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CHANGES IN PRE- TO POST- IMMIGRATION HIV RISK BEHAVIORS AMONG RECENT LATINO IMMIGRANTS

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Abstract

This prospective longitudinal study examined pre- to post-immigration HIV risk behavior trajectories among recent Latino immigrants in Miami-Dade County (Florida). We identified socio-demographic factors associated with these trajectories and collected retrospective pre-immigration HTV risk behavior data at baseline from a sample of 527 Caribbean, South American, and Central American Latinos ages 18–34 who immigrated to the U.S. less than one year prior. Two follow-up assessments (12 months apart) reported on participants' post-immigration HIV risk behaviors. Results indicated overall decreases in pre- to post-immigration condom use. In the sample, recent Latino immigrants with lower education, younger age, and higher incomes had steeper decreases in pre- to post-immigration condom use. We also found differences in the risk behavior trajectories of males and females. Latino women reported significant increases in the number of sexual partners post immigration, while men reported decreases in the number of sexual partners after immigrating to the U.S.

HIV is a significant public health concern affecting Latino communities across the United States (U.S.). Latino immigrants experience additional negative impacts including a greater likelihood of receiving late HIV diagnosis and worse health outcomes after diagnosis (Leite et al., 2013). Despite targeted efforts to address the spread of HIV among Latinos, areas with high concentrations of Latino immigrants continue to be affected by the epidemic. Miami-Dade County (Florida), where 65% of residents are Latinos and two-thirds (66%) of those are foreign born (mainly Caribbean as well as South and Central-American Latino immigrants), leads the nation with the highest rate of new cases of HIV infection and the highest rate of people living with HIV/AIDS (Centers for Disease Control and Prevention, 2012).

Understanding the risk factors associated with HIV and the trajectory of risk behaviors among immigrant Latinos is critical. Previous research indicates that most Latino immigrants living with HIV become infected in the U.S. (Harawa, Bingham, Cochran,

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Geenland, & Cunningham, 2002). Thus, developing intervention strategies that effectively reach out to Latino immigrants living in large Latino enclaves is needed to ameliorating the increasing rates of HIV in this population (Centers for Disease Control and Prevention, 2014; Dennis et al, 2013). Key to such strategies will be to understand the social determinants and migration-related factors that may contribute to the increased risk for HIV transmission among Latino immigrants (Deren, Shedlin, Decena, & Mino, 2005). Several studies suggest that recent Latino immigrants generally do not perceive themselves to be at risk for HTV and do engage in high risk behaviors—they are often misinformed about HIV/AIDS and have limited access to health care (Bustamante et al., 2012; Dang, Giordano, & Kim, 2012). Latino immigrants also report higher HTV/AIDS-reiated stigma (Shedlin, Decena, & Oliver-Velez, 2005), a factor known to deter HTV screening (Bums, Imrie, Nazroo, Johnson, & Fenton, 2007; Dodds et al., 2004). Conversely, other studies have found that HIV risk decreases among Latino immigrants as their time in the U.S. and levels of acculturation increase (Shedlin et al., 2005; Kinsler et al., 2009). This is due to more exposure to HTV information and testing and to other social factors related to more time in the U.S. (e.g., establishing support networks, familiarity with resources, etc.; Levy et al., 2005).

Inconsistent findings on HIV risk trajectories, coupled with the dearth of knowledge regarding the impact that social and cultural factors may have on these behaviors, suggest a need to better understand changes in pre- to post-immigration HIV risk behaviors. No studies, to our knowledge, have empirically examined the HIV risk trajectory of recent Latino immigrants prior to and within the first few years of immigration to the U.S. Gaining insight on differences in the HIV risk behavior patterns of Latino immigrants before and after immigration can provide a richer contextual understanding of how shifts from pre- to post-immigration contexts distinctly impact risk behaviors. The present study aims to address this gap in the research literature. Our study utilizes data from a 3-year longitudinal study to (a) examine pre- to post-immigration HIV risk behavior trajectories in a sample of Caribbean, Central American, and South American recent Latino immigrants residing in Miami-Dade County and (b) identify the socio-demographic factors associated with these trajectories.

