

Increasing HIV-related Knowledge, Communication, and Testing Intentions among Latinos: *Protege tu Familia: Hazte la Prueba*

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Abstract: Latinos are less likely to be aware of their HIV seropositivity than African Americans and Whites. *Protege tu Familia: Hazte la Prueba* is a culturally and linguistically-sensitive HIV/AIDS prevention and testing program targeting Latino families. Using community-based participatory research techniques, Spanish-speaking bicultural community health workers helped develop and then used an educational flip chart and materials to conduct outreach and HIV prevention education in diverse settings. The intervention was created to increase HIV/AIDS-related knowledge, to improve communication regarding sexual risk, and to augment intentions to use condoms and test for HIV. A secondary purpose was to decrease HIV-related stigma by improving knowledge about transmission and reducing homophobia. Participants demonstrated significant increases in HIV knowledge, intention to practice safer sex and communicate sexual risk to partner(s), and intention to test for HIV. Improvements were also found in self-reported comfort levels when interacting with and caring for the HIV positive, thus decreasing HIV/AIDS-related stigma.

Key words: HIV, AIDS, prevention, Hispanic, Latino, culture, family, community-based participatory research.

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The Centers for Disease Control and Prevention's¹ improved HIV incidence surveillance system documented that 56,300 people were newly HIV-infected in the U.S. in 2006, compared with prior estimates of 40,000. In addition, recent prevalence estimates indicate that 1.1 million adults and adolescents, including nearly 200,000 Latinos, were living with diagnosed or undiagnosed HIV infection in 2006,¹ and an estimated 21% of those infected are not aware of their infection.^{2,3} Although the HIV epidemic has stabilized to some extent, CDC's revised estimates indicate an under-reporting of new HIV infections and portend the need to expand HIV prevention and treatment programs and HIV testing to reach populations who may not perceive themselves as at-risk for HIV.^{1,3,4}

According to the revised CDC HIV prevalence and incidence data, Latinos* continue to be disproportionately affected by HIV and AIDS.^{2,5} Although Hispanics* accounted for 15% of the U.S. population in 2006, they constituted 19% of those diagnosed with AIDS and 18% of those newly diagnosed with HIV, a rate nearly three times that of non-Hispanic Whites.^{2,5} When compared with all racial/ethnic groups, Latinos are more likely to be diagnosed later in the course of infection, to progress more rapidly to an AIDS diagnosis (within 12 months), and to die from AIDS-related complications within 18 months of HIV diagnosis.^{5**} Among a Los Angeles sample, 44% of Latinos (compared with 33% of African Americans and 20% of Whites) learned of their HIV status less than one month before having an AIDS diagnosis, underscoring the need for Latino-specific targeted efforts to avoid early detection failures.⁸ In addition, Latinos with AIDS in Los Angeles County were more likely than all other racial/ethnic groups to report an *other/undetermined* HIV infection risk factor (15% of Latinos with AIDS in Los Angeles County and 28% of Latinas).⁵¹

One source of the increase of HIV in Latino communities is heterosexual contact. From 2001 to 2006, Latinos represent the only racial/ethnic group in which heterosexual HIV infection nearly doubled among both males (5% to 8%) and females (23% to 52%), a trajectory that mirrors the course of infection in some African and Latin American countries.^{6,12,13} The prevalence of heterosexual infection in the Latino population is a matter for concern, as it may increase the probability of infection among individuals who are less apt to be tested for HIV and more likely to be diagnosed at an advanced stage. Many Latinas in long-term monogamous heterosexual relationships do not consider themselves as being at risk for HIV because they perceive it as a disease that

* The terms *Hispanic* and *Latino* are used interchangeably by the U.S. Census Bureau and throughout this document to refer to people of Mexican, Puerto Rican, Cuban, Central and South American, Dominican, Spanish, and other Hispanic descent; they may be of any race.

** It is important to note that due to name-based reporting restrictions, the CDC 2007 surveillance report published in 2009 includes HIV-specific data for only 34 states and five dependent areas.⁶ The exclusion of Latino strongholds such as California, Illinois, Connecticut, and Massachusetts from data collection left approximately two-fifths of the nation's Hispanics uncounted, resulting in poor Latino-specific estimates. This means that while HIV Latino statistics are alarmingly high, they could actually be higher.⁷ Beginning April 2008, with required name-based reporting, data became available for all 50 states, the District of Columbia and five dependent areas.⁶ However, states must have completed name-based reporting for four calendar years to be counted, which will leave HIV prevalence data incomplete for the Latino population for several years to come.

only affects homosexuals, sex workers, and injection drug users.^{12,17} Consequently, they are often unaware that they are at risk for HIV until their partners become ill, they are tested during pregnancy, or they develop symptoms.^{18,19} Furthermore, homophobia within the Latino culture often contributes to male sexual risk-taking behaviors that remain hidden from primary partners and exacerbate the effects of HIV/AIDS on Latinas and the Latino family overall.¹⁶

