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Predicting Condom Use among Latina Women Using the Social-Ecological Model

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Predicting Condom Use among Latina Women Using the Social-Ecological Model

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2010

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An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
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2013

ABSTRACT

Predicting Condom Use among Latina Women Using the Social-Ecological Model

By Christina Laurie Lee

Introduction: Latinos are disproportionately affected by HIV compared to other racial and ethnic groups, accounting for approximately 20% of all HIV prevalence in the United States. In 2005, HIV/AIDS was the fourth leading cause of death among Latina women aged 35-44 and nearly half of Latina adults and adolescents contract HIV/AIDs through high-risk heterosexual contact. **Objective:** The aim of this study was to assess the relationship between condom use behaviors and health insurance status, gender role views, power in the relationship, condom attitudes, time living in the United States, country of birth, and legal immigration status among Latina women, within the constructs of the Social-Ecological Model. **Methods:** This study utilized a cross-sectional design and secondary, quantitative data analysis of the AMIGAS (*Amigas, Mujeres Latinas, Inform Andonos, Gui andonos, y Apoy andonos contra el SIDA* [friends, Latina women, informing each other, guiding each other, and supporting each other against AIDS]) dataset. Convenience sampling was used to survey 251 Latina women aged 18 to 35 in the Miami metropolitan area from October 2008 to October 2009. **Results:** Increased condom use was found to be significantly associated with lower age and having a paid job, health insurance, fewer traditional views of gender roles, more positive condom attitudes, and later age at immigration. However, both birth in a Caribbean country and greater time living in the U.S. was significantly associated with reduced condom use. There was no association found between power in the relationship and condom use. **Conclusion:** These findings highlight the continual need for culturally sensitive HIV prevention programs for Latina women. Further research is needed to explore the relationship between health insurance and condom use, how cultural barriers to safer sex practices may differ by country of origin, and how living in a predominantly Latino community may influence the degree of acculturation and social norms around sexual health behaviors.

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INTRODUCTION

Background and Significance

Human immunodeficiency virus (HIV) is a virus that causes disease of the human immune system and can eventually lead to acquired immune deficiency syndrome (AIDS). There are two types of HIV, HIV-1 and HIV-2. Though, "HIV" primarily refers to HIV-1 (CDC, 2012).

HIV is primarily spread through four bodily fluids: semen, vaginal secretions, blood, and breast milk. Having unprotected sex and multiple sex partners, sharing needles and syringes for injection of illicit drug use, and breastfeeding from a mother with HIV are the common known risk factors of contracting HIV (CDC, 2012). Though abstinence from sexual intercourse or being in a long-term mutually monogamous relationship with an uninfected partner is the only way to completely avoid sexual transmission of HIV, consistent and correct use of latex condoms has been proven to reduce heterosexual HIV transmission by 80% (Weller & Davis, 2002).

Study Rationale

Latina women are disproportionately affected by HIV, with an infection rate that is nearly four times that of white women (11.8/100,000 vs. 2.6/100,000, respectively) in the United States (CDC, 2011a). Latinos represent 16% of the U.S. population, but account for approximately 20% of HIV prevalence (CDC, 2011b). In 2005, HIV/AIDS was found to be the fourth leading cause of death among Latina women aged 35-44.

The Centers for Disease Control and Prevention report that nearly half (49%) of female Latina adults and adolescents with HIV/AIDS contract it through high-risk

heterosexual contact (CDC, 2005). This study aims to fill a gap in the literature by examining the association between immigration history, health insurance, and sexual risk behaviors among Latina populations including condom use, number of sex partners, and characteristics of sex partners. Unlike previous research, this study focuses on Latina adults in Miami, Florida, where Latinos represent a growing majority (70.0%) of the population (U.S. Census, 2012b). Whereas previous literature has either homogenized Latinos as one group or distinguished between foreign born and U.S. born, this study will explore a more diverse array factors related to immigration, including country where participants were born, age at time of immigration, length living in the United States, and immigration status.

We expect that being foreign born, older age at time of immigration, and shorter time spent in the U.S. will be associated with reduced condom use. We also predict that individuals with U.S. citizenship will be more likely to use condoms compared to those with U.S. visas or refugees. Finally, we hypothesize that having health insurance will be associated with increased condom use.