METHODS

Our study, the Recent Latino Immigrant Study, is a longitudinal investigation funded by the National Institute of Minority Health and Health Disparities (P20MD002288). It was the first investigation to document pre-immigration HIV risk behavior in a sample of recent young adult Latino immigrants, examining the underlying sociocultural factors associated with trajectories of risk after immigration. The study collected three waves of survey data (baseline and two annual follow-ups). During the initial baseline assessment (T_1), retrospective data were obtained on participants' HIV risk behavior prior to immigration. Two subsequent follow-up assessments (T_2&T_3), 12 months apart, were conducted to document HIV risk behavior patterns post-immigration. The study's protocol was reviewed and approved by the institutional review board of a large university in Miami, Florida.

Inclusion criteria were: self-identifying as a Latino immigrant between 18 and 34 years of age, who recently immigrated (within one year prior to baseline assessment) to the U.S. from a Latin American or Caribbean country with the intention of staying in the U.S. for at least 2 years beyond the baseline assessment.

Participants were recruited using respondent-driven sampling (RDS). RDS is a variant of chain-referral sampling whereby respondents are selected from social networks of existing members of the sample. This sampling procedure begins when researchers recruit an initial amount of participants (seeds) who are the first people to participate in the study. These seeds then recruit other individuals in their social networks to participate in the study (Salganik & Heckathom, 2004). The recruiting process repeats iteratively—forming referral chains—until the desired sample number is reached. This technique is effective in recruiting samples from hidden populations (Rudolph et al., 2011). Given that approximately 25% of the U.S. Latino population consists of undocumented immigrants (Passel & Cohn, 2008), respondent driven sampling is an appropriate sampling approach with recent immigrants (De La Rosa, Babino, Rosario, Martinez, & Aijaz, 2012). In the present study, the initial wave of recruits (seeds) was asked to refer three individuals in his/her social network who met the study's eligibility criteria. Seeds were recruited via flyers posted in Miami-Dade County neighborhoods with substantial Latino populations, during health fairs in Miami-Dade County, and through community health centers. This procedure was followed for a maximum of seven waves per seed.

Trained bilingual research staff conducted the surveys using computer-assisted personal interviewing (CAPI) technology. All surveys were administered in Spanish and completed at a confidential, safe location agreed upon by both the interviewer and participant; approximately 65% of interviews were completed in the participants' home, 20% in a restaurant/coffee shop, and 15% in another public place. Participants completed the face-to-face survey in approximately 1-hour and received cash incentives of $50, $30, and $60 at T_1, T_2, and T_3, respectively.

PARTICIPANTS

A total of 527 recent Latino immigrants participated in the study. At baseline (T_1), 527 participants were enrolled and assessed. At T_3, 479 participants were retained (91 % retention rate). We utilized growth curve modeling (GCM) to assess the pre- to post-immigration HIV risk trajectories of participants. GCM with Mplus (Muthén & Muthén, 1998–2010) allows for missing data through multiple imputations so that participants with one or more missing follow-up assessments can be included in the analyses, thereby allowing us to utilize the entire baseline sample (N = 527; Bollen & Curran, 2006).

MEASURES

Sociodemograpbics—A demographic form assessed, in part, participants' time in the U.S., education level, annual income 12-months prior to assessment, marital status, and gender.

Country of Origin—Participants indicated their country of origin. The countries were re-coded by region (Cuba, South America, and Central America). Given the limited number of Other Caribbean participants (1.3%), this group was excluded from subsequent covariate testing.