The risk of HIV infection within a heterosexual relationship is compounded by cultural factors influencing gender roles in Latino families including *machismo* and its gendered opposite *marianismo*, limited communication and education about sexual health and risks, denial of infidelity, and the socioeconomic dependence of women on their male partners.^{35,50-53} *Machismo*, or the cultural expectations of male dominance, virility and protection, and *marianismo*, the perception that women should remain submissive to their male partner's will and desires, strongly influence gendered roles within Latino families. The belief that sex and sexuality-related knowledge and communication are within the male gendered domain leads to tenuous and unspoken expectations related to the Latino male's ability and willingness to communicate issues related to sexual risk with his primary partner. Furthermore, sexuality risk-related discussions can also imply a lack of respect (*respeto*) and trust (*confianza*) within Latino couples and may not only impede HIV prevention dialogue, but also be seen as threatening to the foundation of the relationship.^{54,55}

The lack of culturally sanctioned discussions associated with sexual risk in Latino couples aggravates the discomfort and improbability of family-based discussions of sexual health or condom use.²⁰ Lack of family-based dialogue often leads to misperceptions that can increase HIV risk. A 2007 national study on HIV prevention found that both Latino men and women considered that condom use implied infidelity, and women associated condom use with prostitution.⁷ Another recent study found that more than half of the Puerto Rican and Mexican American female participants did not receive parental sex education on sexually transmitted infections, birth control, or conception.²¹ The higher prevalence of heterosexual HIV transmission coupled with aforementioned cultural and social factors highlight the urgent need for family-focused and family-based HIV prevention programs for Latinos.

Increasing the number of HIV-positive individuals who are knowledgeable of their status is a critical component in fighting the HIV/AIDS epidemic.^{23,24} U.S. Latinos make up a significant and growing proportion of the estimated 180,000–280,000 people who are HIV-positive and are unaware of their status, indicating that new culturally relevant strategies for increasing HIV testing are needed.^{25,26} Moreover, while HIV testing for African Americans increased between 2002–03 and 2005 from 45.6% to 50.5%, the percent of Latinos engaging in HIV testing actually decreased from 39% to 36.6% in the same period, despite the continuous rise in new cases among Latinos.²⁷

Lower levels of HIV testing among Latinos result from a number of causes, including a misperception that HIV testing is automatically conducted at routine doctor visits. This belief, fostered by an overall lack of access to culturally and linguistically relevant health care services,¹³ contributes to the fact that 22% of a nationally representative sample of Latinos reported HIV testing to be a standard practice and part of blood tests drawn for routine or annual exams.⁶ Furthermore, Latino adults and children are more

likely to be uninsured than their counterparts in any other racial/ethnic population^{28,29} and are more likely to experience poverty, overcrowded housing, and inadequate health care.³⁴ Latinas are among the most impoverished in the US, with 23.6% of Latinas living in poverty, compared with 19.6% of Latino men.²² Poor English language skills and low education levels also present formidable barriers to health care. In Los Angeles County, 37.9% of the population primarily speaks Spanish, and 19.3% of those do not speak English well. In San Diego County, 23.6% of residents speak Spanish, while 10.1% of those individuals speak English "less than well."^{32,33} Only 25% of Latinos have a high school diploma, and 10% have less than a 6th grade education. These barriers, combined with low HIV/AIDS knowledge, lack of perceived risk, and stigma contribute to greater HIV risk and lower participation in HIV testing. In short, increased culturally and linguistically-sensitive and contextually driven HIV/AIDS prevention outreach and services to Latinos within a family context represent a critical step in culturally-sanctioned and accepted community-based HIV prevention.

Given the disproportionate impact of the HIV/AIDS epidemic on the Latino community and the cultural and linguistic nuances associated with HIV prevention efforts among Latinos, the *Protege tu Familia: Hazte La Prueba* (Protect your Family: Get Tested) HIV prevention curriculum was developed to focus on predominantly Spanish-speaking Latinos. The major objectives were: 1) to increase overall participant HIV/AIDS knowledge and awareness; 2) to increase participant intention to engage in HIV testing and to suggest testing to partner(s); 3) to increase participant intentions to discuss sexual risk, suggest condom use to partner(s), and use condoms; and 4) to increase comfort level and decrease the stigma associated with interacting with HIV-positive individuals and those perceived to be at higher risk.

Methods

Development of the *Protege tu Familia: Hazte La Prueba*, a culturally and linguistically relevant HIV prevention curriculum, was conducted in four stages: 1) formative data collection through focus groups, surveys, and review of national needs assessment data; 2) curriculum development and training; 3) implementation; and 4) evaluation of the intervention. The project received approval from the California State University Long Beach Institutional Review Board (IRB) in January 2008.

Formative data collection. The formative phase of the project consisted of four family-based mixed gender focus groups conducted between February and April 2008 with the aid of two community-based organizations in Los Angeles and San Diego counties, California. Informed consent was obtained, and demographic data were collected for the 44 participants. The focus groups were moderated and observed by a team of three bilingual/bicultural females with extensive experience in focus group administration. *Verbatim* transcripts were created, and matrices were produced to capture themes, categories, patterns, and emotional reactions to all questions. The data were then used to guide intervention development.

