.0	48.7	
No	31.0	51.3	
Ever had sex education on STDs?			
Yes	70.2	51.7	
No	29.8	48.3	
Ever had sex education on abstinence?			
Yes	60.3	47.8	
No	39.7	52.2	
Ever had sex education on birth control?			
Yes	70.3	53.5	
No	29.7	46.5	
Reported number of parental sex education sources			
0	55.2	64.1	
1–2	20	18.4	
3	24.8	17.5	
Parents ever talked about STDs?			
Yes	31.1	23.5	
Parents ever talk about birth control?			
Yes	32.9	24.3	
Parent ever talk about how pregnancy occurs?			
Yes	39.0	31.5	
Reported sexual behaviors			
Lifetime number of male sexual partners			
1	27.9	50.5	
2	18.2	17.3	
3	19.7	7.5	
4–6	16.5	14.5	
≥7	16.4	10.7	
Condom use for disease protection			3.03*
All of the time	30.0	19.2	
More than half of the time	13.0	12.3	
Half of the time	11.1	11.1	
Less than half of the time	13.2	13.2	
Not at all	32.6	45.3	
Anxiety score[a]			2.98*
High	51.5	44.2	
Sex role attitude scores			4.42*
Low	31.4	52.9	
Medium	34.5	30.1	
High	34.1	17.1	

Note. STD = sexually transmitted disease.
[a]Data reported are for those who scored 5 or higher (considered a "high" score), by subgroup.
*P = .01.

less traditional sex role attitudes, more parental and school sex education information, and presumably more access to health information.[24,35,38] Associated with low rates of condom use and fewer safe sex messages reaching Latinas may be their perceived inability to negotiate safe sex practices with a partner and their culture-specific sex role attitudes.[15,47,48] The negotiation with men to engage in protected sex is a pervasive issue for all women but particularly for low-income Latinas.[24,25]

The relation between anxiety, sex role attitudes, and sexual behaviors is unknown, as life stressors were not measured in this cross-sectional study. However, for Latinas, low education, low income, or immigration may be associated with more anxiety and depression, more traditional sex role attitudes, less knowledge, and less perceived power or assertiveness skills to negotiate safe sexual behavior effectively.[24,35,37,38] Other studies have found that anxiety is associated with the presence of undetected or untreated mental health problems or engaging in risk behaviors that are not culturally sanctioned, such as use of alcohol and drugs.[42,49] As noted previously, 28% of all HIV/AIDS cases reported among Latinas are due to injection drug use.[7] Future studies need to explore a broad set of factors, including substance use, to increase our understanding of the role of cultural-specific protective factors in the transmission of HIV/AIDS.[16,50,51] The intersection of ethnicity, gender, and socioeconomic status appears to be strongly associated with Latinas' increased risk for HIV/AIDS. In effect, low-income Latinas experience multiple challenges to safe sex practices that include less likelihood that they will communicate with providers, financial worries that may overshadow safe sex concerns, lack of access to safe sex education resources, and low perceived vulnerability.[3,16,22,31,32,48,52]

Implications for Harm Reduction Strategies

The question of how to reach the target audience in a culturally appropriate and health-promoting way is compelling. Our data reinforce the distinct differences in predictors of risk reduction and health promotion by Latino subgroup. These findings have important implications for interventions at the community

TABLE 3—Correlates of Condom Use for Disease Protection All of the Time (Odds Ratios and 95% Confidence Intervals) for Puerto Rican and Mexican Women Aged 14 Through 44 Years, by Selected Characteristics: United States, 1995[a]

	Puerto Ricans	Mexican Americans
Age, y		
14–19	1.32** (1.31, 1.33)	2.68** (2.67, 2.69)
20–29	0.80 (0.79, 0.81)	0.92 (0.91, 0.93)
30–44	1.00 . . .	1.00 . . .
Income, $		
<16 000	1.00 . . .	1.00 . . .
16 000–29 999	0.86* (0.85, 0.87)	0.55** (0.54, 0.56)
≥30 000	1.06 (1.05, 1.07)	0.55** (0.54, 0.56)
Educational level, y		
<7	3.16 ** (3.10, .3.22)	1.35 ** (1.33, 1.37)
7–12	2.06 ** (2.05, 2.07)	1.19 ** (1.18, 1.20)
≥13	1.00 . . .	1.00 . . .
Interview language was English		
Yes	1.14 * (91.14, 1.15)	0.58** (0.58, 0.59)
No	1.00 . . .	1.00 . . .
High sex role attitude score		
Yes	1.95 ** (1.94, 1.96)	1.77 ** (1.76, 1.78)
No	1.00 . . .	1.00 . . .
Sources of sex education		
1	1.46 ** (1.44, 1.48)	2.13** (2.12, 2.14)
2	1.00 . . .	1.00 . . .
Anxiety scale score[b]		
High	0.69** (0.67, 0.71)	1.42* (1.41, 1.43)
Low	1.00 . . .	1.00 . . .
No.	193	833
χ^2 test	31563.144	105805.951
df	10	10
P	.0001	.0001