Documentation Status—We measured U.S. documentation status using fourteen possible categories (e.g., student visa, tourist visa, temporary work visa, permanent resident, temporary resident, exile, temporary protected immigrant, without papers, expired visa). These categories were re-coded into a dichotomous variable (documented or undocumented). Note: Without papers and Expired visa were coded as undocumented while the remaining categories were coded as documented.

HIV-Risk Behavior—Frequency of condom use and number of sexual partners in the past 90 days were used to assess HIV risk behavior. The Risk Behavior Assessment (National Institute on Drug Abuse, 1993) measured frequency of condom use during oral, anal, and vaginal sex in the past 90 days on a 4-point Likert scale (never = 1 to always = 4) with higher scores indicating more condom use. We calculated a mean score for total condom use.

DATA ANALYTIC PLAN

Preliminary data analyses included: (1) conducting descriptive statistics across time points for all variables, (2) examining distribution properties of the variables to correct skews that violated the assumption of normality following Kline's (2005) suggested cutoffs of absolute values of 3.0 and 8.0 for skewness and kurtosis, respectively, (3) assessing for sampling bias introduced by attrition, and (4) identifying covariates to be included in the research model.

We identified the following covariates: gender, age, marital status, documentation status, annual income, and country of origin. Spearman's rho and Pearson correlations were used to analyze binary covariates (i.e., gender, marital status, documentation status) and continuous covariates (i.e., age, annual income) respectively.

Growth curve modeling was utilized in the primary data analyses. Growth curve modeling allows for the identification of (1) change over time, and allows for the examination of (2) how two or more groups differ in these trajectories, (3) whether or not initial levels predict rates of change, and (4) how variables are systematically associated with changes over time (Preacher, Wichman, MacCallum, & Briggs, 2008). In the present study pre- to post-immigration condom use and number of partners in the past 90 days were modeled separately. First, pre- to post-immigration HIV risk behavior (condom use and number of sexual partners in the past 90 days) were modeled independent of any covariates. Next, given the differences in HIV risk behaviors between Latino males and females cited in the literature (Marin, 2003; Marin & Gomez, 1999; Organista, 2012), a conditional model with gender as a covariate was examined. Next, age and country of origin were included as time invariant covariates. Although age increases with time, it was entered as a time invariant covariate given the limited time span (2 years) in which data was collected, allowing us to assess within-subject changes over time (slope). Marital status, documentation status, and

annual income were added as time varying covariates. Lastly, final trimmed models based on the previous models' significant parameters were estimated.

Structural equation modeling fit indices were used to evaluate the fit of the growth curve models to the data (Kline, 2005). These included: overall chi-square test of model fit (should be statistically non-significant), the Root Mean Square Error of Approximation (RMSEA; < .08 to declare satisfactory fit), the Comparative Fit Index (CFI; > .95), the Tucker Lewis Index (TLI; > .95), and the standardized root mean square residual (< .05).

RESULTS

PRELIMINARY ANALYSES

The sample captured variation in terms of place of birth and other socio-demographic factors (see Tabie 1). In regard to country/region of origin, participants were 42.1% Cuban, 27.1% South American, 29.4% Central American, and 1.3% reported being from Other Caribbean nation. Nearly half of the participants in the sample (45.5%) were women. Tabie 2 summarizes the descriptive statistics for the outcome variables by gender. Analyses indicated that the number of sexual partners and annual income variables were positively skewed; square root transformations were conducted on these variables in order to obtain a normal distribution.

To assess for sampling bias introduced by attrition, we tested whether retained participants differed from non-retained participants on key pre-immigration demographic variables and HIV risk behavior at pre- and post-immigration. A larger number of non-retained participants were unmarried (74% of non-retained participants versus 63% of retained participants), χ^2 (1, N = 527) = 4.39, p < .05, η^2 = .09. A greater proportion of non-retained participants were undocumented immigrants (53% of non-retained participants had undocumented status while only 23% of retained participants were undocumented immigrants), χ^2 (1, N = 527) = 82.31, p < .001, η^2 = .18. Non-retained participants also tended to be men, χ^2 (1, N = 527) = 1811, p < .001, η^2 = .19, and younger (M = 25.83, SD = 4.88) than retained participant (M = 27.30, SD = 4.96); t = −2.89, p < .01). Finally, a greater number of non-retained participants were from Central America, F(3, 523) = 28.06, p <. 001., η^2 = .14. No significant differences in pre-immigration annual income or HTV risk behaviors between retained and non-retained participants were evident.