Key findings from the formative focus group included identification of specific factors that contribute to HIV risk including limited communication between parent(s) and youth or among partners about sexual health, the loss of Latino traditions and

values due to acculturation, the influence of media and the Internet, a lack of clarity regarding information received from health care professionals and teachers about sexual health and risk, homophobia, and sexual stereotypes. Parents also expressed concern about their lack of knowledge regarding sexual health and HIV/AIDS and reported doubting their ability to educate their children effectively about sexual risk. The points that elicited discussion despite the gender and generational diversity of the focus group members were seen as triggers for facilitating HIV prevention and sexual risk-related dialogue. Overall, the formative research data, combined with previous research findings, strongly indicated that a broader, more socio-environmental approach would help to address Latino-specific HIV risks.^{26,35-37}

Curriculum development. The *Protege tu Familia: Hazte La Prueba* intervention was developed using community-based participatory research (CBPR) techniques.³⁸ The specific models guiding the intervention were the Community Health Outreach Model³⁹ and the Information, Motivation, Behavioral Skills (IMB) Model,⁴⁰⁻⁴² combining social action and behavioral change theories that have proven effective among diverse populations.^{39,43} These models encourage the integration of community-based recommendations, such as those garnered through the focus group research and through collaboration with community-based health care workers and bilingual, bicultural health *promotores* (peer health educators).

Staff and *promotores* at both intervention sites contributed to the creation of the bilingual educational curriculum, instruction manual, recruitment instrumentation, and to the pre, post and follow-up data collection instrumentation, integrating the recommendations, cultural values, and beliefs of the community gained from the focus group participants. A culturally and linguistically tailored educational *rotafolio* (formalized flipchart) and supporting materials that formed part of the educational curriculum were created to include the following topics: cultural values and traditions that promote healthy families and communities, communication about sexual health, HIV risk-related information, avenues of disease transmission, how to protect oneself, reasons for testing, description of HIV tests, and potential barriers to testing. The *promotores* were then trained to conduct participant outreach and to deliver the curriculum through *charlas* (guided conversations) utilizing the materials they had co-developed. Furthermore, the *promotores* were trained in basic evaluation methods and strategies to optimize collection of the most complete information in what are often settings that are not conducive to evaluation (e.g., laundromats, markets, parties, trolley stops). In addition to the HIV prevention curriculum, the *promotores* provided support and direct referrals for HIV testing utilizing custom-made testing referral cards.

Implementation. Project staff worked with *promotor* teams to recruit participants using flyers, announcements at high schools, churches, and other public venues, and by word-of-mouth. Upon recruitment, participants were screened to determine whether or not they were Latino/Hispanic, no younger than 14 years of age, and willing to engage in and evaluate the *charla* experience. If eligible and willing, informed consent was then administered, and basic demographic and pre-*charla* survey data were collected by the *promotores*.

The intervention consisted of one two-hour session delivered by trained *promotores* at each site. The sessions were conducted at various community locations, including

parks, the health department, community centers, and clinic sites in San Ysidro (San Diego County) and Long Beach (Los Angeles County). Upon arrival, participants were required to complete adult and parental consents and minor assents. Participants were asked to complete a self-administered demographic form and a pre-knowledge questionnaire, and *promotores* were available to administer the surveys when literacy or visual impairment rendered the participant unable to do so. Each *charla* was conducted utilizing a project flipchart that covered lecture content, discussion guides, and interactive activities. Following the intervention, participants were asked to complete a post-*charla* questionnaire, thanked for their participation, and reminded that they would be contacted for a telephone follow-up survey.

Evaluation. To determine the impact of the *charla*, pre- and post-test surveys were administered, and 90-day follow-up telephone surveys were conducted. Pre- and post-test data were collected between December 2008 and May 2009, and follow-up data were collected between March and August 2009. The *promotores* and project staff were trained to pay careful attention to cues indicating issues relating to low literacy and visual impairment and were advised to administer the demographic form and allow for self-administration only after they had administered and reviewed the questions related to level of education. Participants were encouraged to seek clarification or ask questions whenever necessary. Follow-up surveys were conducted over the telephone by a trained bilingual project staff member.

Measures. Mean scores on HIV knowledge, safer sex and HIV testing intentions, and comfort level and stigma were the selected outcomes of interest for this evaluation. Individuals with missing items on any of these variables were excluded from analyses pertaining to these outcomes. Each variable was assessed prior to and immediately following the *charla*, and at follow-up.

HIV knowledge. The HIV knowledge scale consisted of 11 items asked in a true/false format with items pertaining to how a person can and cannot get infected with HIV; the difference between HIV and AIDS; condoms as prophylaxis; fluids in which HIV is present; and HIV testing. The final HIV knowledge variables for pre-*charla* (Cronbach's $\alpha=0.70$), post-*charla* (Cronbach's $\alpha=0.75$), and follow-up (Cronbach's $\alpha=0.61$) consisted of the sum of the 11 items (see Box 1).

Safer sex and HIV testing intentions. Safer sex and HIV testing intentions were measured through five items. Three measured intention to use a condom at every sexual encounter; to suggest condom use with a future partner; and to talk with a partner about safe sex in the future. Two items evaluated intention to test for HIV and to suggest that a partner have an HIV test. Each item was assessed separately, and responses ranged from 1 (*completely disagree*) to 5 (*completely agree*).