[a]For persons who had at least 1 male sexual partner.
[b]Data reported are for those who scored 5 or higher (considered a "high" score), by subgroup.
* *P*<.05; ** *P*<.001.
Source. National Study of Family Growth.[33]

and school level. Interventions in the Latino community are challenging, and multiple reasons can account for prior ineffective interventions.[25,53,54] For both groups of Latinas, baseline information on sexual knowledge, attitudes, and practices has not been previously available, and it was assumed that parents and schools provided basic knowledge. New emphasis on abstinence as the only option will erode gains made in safe-sex practices. In addition, the higher prevalence of HIV infection among Latinos/as reflects multiple barriers to quality screening and prevention services, including lack of insurance, lack of transportation, discomfort with sex education designed for English-speaking persons, concerns about stigma and confidentiality, and sociocultural and normative beliefs.[16,23–28,55]

Harm reduction interventions must not be individual oriented or Latino generally oriented but designed to reach ethnic subgroup–specific audiences: women, potential male partners, and parents of both male and female youths. Increasingly, the evidence shows that approaches in Latino communities must be intergenerational, ethnic-specific, culturally and linguistically appropriate, and community integrated.[56,57] Information-oriented and skill-building interventions (sex education combined with communication assertiveness, relationship power, and negotiation skills) can promote health-enhancing behaviors among Latinas.[58–62] Community infrastructure resources, such as churches and schools that serve families and youths, are central to improving sex education in Latino communities.[41,63,64]

Overall, the Healthy People 2010 objectives do not have specific targets for harm reduction and prevention of HIV/AIDS for Latinos/as, although targets have been set for gender, developmental age, and mode of transmission. A relevant goal is to increase the proportion of middle, junior high, and senior high schools that provide school health education in priority areas with HIV/AIDS included. The objective is to have the proportion of schools that have the individual health education component of unintended pregnancy, HIV/AIDS, and STD information increase from 65% (1994 baseline) to 90% (2010 target).[65] Two questions require consideration in implementing these goals: How will school districts respond to this priority area in view of new shifts to abstinence-only sex education programs? How will these programs be implemented in a manner that is linguistically, culturally, and literacy appropriate?

Sex education in schools is almost nonexistent.[45] Comprehensive sex education programs have to be based within schools, incorporated into after-school programs, or established in community-based centers to increase opportunities to reach larger numbers of Latino youths and parents.[50,55] Because low-income parents are less likely to discuss sex education with their children than middle-class parents, in future interventions, parents as well as youths need to be targets for sex information and for communication skills. Because Mexican-origin and Puerto Rican women tend to have children at younger ages, these parents would be relatively young, and an intervention would be a primary prevention opportunity that could be used to extend their knowledge on health-promoting sexual behaviors. Schools must tailor their programs to the specific cultural, linguistic, and educational level of Latino ethnic groups in their districts to help meet the 2 most pressing needs in the Latino community—access to health services

and education.[2] Because Latinas have a higher prevalence of 1 or more family members being infected with HIV/AIDS, more attention needs to be focused on family and community interventions.[66]

Caution in the interpretation of these data is warranted. Methodological issues of social desirability and acquiescent responses or Latinas' discomfort in discussing these issues may have influenced reporting of sexual behaviors.[67] Nonetheless, these findings provide valuable insights into risk factors that must be addressed at the individual, family, and community level to prevent the transmission of HIV/AIDS in the next generation of Latinas. ■

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Contributors

R.E. Zambrana and L.J. Cornelius designed the study plan, analyzed the data, and wrote the article. All authors reviewed the article, contributed to data interpretation, and provided substantial suggestions for revisions.

Human Participant Protection

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