Analyses for potential covariates indicated significant correlation between gender (coded dichotomously as 0 = female and 1 = male) and number of sexual partners whereby males reported more sexual partners in the 90 days prior to immigrating to the U.S. at T_1 (r = .37, p < .001), T_2 (r = .17, p = .001), and T_3 (r = .16, p < .01). No significant differences in HIV risk behavior between documented and undocumented immigrants (coded dichotomously as 0 = undocumented and 1 = documented) were present prior to immigration. At post-immigration, documentation status was associated with HIV risk behavior with undocumented immigrants indicating more condom use at T_2 (r = −.12, p = .01) and T_3 (r = −.15, p < .01). At T_3 undocumented immigrants also reported fewer sexual partners (r = .11, p < .05). As anticipated (Pulerwitz, Amaro, De Jong, Gortmaker, & Rudd, 2002), married participants (coded dichotomously as 0 = unmarried and 1 = married) reported less condom

use at all three time points (T_1, $r = -.17$, $p < .001$; T_2, $r = -.35$, $p = .001$; and T_3, $r = -.17$, $p < .01$). Younger age was associated with condom use ($r = -.21$, $p < .01$) before immigrating (T_1). Latino immigrants with lower income also reported more condom use condom use at T_1 ($r = -.09$, $p < .05$), T_2 ($r = -.15$, $p < .01$), and T_3 ($r = -.27$, $p < .001$). Post-immigration HIV risk behaviors differed by country of origin, with Latinos from Central America reporting more condom use at T_2[$F(2, 404) = 9.09$, $p = .001$] and fewer sexual partners at T_3[F (2, 428) = 3.22, $p < .05$] than their Cuban and South American counterparts.

GROWTH CURVE MODELS FOR CONDOM USE

As shown in Table 3, Model 1 examined changes in condom use frequency from pre- to post-immigration in the overall sample. The data indicated poor model fit, $\chi^2(1) = 9.38$ $p < .01$, RMSEA = .13, CFI = .87, TLI = .62, SRMR = .05. Gender was subsequently entered into the second model. The data still did not fit the model adequately, $\chi^2(2) = 12.23$, $p < .01$, RMSEA = .10, CFI = .85, TLI = .55, SRMR = .04. Next we examined age and country of origin as time invariant covariates and examined marital status, documentation status, and annual income as time varying covariates. This model indicated a good fit to the data, $\chi^2(21) = 13.84$, $p = .88$, RMSEA = .00, CFI = 1.00, TLI = 1.12, SRMR = .02. An examination of the parameters revealed no significant differences in condom use among recent Latino immigrants by country of origin or documentation status. A final fourth trimmed model excluding the non-significant covariates was estimated and indicated good model fit, χ^2 (21) = 18.92, $p = .10$, RMSEA = .03, CFI = .95, TLI = 1.12, SRMR = .03. We found significant intercept differences (mean differences in frequency of condom use prior to immigration) between participants as well as decreases in pre- to post-immigration condom use in the overall sample (see Table 3). As shown in Table 3, results indicated a significant negative intercept for age (−.04, $p < .01$), revealing that younger participants had higher rates of pre-immigration condom use. Conversely, a significant positive slope for age suggested steeper declines in condom use by younger Latinos after immigrating to the U.S. (.02, $p < .05$). Married participants reported less condom use across all time points. Higher income was also associated with less post-immigration condom use at T_3.