Comfort level and stigma. Comfort level and stigma were measured through seven items that assessed one's comfort level working with someone who has HIV/AIDS; taking care of a family member with HIV/AIDS; hugging a person with HIV/AIDS; hosting a person with HIV/AIDS in one's home; having a friend who is gay or lesbian; sharing a cup with someone who has HIV/AIDS; and getting tested for HIV. Each item was evaluated separately and responses ranged from 1 (*very uncomfortable*) to 5 (*very comfortable*).

Demographic characteristics. Demographic variables of interest included gender,

Box 1.**HIV KNOWLEDGE ITEMS**

1. A person can get HIV by kissing someone who is infected.
2. A person with another sexually transmitted infection is at greater risk of getting HIV.
3. HIV and AIDS are the same thing.
4. Using a latex condom (rubber) can lower a person's chance of getting HIV.
5. A person with HIV can look and feel healthy.
6. The HIV virus is present in breast milk.
7. A person can determine their HIV status through a blood and/or saliva test.
8. Coughing and sneezing do not spread HIV.
9. The HIV test is part of every medical exam.
10. It is possible to get HIV when a person gets a tattoo with a used needle.
11. Using needles or syringes that were used by another person for vitamins, antibiotics, insulin, and drugs increases your risk for HIV.

age, marital status, language preference, country of birth, number of years in the U.S., highest educational attainment, health insurance status, self-reported health status, lifetime and recent (past six months) sexual behaviors and numbers of sexual partners, and HIV testing behaviors. Furthermore, the following variables were dichotomously coded and treated as covariates of the main effects relationships: gender, marital status, highest educational attainment, and number of years in the U.S. The dichotomization of the variables measuring education and number of years in the U.S. was based on the median split.

Data analysis. Descriptive statistics were computed for all demographic variables. Paired t-tests were used to measure pre- and post-*charla* associations as well as pre-*charla* and follow-up associations in HIV knowledge, safer sex and HIV testing intentions, comfort level, and stigma. A multivariate logistic regression model was used to evaluate attrition between pre-*charla* and follow-up. A dichotomous attrition variable was created and regressed on site, gender, marital status, years in the U.S., highest educational attainment, HIV knowledge, safer sex and HIV testing intentions, comfort level, and stigma. The criterion for statistical significance was set at the 0.05 level. Descriptive statistics, tests of association, and the regression model were computed using SAS[®] software version 9.1.⁴⁸

Results

A total of 461 participants from San Ysidro (n=258; 56%) and Long Beach (n=203; 44%) were enrolled in the intervention, and 27 *charlas* were conducted in total. While

evaluation data were collected for each participant, not all surveys had complete data. Select missing demographic data ranged from 6.3% to 7.8%; missing sexual and HIV testing behavioral data ranged from 9.5% to 27%; and missing data on the constructs of interest ranged from 7.8% to 24.5%. Each outcome of interest was assessed separately, and only those participants with complete data at time points of interest were included in the analyses.

Demographic characteristics at baseline. As depicted in Table 1, the sample was predominantly female (65%) with a mean age of 38 years, and roughly half of the participants were married or living with a partner (53%). Spanish was the preferred language for most of the participants, and over half were bilingual. The majority was foreign-born with a mean time of U.S. residence of 18 years. While 6% had no formal education, close to two-thirds had some elementary to some high school education, and 29% had either a high school diploma/equivalent degree or some college education. Approximately half of the participants had medical insurance (largely through government-sponsored programs), and the majority reported their health status as good to excellent.

Attrition. Of the 461 participants enrolled, follow-up interviewers contacted the 342 participants who provided contact information at baseline (74.2%), of whom 99 (21.5%) completed the follow-up survey. Research staff made an average of 6.5 phone calls to the 243 participants who had provided contact information but did not complete a follow-up survey. Among these, 152 were not home or did not answer; 57 had their phones disconnected, had a wrong number, had moved residences, or were living in Mexico; 26 declined participation; and 16 could not complete the follow up due to work or illness. In a multivariate logistic regression model, attrition did not differ significantly by gender (Wald $\chi^2=0.06$, $p=.80$), marital status (Wald $\chi^2=0.34$, $p=.56$), years in the U.S. (Wald $\chi^2=1.03$, $p=.31$), educational attainment (Wald $\chi^2=0.24$, $p=.63$), HIV knowledge (Wald $\chi^2=0.28$, $p=.59$), comfort level and stigma (Wald $\chi^2=0.63$, $p=.43$), and safer sex and HIV testing intentions (Wald $\chi^2=0.04$, $p=.84$). However, attrition did differ significantly by site with a greater proportion of the participants from the San Ysidro border region site than from the Long Beach site lost to follow-up (Wald $\chi^2=7.59$, $p=0.01$). Other than participation site, the non-significant findings indicate comparability between the follow-up sample and the baseline sample on select demographics and the variables of interest.