Theoretical Framework

This research study utilizes the CDC Social-Ecological Model, which provides a framework for understanding risk factors for HIV. The four-level model considers the interconnection between the individual, relationships, community, and society in the production of health (see Figure 1).

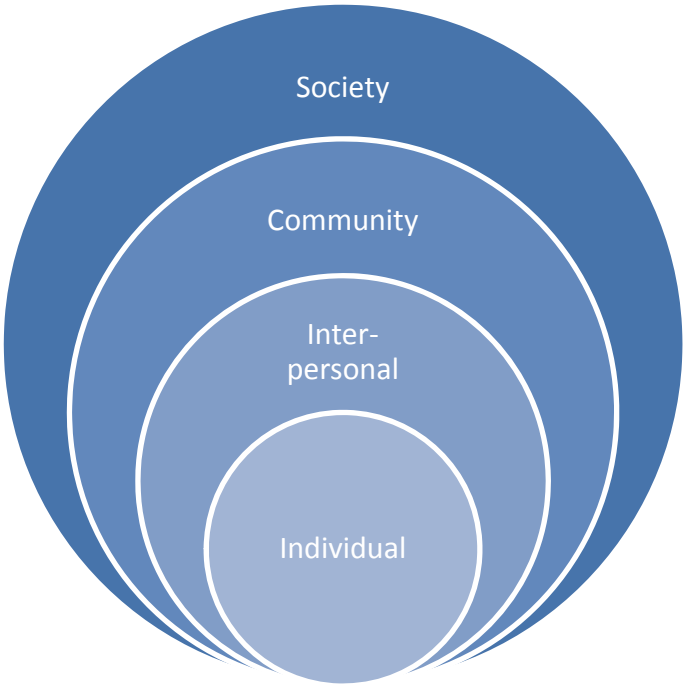

Figure 1: Social Ecological Model
Adapted from CDC Social-Ecological Model: A Framework for Prevention (CDC, 2009)

Society encompasses the broader social, economic, and policy factors that create an environment that can foster HIV transmission or reduction. These larger societal factors often contribute to economic, social, and health inequities that exist between groups in society. Within the sphere of society, exist communities. At the **community** level, workplaces and neighborhoods impact the local social norms and policies related to sexual health behaviors and gender norms. **Interpersonal relationships** develop within the community and societal levels. This level examines how a person's social circle, including peers, partners, and family, influence knowledge, attitudes, and behaviors related to HIV and sexual health. The **individual**, depicted at the center of the model, refers to biological and personal history factors that can influence a person's risk of HIV. The Social-Ecological Model posits that the relationship between these four levels can be

multi-directional. For example, just as societal factors can “trickle down” to communities, communities also have the ability to influence the larger societal climate.

LITERATURE REVIEW

History and Overview of the Latino Population in Miami, Florida

Florida is the fourth largest state in the nation, with a population of over 19 million people in 2011 (U.S. Census, 2012a). Beginning in the 1970s, Florida saw a marked growth in its immigrant population, and Miami became a popular destination for these newcomers. In 1970, Miami was already a "minority-majority" city, with 44.6% of its population comprised of Latinos, 41.7% by Whites, and 13.1% by Blacks (Leonard, Bouvier, & Martin, 1995). Overall, 41.8% of Miamians were foreign-born and, of those that were Latinos, approximately 75% were from Cuba.

Further influx of immigrants from 1970 to 1990, coupled with the migration of Whites to more racially homogeneous suburban regions (i.e. "White flight"), led to even further growth in the Miami's minority population (Leonard et al., 1995). Beginning in the 1980s, Miami's Latino population became increasingly diverse as more immigrants began coming from Nicaragua, Colombia, Peru, and the Dominican Republic. By 1990, Latinos represented nearly 62.4% of the city's population, while Blacks accounted for 24.7% and Whites represented 12.3%.

In 2011, Latinos accounted for 70.0% (275,000) of the population in Miami, which is currently ranked as the 44th most populous city by the U.S. Census Bureau (U.S. Census, 2012b, 2012c). Overall, 73.0% of Miami's Latino population is foreign-born and 50.2% is female. Of those that are foreign-born, 56.4% were born in the Caribbean, 29.3% in Central America, and 13.4% in South America (United States Census Bureau & 2006-2012 American Community Survey, 2012a, 2012b).