GROWTH CURVE MODELS FOR NUMBER OF SEXUAL PARTNERS

A growth curve model examining changes in the number of sexual partners from pre- to post-immigration in the overall sample indicated good model fit, χ^2 (1) = .27, $p < .65$, RMSEA = .00, CFI = 1.00, TLI = 1.07, SRMR = .01. As seen in Table 4, Model 1 revealed significant differences in number of sexual partners among participants prior to immigration and no changes in number of sexual partners from pre- to post-immigration.

Next, gender was included as a covariate in Model 2. The data fit the model well, $\chi^2(1) = .27$, $p < .65$, RMSEA = .00, CFI = 1.00, TLI = 1.07, SRMR = .01, and results revealed significant gender difference in the number of pre-immigration sexual partners as well as in the changes in the number of sexual partner from pre- to post-immigration. To further elucidate the distinct patterns in number of sexual partners by gender, we conducted a growth curve analyses grouping the sample by gender. The model indicated inadequate model fit (results not shown), $\chi^2(2) = 5.09$, $p < .08$, RMSEA = .077, CFI = .84, TLI = .51, SRMR = .05. Overall, results suggested distinct patterns in number of sexual partners by

gender, with females having significant increases in number of sexual partners after immigrating to the U.S., while males indicated a significant decrease in number of sexual partners post-immigration (see Table 4). Given the divergent patterns in the outcome variable between recent Latino male and female immigrants, subsequent analyses examining trends in the number of sexual partners from pre- to post-immigration were conducted separately for males and females.

GROWTH CURVE MODELS FOR NUMBER OF SEXUAL PARTNERS BY GENDER

Model 3 was a conditional model examining changes in number of sexual partners among Latino females using the following covariates: age, country of origin, marital status, documentation status, and annual income. This model indicated good fit, $\chi^2(21) = 13.52$, $p = .89$, RMSEA = .00, CFI = 1.00, TLI = 1.00, SRMR = .03, As seen in Table 4, no significant differences by age, country of birth, or annual income were found. A trimmed model (Model 4) covarying documentation and marital status fit the data well, $\chi^2(13) = 12.00$, $p = .53$, RMSEA = .00, CFI = 1.00, TLI = 1.15, SRMR = .03. An examination of growth parameters revealed increases in the number of sexual partners from pre- to post-immigration among females. Results also suggested significant intercept differences (mean number of sexual partners among female participants prior to immigration). Documented females reported more sexual partners in the past 90 days than undocumented females both before (T_1) and after immigration at (T_2). Married females reported increased number of post-immigration sexual partners (T_2 and T_3).

Model 5 examined changes in the number of sexual partner from pre- to post-immigration among Latino males while controlling for age, country of origin, marital status, documentation status, and annual income. The model fit the data well, χ^2 (21) = 13.33, p =. 90, RMSEA = .00, CFI = 1.00, TLI = 2.91, SRMR = .03, yet none of the included covariates appeared to significantly influence the outcome variable. Thus, the final trimmed model testing pre- to post-immigration number of sexual partners excluding covariates indicated excellent fit, χ^2 (1) = .32, $p = .57$, RMSEA = .00, CFI = 1.00, TLI = 1.11, SRMR = .01. Results from Model 6 showed significant differences in the number of sexual partners among Latino males prior to immigration and decreases in the number of sexual partners after immigration (see Table 4).

DISCUSSION

Our first aim was to determine changes in pre- to post immigration HIV risk behaviors among recent Latino immigrants residing in a large Latino enclave. Findings indicate that overall, recent Latino immigrants reported (a) decreased condom use after immigrating to the U.S. while (b) the number of sexual partners remained relatively stable. However, noteworthy trends were identified on HIV risk behaviors when the sample was analyzed by gender. These findings suggest diverging trajectories in the HTV risk behaviors post-immigration between recent Latino immigrant men and women.