Sexual behaviors. As reported in Table 2, most participants had engaged in vaginal sex, and over one-third reported having engaged in anal sex. The majority reported vaginal sex in the past six months, and 18% reported anal sex in the past six months, with most reporting no or inconsistent condom use at either sexual behavior. Participants who were sexually active within the past 12 months reported one sexual partner during this time. Although the overwhelming preponderance had never knowingly engaged in sexual activity with an HIV-positive person, 11% of participants reported either knowingly having had sex, or did not know whether they had engaged in sexual activity with someone who was HIV-positive. Due to the fact that only 4.5% of the sample identified as gay/lesbian/bisexual, of which 2.6% were men who reported having sex with men, these data precluded conducting further stratified analyses on the effects of sexual orientation on HIV risk behavior.

Table 1.**DEMOGRAPHIC CHARACTERISTICS, BASELINE^a**

	N	%		
Gender (n=432)				
Female	280	64.8		
Male	150	34.7		
Female-to-male transgender	2	0.5		
Marital status (n=428)				
Married or living with partner	225	52.6		
Single/separated/divorced/widowed	203	47.4		
Country of birth (n=430)				
US-born	113	26.3		
Foreign-born	317	73.7		
Preferred language (n=432)				
Spanish	373	86.3		
English	59	13.7		
Highest level of education (n=425)				
No formal schooling	26	6.1		
Some to elementary graduate	109	25.6		
Middle to some high school	167	39.3		
High school graduate/GED	76	17.9		
Some college to graduate work	47	11.1		
Insured (n=400)				
Yes	199	49.8		
No	201	50.2		
Self-reported health status (n=427)				
Excellent	63	14.8		
Very good	114	26.7		
Good	170	39.8		
Fair	71	16.6		
Poor	9	2.1		
	Mean	SD	Range	
Age (n=413)	38.2	17.0	13–92	
Years in the US for foreign-born (n=56)	18.0	10.1	<1–80	

^aAlthough 461 participants were enrolled, there are missing data, denominator is listed for each variable.

Table 2.
SEXUAL AND HIV TESTING BEHAVIORS^a

	N	%		
Sexual behaviors				
Ever had vaginal sex (n=421)	325	77.2		
Vaginal sex, past 6 months (n=343)	236	68.8		
Condom use during vaginal sex, past 6 months (n=219)				
Never	84	38.4		
Sometimes to almost always	102	46.6		
Always	33	15.0		
Ever had anal sex (n=410)	63	36.1		
Anal sex, past 6 months (n=171)	30	17.5		
Condom use during anal sex, past 6 months (n=25)				
Never	6	24.0		
Sometimes to almost always	8	32.0		
Always	11	44.0		
Ever had sex with HIV-infected person (n=337)				
Yes	11	3.3		
No	298	88.4		
Don't know	28	8.3		
HIV testing behaviors				
Ever tested for HIV (n=405)				
Yes	216	53.3		
No	173	42.7		
Don't know	16	4.0		
Time elapsed since previous HIV test (n=210)				
<1 year	91	43.3		
1-2 years	52	24.8		
2-5 years	40	19.0		
5+ years	27	12.9		
Reasons for not testing among never tested (n=132) ^b				
Don't think that I need the test	49	37.1		
Other	34	25.8		
Unsure where to go	22	16.7		
Fear	17	12.9		
No medical care or insurance	16	12.1		
Embarrassed	11	8.3		
	Median	Q1, Q3	Range	
Number of sexual partners, past 12 months (n=307)	1.0	1, 1	0-42	

^aAlthough 461 participants were enrolled, there are missing data, denominator is listed for each variable.

^bNot mutually exclusive.

HIV testing behaviors. Over half of participants at baseline reported ever having had an HIV test. Among those who had been tested, 53% reported having been tested within the past 12 months. Low perception of HIV risk was the most common reason for not having been tested among those who reported no history of HIV testing. Prevalence of HIV testing also varied by type of relationship. Among 398 respondents, 57% of those who were married reported having been tested, while 41% had never tested, and 2% were not sure. Of those who were unmarried and living with a partner, 80% reported having had an HIV test, while 13% indicated they had never been tested, and 7% were not sure.

Variables of interest. As seen in Table 3, there were significant pre- to post-*charla* increases in HIV knowledge, intentions for safer sex and HIV testing, and comfort level, and these significant increases were maintained at follow-up. Regardless of gender, marital status, highest educational attainment, and number of years in the U.S., participants were more likely to know how HIV can and cannot be transmitted as well as prevented, that there is a difference between HIV and AIDS, and how and where to get an HIV test.

After the *charla*, participants also reported greater intention to use a condom at every sexual encounter, suggest condom use with a future partner, talk with a partner about sex in the future, and suggest that a partner engage in HIV testing. A marginal increase was seen in self-intention to test. These associations remained significant regardless of gender, marital status, educational attainment, and years in the U.S. with a couple of key exceptions. A significant increase in willingness to talk with a partner about sex in the future was observed among participants who were married or living with a partner ($M=4.12$ v. 4.31 ; $t=-2.44$, $p=.02$), whereas a significant increase in willingness to suggest HIV testing to a partner was seen among single participants ($M=4.11$ v. 4.30 ; $t=-2.06$, $p=.003$). Among respondents who had never tested ($n=145/189$) there was a significant increase in intention to test from pre-*charla* to post-*charla* ($M=3.94$ v. 4.22 , $t=-2.56$, $p=.01$).