The median household income of Latinos in Miami is $27,217 and nearly 21.3% of Latino families report earning an income below the national poverty level in the last 12 months (United States Census Bureau & 2006-2012 American Community Survey, 2012c). Approximately 24% have less than a ninth grade education, 28.7% have a high school diploma, and 12.9% have a bachelor's degree (United States Census Bureau & 2006-2012 American Community Survey, 2012d). Of those who are 16 years of age and older and employed, the most common industries of occupation include construction (15.7%), educational services/health care/social assistance (14.4%), and professional/scientific/ management/administrative/waste management services (11.5%) (United States Census Bureau & 2006-2012 American Community Survey, 2012c). Among Latino women aged 15 and older, 38.4% are married, 28.6% have never been married, 16.6% are divorced, 11.7% are widowed, and 4.7% are separated (United States Census Bureau & 2006-2012 American Community Survey, 2012d).

HIV among Immigrants

In 2011, there were an estimated 19.8 million foreign-born Latinos residing in the United States, which accounts for nearly 30% of the foreign-born population (Castillo-Mancilla et al., 2012). A significant amount of literature has documented the relationship between immigration and the risk of acquiring HIV. Migration, especially to a place in U.S. that has higher prevalence of HIV, can modify an individual's risk behaviors and increase the likelihood of an HIV infection. Immigration can result in financial distress, feelings of loneliness, and loss of social networks and connection with family back home, all which can affect an individual's self-esteem and mental health. Catillo-Mancilla et al.

further suggest that when coupled with introduction to more liberal Western norms and custom of sexual behavior and sense of anonymity in a new place, migrants may engage in riskier sex. Particularly among male migrants, research indicates that these factors are associated with increases in casual sex with random partners, including commercial sex workers and other men, and illicit drug use. Given that most women in the U.S. (84%) contract HIV infections through heterosexual contact, it follows then that increased risk of HIV infection among male migrants may translate to higher risk of infection for female migrants (CDC, 2011b).

HIV Risk Factors and the Social-Ecological Model

Society. The outer level of the model, the "societal" level, refers to the broader health, economic, political, social, and environmental conditions and policies that alter risk of HIV. Examples include access to health insurance and health services.

According to the CDC, Latinos are more likely to lack health insurance than any other racial/ethnic group. In 2008, nearly 30.4% of Latinos were without insurance, compared to only 17% of Blacks and 9.9% of Whites (CDC, 2008). In addition, there are an estimated 10.3 million illegal immigrants in the United States, of which nearly 57% are from Mexico and 24% from other Latin American countries (Passel, 2005). Research suggests that women who lack health insurance and have difficulties with their immigration status and documentation may be less likely to access STD services, which may potentially increase their risk of HIV (Cashman, Eng, Siman, & Rhodes, 2011; Wingood & DiClemente, 2000).

Additionally, whereas a majority of prior literature has studied Latinos as a homogeneous group, or distinguished between U.S. born and foreign born, few have considered country of origin. Of those studies that have studied country of origin, most have not found a significant association with condom use (McDonald, Manlove, & Ikramullah, 2009; Weiss & Tillman, 2009). However, the fact that several researchers have explored it suggests that a relationship is plausible and worthy of further study. Weiss & Tillman (2009) did, however, find differences in sexual risk behaviors between U.S. born and foreign-born Latina women. Specifically, women who immigrated before the age of six were less likely to have had recent vaginal and oral sex than their U.S.-born peers.

Other studies have also found associations between ethnicity and sexual risk behaviors. For example, McDonald et al. (2009) found that Puerto Rican youth had greater odds of having sex before age 18 when compared to populations of other Latin American regions and countries. Likewise, through in-depth interviews and focus groups, Deren, Shedlin, Kang, & Cortés (2011) found that some Mexican women in New York immigrated to prevent their partners from having sex with other women, as well as to protect themselves and their families from acquiring diseases like HIV/AIDS. They also found that longer residence in the United States and more exposure to information on HIV prevention may explain differences in HIV risk behaviors among Latino subgroups. Weiss & Tillman (2009) found that young, immigrant Latino female adults in South Florida were less likely to engage in oral (71%) and vaginal (83%) sex compared to their U.S. born counterparts (86% and 91%, respectively). In addition, in a study analyzing sexual risk behaviors of adolescents in immigrant families, Harris (2009) found that use

of birth control was more prevalent among native Mexican youth (56.5%) than sexually active youth who immigrated from Mexico (42.5%).