Decreases in condom use among males may be linked to the reported decline in the number of sexual partners. Previous research has found an association between condom use and relationship type; Latinos (men and women) in stable relationships report less condom use

than Latinos not in a committed relationship (Brady, Tschann, Ellen, & Flores, 2009; Pulerwitz et al., 2002). Fewer numbers of sexual partners after immigration can also be associated with recent immigrants' limited social networks (Barrington, Messias, & Weber, 2012; Dalla, DeFrain, Johnson, & Abbott, 2009; Perreira, Chapman, & Stein, 2006) as well as psychological factors related to adapting to the U.S. (Flores & Brotanek, 2005). Nevertheless, in the case of the men in the sample, the absence of these factors prior to immigrating may partially explain the higher number of sexual partners at pre-immigration and the reported decline after immigrating. However, this explanation cannot be applied broadly given that the women in the sample reported increases in number of sexual partners post-immigration.

Our findings suggest different trends in the risk behavior trajectory among the women in the sample than men as they reported declines in condom use and increases in number of sexual partners after immigrating. Women and men experienced similar social network constraints and social factors related to adapting to the U.S., but women's reported risk behavior trajectory suggests that they may be at greater risk for HIV transmission than their male counterparts. Our findings are consistent with reports indicating that in Florida the rate of new HIV infections for Latinas is 2.3 times higher than for White women (Miami-Dade County Health Department, 2012). Despite this trend, Latino women account for just 12% of new cases of HTV among Latinos in Florida, clearly indicating that the HIV epidemic among Latinos continues to be driven by men (Florida Department of Health, 2013). Our results, however, are at odds with previous research suggesting that recent immigrants and less acculturated Latino females reported fewer sexual partners (Kasirye et al., 2005; Sabogal, Perez-Stable, Otero-Sabogal, & Hiatt, 1995). Complementary studies also found that greater number of sexual partners with more consistent condom use was reported among more acculturated Latinas (Salabarría-Peña, Lee, Montgomery, Hopp, & Muralles, 2003; Caetano & Hines, 1995). Our study did not account for the ethnic background of sexual partners, which may be helpful in assessing levels of acculturation and risk patterns of this group. Therefore, additional research with recent Latino women is needed to elucidate the risk and protective factors associated with adjusting to life in the U.S. that may place this group at higher risk for HIV.

Our second aim was to examine potential socio-demographic factors that may be related to the trajectory of HTV risk and immigration. As expected, and documented extensively in the literature (Pulerwitz et al., 2002), being married was associated with low condom use among recent Latino immigrants. However married females in our sample reported more sexual partners than single female participants post-immigration. Although in general women reported increases in the number of sexual partners after immigration, the number of sexual partners reported by undocumented females was lower than their documented counterparts. These findings suggest that future studies on HIV risk behaviors among recent Latino women (and men) immigrants should account for pre- and post- immigration socio-demographic factors to obtain a more comprehensive trajectory of risk behavior. Examining how factors such as country of origin, length of time in the U.S., and location or place of residency are associated to the risk behavior trajectories of recent Latino immigrants will better our understanding of the underlying risk factors among this diverse group.

LIMITATIONS

Our study has several limitations. First, the risk behaviors reported during the 90 days prior to immigration may not be indicative of participants' typical number of sexual partners and condom use patterns; uncharacteristic patterns could have taken place during the period prior to immigration in association with departure. Second, pre-immigration data was collected retrospectively, making it prone to errors in recollection and accuracy. Third, respondent-driven sampling (RDS) does not yield a representative sample. Deriving population estimates and sampling weights with RDS is possible but requires gathering data on each respondent's personal network size (i.e., number of acquaintances in the target population) and information about who recruited whom. In the present study, respondent personal network size was not collected, thus preventing the RDS weights in the analyses. Given the number of undocumented Latino immigrants in the U.S., RDS was the ideal sampling technique for a study examining recent Latino immigrants. Despite limitations presented by RDS, the sample was fairly representative of the Miami-Dade County Latino immigrant community (Table 1) which is 52.7% Cuban, 16.8% South American, 13.1% Central American, and 3.6% Other Caribbean. Although country/region of origin data for recent Latino immigrants in Miami-Dade County are not available, U.S. Census data indicated recent population increases in Miami-Dade County ranging from 102% to 117% among certain South American (e.g., Argentines and Venezuelans) and Central American (e.g., Hondurans and Guatemalans) Latino immigrant subgroups (U.S. Census Bureau, 2012a). This may explain the over-representation of South and Central Americans in our study sample.