Additionally, participants reported greater comfort and less stigma with working with someone who has HIV/AIDS, taking care of a family member with HIV/AIDS, hugging a person with HIV/AIDS, hosting a person with HIV/AIDS in one's home, having a friend who is gay or lesbian, sharing a cup with someone who has HIV/AIDS, and getting tested for HIV after the *charla*. All changes were statistically significant regardless of gender, marital status, educational attainment, and number of years in the U.S., with the exception of hosting an HIV-positive individual in one's home. This variable was significant for individuals with an educational level that was middle school or less ($M=2.78$ v. 3.20 ; $t=-5.67$, $p<.0001$) but not for individuals with at least some high school education ($M=2.95$ v. 3.09 ; $t=-1.63$, $p=.11$).

Increased comfort levels were maintained at follow-up with the exception of having a friend who is gay or lesbian. Although greater comfort was demonstrated, this change was not statistically significant. However, increased comfort was significant for participants who had been in the U.S. for less than 17 years ($M=3.15$ v. 3.53 ; $t=-2.25$, $p=.03$). For those who had lived in the U.S. for at least 17 years, not only was increased comfort with having a friend who is gay or lesbian not significant, but no changes were observed in increased comfort with working with an HIV-positive individual, taking

Table 5.

PRE-CHARLA DIFFERENCES WITH POST-CHARLA AND FOLLOW-UP^a

	Pre-charla v. post-charla				Pre-charla v. Follow-up				
	n	Mean Score		t	n	Mean Score		t	Range
		Pre	Post			Pre	Follow-up		
HIV knowledge	425	6.67	8.75	-16.99***	91	6.71	8.36	-6.80***	1-11
Safer sex and HIV testing intentions									1-5
Use condom every time I have sex	348	3.52	3.84	-5.26***	68	3.62	3.82	-1.33	
Suggest that my partner and I use condoms in the future	389	4.00	4.24	-4.68***	69	4.16	4.18	-0.20	
Willing to talk to my partner about sex in the future	391	4.13	4.29	-3.17**	88	4.23	4.17	0.49	
Willing to suggest to my partner that s/he take an HIV test in the future	389	4.21	4.35	-3.12**	88	4.31	4.26	0.40	
Willing to take an HIV test	352	4.15	4.26	-1.69*	69	4.30	4.16	1.08	
Comfort level and stigma									1-5
Working with someone who has HIV/AIDS	403	2.87	3.18	-5.67***	87	2.71	3.40	-4.93***	
Taking care of a family member with HIV/AIDS	396	2.87	3.20	-5.92***	86	2.76	3.48	-4.91***	
Hugging a person with HIV/AIDS	396	3.04	3.37	-5.72***	87	2.76	3.64	-5.54***	
Hosting a person with HIV/AIDS in my home	395	2.90	3.17	-4.92***	87	2.69	3.38	-4.46***	
Having a friend who is gay or lesbian	388	3.13	3.34	-3.84***	85	3.25	3.48	-1.45	
Sharing a cup with someone who has HIV/AIDS	399	2.35	2.72	-6.02***	86	2.07	2.51	-3.07**	
Getting tested for HIV	396	3.47	3.79	-5.52***	88	3.48	4.39	-6.01***	

^aAlthough 461 participants were enrolled at pre-charla and 99 completed a follow-up survey, there are missing data, denominator is listed for each variable by time period.

*p<.10

**p<.01

***p<.0001

care of an HIV-infected family member, hosting an HIV-infected person in one's home, or sharing a cup with an HIV-positive individual.

Behaviors at follow-up. Since the *charla*, most participants had talked with friends ($n=62/85$; 72.9%); children ($n=40/57$; 70.2%); and/or parents ($n=42/80$; 52.5%) about safer sex practices including condom use. The majority also reported feeling more comfortable talking with a sexual partner about sexual behaviors and safer sex practices ($n=71/72$; 98.6%). Most had made plans to get an HIV test ($n=76/89$; 85.4%), and close to half had already obtained an HIV test ($n=44/89$; 49.4%) between *charla* and follow-up. The majority of follow-up participants reported having used a condom since the *charla* ($n=53/74$; 71.6%) with 45% reporting consistent condom use ($n=23/51$; 98.6%). One-third reported having refused to have sex without practicing safer sex behaviors ($n=23/69$), and among those, over two-thirds consistently refused unprotected sex ($n=13/19$; 68.4%). These findings did not vary significantly by gender, marital status, highest educational attainment, or number of years in the U.S.

Discussion

The findings demonstrate promise in raising HIV/AIDS awareness and knowledge and reducing the stigma and discomfort associated with interacting with those who are HIV-positive or with individuals who are part of a group that is presumed to be positive or at risk. Based on the reported sexual behaviors of the sample with 70% reporting vaginal sex within the past six months, 36% reporting history of anal sex, and only 15% reporting consistent condom use, HIV and sexually transmitted infection (STI) risk among this Latino sample is evident. Although the median number of reported sexual partners within the past 12 months was one, 3% reported knowingly having sex with an HIV-positive person and 42.7% of the sample reported never having had an HIV test.