The fourth limitation of our study is that the 24-month (approximately) follow-up period post-immigration may not be long enough to assess long-term risk behavior patterns. Future studies are needed to determine the trajectory of risk beyond the initial period of adjustment in the U.S. The fifth limitation involved participant recruitment: although we recruited Latinos irrespective of country of origin, participants from certain subgroups with low representation in the Miami-Dade County area (Mexicans and Dominicans) were not well represented in the sample, preventing us from making generalizations about all Latino groups. Future research will determine whether the findings reported in this study are unique to the Latino immigrants of Miami-Dade County or indicative of the pre- to post-immigration HIV risk trajectories of Latinos residing in large metropolitan areas in general.

CONCLUSIONS

Our study is one of the first to provide information on the HIV risk behaviors of Caribbean, Central, and South American Latino recent immigrants living in a large metropolitan area with a high concentration of Latinos prior to and up to two years after immigrating to the U.S. Our research acknowledges the importance of accounting for the pre- to post-immigration factors related to HIV risk behaviors, an often neglected area of research. Findings suggest important trends in HTV risk behavior trajectories for recent Latino immigrants in the U.S. Further longitudinal analyses are needed to identify how trajectories of HTV risk behaviors change as Latino immigrants' time in the U.S. increases beyond the scope of the current study. Furthermore, associations between pre- to post-immigration HIV

risk behaviors and other individual, community, and policy-related constructs need to be explored and considered as part of examining the trajectory of risk behaviors among recent immigrants; important factors to consider include acculturative stress, HIV stigma, Latino cultural values (e.g., machismo, familismo), environmental/neighborhood level risk factors, and access to health care. Finally, when considering the population growth projections for Latinos in the U.S. (U.S. Census Bureau, 2012b), these findings indicate that increasing our understanding of the HIV risk behavior trajectories of recent immigrants, particularly those of women, may assist health care providers and public health professionals in developing programs to prevent HTV transmission early in the immigration process for these populations. The early stages of acclimating to a new country often involve particular challenges and stresses, exacerbate pre-existing difficulties, and, at least for some subsets of Latinos, may contribute to the manifestation of health compromising behaviors. As such, this transition period may offer a key point in time for prevention-oriented interventions.

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TABLE 1

Baseline Sample Demographics (n = 527)

Variables	*n*	%
Gender		
Female	239	45.4
Male	288	54.6
Marital Status		
Single	180	34.1
Married	347	65.9
Documentation Status		
Documented	413	78.3
Undocumented	114	21.7
Country of Origin		
Cuban	222	42.1
South American	143	27.1
Central American	155	29.4
Other Caribbean	7	1.3
Education		
Less than high school	97	18.4
High school diploma	151	28.7
Some training/college	178	33.8
Bachelor's (4–5 years college)	85	16.1
Graduate/Professional Studies	16	3.0
	Mean (*SD*)	Range
Age	26.95 (5.0)	18–34
Annual Income (T1)	$5,001 (11,030)	0–140,000
(T2)	$14,138 (12,571)	0–160,000
(T3)	$19,634 (10,470)	0–80,000