Better understanding of the factors needed to improve Latinos' intention to test is gravely needed if the increasing rates of infection among this population are to be curbed, especially since most respondents indicated that they had not been tested due to a perception of low HIV risk, fear, or embarrassment. Although participants were significantly more likely to suggest to a partner that they be tested, the significance level decreased when the question regarding self-intention to test was posed. This may be due to the fact that at baseline, more than half reported having been tested within the past 12 months, and a larger sample is needed to determine the impact of the intervention on intention to test. However, given the misconception many Latinos have that universal testing occurs at routine medical examinations, combined with high early detection failures among Latinos overall, it is imperative that interventions begin to determine culturally relevant contextual triggers to promote HIV testing. Fernandez et al. found that being older, female, more educated, having higher income levels, and having smoked marijuana were predictors of intention to accept a free HIV test among migrant seasonal farmworkers.⁴⁴

Although certain variables are dissimilar, the impact of gender on willingness to talk to one's partner about sex and suggestion of an HIV test for a partner were only found to be significant among females at follow-up. Varying interventions for Latino

males and females warrant additional exploration if we are to demonstrate success in overcoming communication barriers and moving both genders toward HIV testing. This is particularly important given the high rates of heterosexual infection among married Latinas.

One of the most encouraging findings was the impact of the intervention on reducing HIV-related stigma as measured by comfort levels with caring for and interacting with HIV-positive individuals and those perceived to be at risk. As Latino participants increased their understanding of HIV transmission, their willingness to work with someone with HIV, take care of a family member with HIV, have an HIV-positive guest, have a friend who is gay or lesbian, and hug a person with HIV are promising findings (particularly due to the culturally appropriate manner of greeting, which includes both hugging and kissing on the cheek). The only cross-section of participants not to demonstrate a significant reduction in stigma from pre-*charla* to follow-up had a limited sample size (participants living in the U.S. for 17 or more years, $n=19$).

At the 90-day post-*charla* follow-up, comfort levels were significantly sustained despite the small sample of follow-up participants. While participants reported feeling comfortable being tested for HIV, their intention to test actually decreased slightly. This may be due to the fact that close to half of the follow-up sample reported having been tested for HIV since participating in the *charla*. Although comfort levels did significantly increase and remained significantly increased at follow-up, these changes were not enough to sustain participants' comfort level in terms of having a friend who is gay or lesbian at the 90-day follow-up, indicating that a greater emphasis on eradicating homophobia was needed in the intervention.

Further research to determine how comfort levels and reduction in HIV/AIDS-related stigma can affect testing intentions and actual testing behaviors is imperative if we are to improve early detection among Latinos. The integration of an actual HIV test demonstration in the intervention itself may result in improved understanding of the ease of HIV testing. Experiencing an HIV test vicariously may provide the opportunity for test role-modeling and improve testing rates during the intervention. However, given that within-person variability has been found to influence both intention and actual risk reduction behavior,⁴⁵ it may be that a vicariously experienced HIV test would not render enough self-efficacy to shift behavior among Latinos. Without doubt the diversity of the Latino population (in terms of geography, country of origin, immigration experience, level of acculturation, age, and risk history) will render multiple and diverse interventions necessary to mitigate the steady rise of HIV among this population. Clearly however, upon consideration of the synergy of the highest rate of early detection failure and the most diverse HIV risk profile, the need for the immediate creation of multiple and specific culturally tailored HIV testing interventions targeting various Latino populations is required if we are to reduce future HIV infection among our nation's fastest growing minority population.

Another encouraging finding was the changes in level of communication that followed the *charla*. Most participants reported having talked with friends, children, and parents about safer sex, and an overwhelming majority felt more comfortable talking to a sexual partner about sexual behaviors and safer sexual practices after their involvement in the class and discussion. The *charla* included information about the importance of

communication, and assured participants that sex and sexuality are natural aspects of our lives and that it is important to be able to talk openly about these issues with our partners. Moreover, the *charla* promoted openness and honesty between partners as two of the main traits of healthy sexual relationships.

Although most participants reported using condoms post-*charla*, with close to half reporting consistent condom use, only one-third reported refusing unprotected sex since the *charla* and the majority had engaged in unprotected sex. However, without knowing the number of sexual partners each participant had experienced since the *charla*, it is difficult to determine if they had engaged in high-risk sexual activity. Having one sexual partner and opting for monogamy in lieu of safer sex behaviors may be a viable HIV risk-reducing choice.

Limitations. The results of this intervention, although promising, must be interpreted with caution due to a number of limitations. A convenience sample of participants in Long Beach and San Ysidro represent those demonstrating interest in HIV/AIDS and do not necessarily reflect the opinions or behaviors of the general Latino population. In addition, given the geographic region of the intervention, the sample was predominantly Mexican and Mexican American, and this subgroup does not represent the Latino immigrant population universally. Furthermore, the community-based setting has a number of limitations, and *charlas* within communities are known for possibly disruptive atmospheres and are not necessarily conducive to a focused educational setting, much less data collection.