TABLE 2

Descriptive Statistics for HIV Risk Variables by Gender

		Males			Females			Total		
Variables	**Time**	**Mean (*SD*)**	**Min.**	**Max.**	**Mean (*SD*)**	**Min.**	**Max.**	**Mean (*SD*)**	**Min.**	**Max.**
Condom Use	T1	1.75 (1.55)	0	4	2.03 (1.69)	0	4	1,87 (1.62)	0	4
	T2	1.74 (1.64)	0	4	1.67 (1.67)	0	4	1.71 (1.65)	0	4
	T3	.91 (1.40)	0	7	1.06 (1.52)	0	4	.98 (1.46)	0	4
# of Sexual Partners	T1	1.80 (2.01)	0	15	.87 (.87)	0	4	1.38 (1.66)	0	15
	T2	1.38 (1.43)	0	13	1.00 (.56)	0	4	1.19 (1.10)	0	13
	T3	1.12 (.71)	0	8	.95 (.36)	0	4	1.04 (.59)	0	8

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TABLE 3

Results of Growth Curve Models Testing Pre- to Post-Immigration Condom Use in the Past 90 Days

	Condom Use in the Past 90 Pavs			
Parameter	**Model 1 Intercept (Slope)**	**Model 2 Intercept (Slope)**	**Model 3 Intercept (Slope)**	**Model 4 Intercept (Slope)**
Condom Use	1.97** (−0.46**)	2.07** (−0.47**)	3.23** (−0.55)	3.31** (−0.64*)
Time Invariant Covariatcs				
Gender	—	−0.20 (0.36)	—	—
Country of origin	—	—	0.19 (−0.04)	—
Age	—	—	−0.50** (0.03**)	−0.04** (0.02*)
Time Varying Covariates				
Doc. status T1 → T1 Condom use	—	—	−0.04	—
Doc. status T2 → T2 Condom use	—	—	−0.15	—
Doc. status T3 → T3 Condom use	—		0.12	—
Marital status T1 → T1 Condom use	—	—	−0.44*	−0.45**
Marital status T2 → T2 Condom use	—	—	−0.84**	−0.96**
Marital status T3 → T3 Condom use	—	—	−0.44*	−0.45**
Income T1 → T1 Condom use	—	—	−0.003*	0.002
Bicorne T2 → T2 Condom use	—	—	0.001	—
Income T3 → T3 Condom use	—	—	−0.009**	−0.007**

Note.

* $p < .05$.

** $p < .01$.

TABLE 4

Results of Growth Curve Models Testing Pre- to Post-Immigration Number of Sexual Partners in Pasr 90 Days

	Overall		Females		Males	
Parameter	**Model 1 Int. (Slope)**	**Model 2 Int. (Slope)**	**Model 3 Int. (Slope)**	**Model 4 Int. (Slope)**	**Model 5 Int. (Slope)**	**Model 6 Int. (Slope)**
#SP (number of sex partners)	.97** (−.01)	.82** (.06**)	.45* (.27*)	.65** (.11**)	1.05** (.10)	1.11 (−.06**)
Time Invariant Covariates						
Gender	—	.29**(−.12**)	—	—	—	—
Country of origin	—	—	.07 (−.05)	—	−.07 (.02)	—
Age	—	—	.001 (−.002)	—	.01 (−.01)	
Time Varying Covariates						
Doc. status T1 →T1#SP	—	—	.22*	.17*	.10	—
Doc. status T2 →T2#SP	—		.15*	.11*	.004	—
Doc. status T3 →T3#SP	—	—	−.04	.02	.06	—
Marital status Tl →T1#SP	—	—	.01	.02	−.12	—
Marital status T2 →T2#SP			.11*	.12*	−.09	—
Marital status T3 →T3#SP	—	—	.85	.09*	.04	—
Income T1→T1#SP	—	—	< .001	—	< .001	—
Income T2 →T2#SP	—	—	< .001	—	< .001	—
Income T3→T3#SP	—	—	.001	—	−.001	

Note.

* $p < .05$.

** $p < .01$.