The small number of individuals who engaged in the 90-day telephone follow-up interview strongly affected the analysis and illuminated the need for additional follow-up strategies to ensure the involvement of a larger sample size. The sample was reduced by 25% at follow-up because one-fourth of enrolled participants did not provide valid contact information, had disconnected telephones, or had moved by the time of the follow-up (many from the San Ysidro border region). However, other than site, the attrition analysis revealed that the follow-up sample did not differ significantly from the baseline sample on select demographics and the variables of interest. Although the baseline and follow-up samples are comparable, the findings do not generalize to other Latino samples due to the large loss to follow-up. Incentivizing the intervention follow-up may have also yielded better results. Although immigration status data were not collected, one could hypothesize that more undocumented individuals near the border had returned to Mexico as part of the remigration that Latin America started to experience as the U.S. economy plummeted in the fall of 2008.⁵⁶ Efforts in subsequent studies to collect cross-border and country-specific contact information should be made so as not to run the risk of large participant loss to follow-up.

Another limitation was missing data on the variables of interest. Missing pre-*charla* data ranged from 8% to 25%. Since follow-up and pre-*charla* data were compared, missing pre-*charla* data further reduced the follow-up sample size by 18% to 31%, depending on the variable. Surveys at pre-*charla* were either self-administered or completed with assistance by a *promotor* or other project staff member. Although *promotores* and project staff were trained to pay careful attention to cues indicating issues relating to low literacy, participants may not have understood a question or may have been

unable to read it well, not asked for assistance, and therefore have left it unanswered. The issue of substantial missing data beyond what can be statistically imputed might be ameliorated by interviewer-administered surveys or by having a project staff member review all surveys for completeness.

An additional limitation is the lack of a variable to measure perception of risk. It may be that intention to test was due to participant perceptions that they were not at risk for HIV infection. Discerning why Latinos do not perceive themselves to be at risk may provide insight into strategies to increase acceptance of universal HIV testing. Although further testing is needed in distinct contexts and with diverse Latino populations, *Protege tu Familia: Hazte la Prueba* demonstrates promise in delivering a culturally and linguistically tailored, family-based and community-driven intervention targeting Latinos who may not otherwise perceive themselves at risk. The extent to which the intervention was able to build capacity within specific communities by providing community members the skills needed to promote healthier lifestyles is also noteworthy.

Bioethical issues. Employing community-based participatory research strategies, this pilot study sought to increase HIV-related knowledge, communication, stigma, and testing intentions among Latinos. Such strategies are in sync with considerations of justice and beneficence. Justice requires that studies involve as investigators and co-investigators those affected by HIV/AIDS. Over half of the *promotores* involved in this project were HIV-positive themselves and contributed to every facet of the intervention, including the development of the evaluation tools, the curriculum, and design of the kit. Beneficence may be expressed in directing resources for maximum return through members of communities disproportionately affected by HIV. Studies that involve target communities in the design and implementation of interventions are more likely to succeed in eliminating health disparities. This project represents an expression of a culturally, linguistically, and contextually-tailored HIV/AIDS prevention outreach and services targeting Latinos. It utilized cultural assets, such as *familismo* and *respeto*, to sanction and create strategies for culturally-relevant HIV and sexual risk communication. The need for culturally-specific strategies that utilize such assets is critical for successful health promotion in underserved communities.

Policy implications. There are important policy implications of this research that relate to both the need for outreach and testing among Latinos in general as well as the need for HIV awareness within this community. The rise in HIV transmission among Latino populations that do not consider themselves to be at risk, such as heterosexuals, and in particular monogamous females, coupled with a high rate of erroneous perception that testing for HIV is already a standard procedure during routine health check-ups, point to the need for more universal and periodic HIV testing. Other recent research findings confirm that the context for HIV risk among Latina HIV-positive and HIV-negative women is more similar than previously thought, and that HIV-positive Latinas report lower frequency of unprotected sex than their HIV-negative counterparts.⁴⁶ This underscores the need for culturally and linguistically relevant HIV outreach testing.

This research also highlights the need for culturally and linguistically tailored training for testing agencies and providers. Even with increased adherence to the CLAS

Standards* and the integration of HIV testing into routine medical screening practices, the fact that Latinos are the most widely uninsured and underinsured and the most likely to lack access to health care constitutes an almost insurmountable barrier to HIV prevention for all Latinos. This is particularly relevant given the increasing pressure to eliminate the undocumented population from health care reform measures.

A third important policy implication from the findings of the *Protege tu Familia: Hazte la Prueba* project stems from its success utilizing *promotores* (community health workers [CHWs]). Our findings align with conclusions from a recent Health Resources and Services Administration (HRSA) report on the important role of CHWs in health care delivery, particularly among populations that experience linguistic or cultural barriers to health information and services.⁴⁷ This study provides evidence that the use of community health workers who share first-hand knowledge about the cultural, linguistic, and social contexts of the target populations (usually their respective communities) can be an effective and efficient strategy to address the *Healthy People 2010 and 2020* goals of eliminating health disparities, particularly among populations that otherwise tend to be marginalized from effective prevention and treatment opportunities.^{47,49} As health care costs continue to rise, the incorporation of CHWs in primary HIV prevention could prove to be a critical component of front-line, community-based HIV/AIDS prevention.

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