Community. The "community" level considers both social and cultural norms of a community, such as the influence of Western versus Latino values on attitudes towards gender roles and condom use.

Traditional Latino culture emphasizes differential gender roles through the ideologies of *marianismo* and *machismo*. *Marianismo* promotes the cultural norm that Latino women are the weaker sex, both morally and physically, and should play the submissive role in a heterosexual relationship (Hernandez, Zule, Karg, Browne, & Wechsberg, 2012; Mayo & Resnick, 1996). Women are expected to remain virgins until marriage and are most valued for their ability to serve as caregivers and bare children (Weiss & Tillman, 2009). Some Latina women believe that motherhood can bring status, respect from the community, and a sense of fulfillment (Mayo & Resnick, 1996; Unger & Molina, 1998). *Machismo* establishes the male as an autonomous figure and decision-making authority (Weiss & Tillman, 2009). Belief in male dominance supports the notion of sexual prowess and justifies male promiscuity (Hernandez et al., 2012). Sable et al. (2006) found that infidelity is seen as a natural and normative behavior among Latino men. Several studies have also found *machismo* to be associated with less frequent condom use and as a barrier to women's initiating condom use (Hillman, 2008; Tross, 2001).

There is also significant literature that has investigated the relationship between acculturation and condom use. Acculturation is generally defined as "the extent to which

an individual from a non-dominant ethnic group (e.g., Hispanic) adopts various aspects of the culture of the dominant ethnic group (Caucasian)" (Roncancio, Ward, & Berenson, 2012, p. 35). It is most frequently measured by assessing one or a combination of four dimensions: time spent in the United States, proficiency and preferential use of Spanish versus English language, culture, and place of residence (Afable-Munsuz & Brindis, 2006).

Research analyzing the relationship between acculturation and sexual risk behaviors, including condom use, among Latino women has yielded mixed results. Most studies have found that higher acculturation is associated with more positive views about condoms, more frequent condom use, higher sexual communication with new partners, and greater knowledge of HIV, but higher number of sexual partners (Ford & Norris, 1993; Lee & Hahm, 2010; Marin, Tschann, Gomez, & Kegeles, 1993; Norris & Ford, 1994; Rojas-Guyler, 2005; Sabogal, Perez-Stable, Otero-Sabogal, & Hiatt, 1995). However, some studies have conversely found that greater acculturation is associated with higher risk of self-reported STDs and lower odds of using condoms (Lee & Hahm, 2010; Rapkin & Erickson, 1990).

Several theories have been put forth to justify these inconsistencies. Lee & Hahm (2010) claim that inconsistent findings are due to methodological limitations, including the absence of nationally representative samples and use of cross-sectional designs, as opposed to longitudinal designs. Meanwhile, Sanchez et al. (2010) propose that research findings may be attributed to the Hispanic Health Paradox, a "hypothesized phenomenon which contends that despite social, economic, cultural and linguistic disadvantages faced by the newly immigrated, Latinos have fewer negative health outcomes than their US

born counterparts" (p. 402). It is theorized that the Hispanic Health Paradox exists because (1) the most resilient Latinos are likely to immigrate and (2) the close-knit, familial Latino culture insulates individuals from factors that deteriorate health. Conflicting findings on the relationship between acculturation and health risk behaviors may stem from the fact that the Hispanic Health Paradox is believed to be true for Mexican immigrants, but not Puerto Ricans, Cubans, or Central Americans.

Interpersonal. The "interpersonal" level examines a person's closest social circles, including sexual partners and family members, who may influence an individual's sexual behavior, as well as knowledge and attitudes about HIV prevention and condom use.

Latina women are at increased risk for contracting an HIV infection if they have multiple sexual partners or are having sex with a high-risk partner, which includes men with multiple sex partners or who inject drugs, as well as men who have sex with other men. However, many Latina women face cultural barriers to taking charge of their own sexual health, including the belief in more traditional gender norms and family loyalty.

Gender norms increase the risk of HIV for Latino women. The power imbalance that is enforced through *marianismo* and *machismo* can limit a woman's ability to negotiate condom use with their partners, as well as inhibit other risk-reduction behaviors. Sexual division of power can also affect a woman's behavioral risk factors, including her condom use skills, assertive communication skills, self-efficacy in avoiding HIV, and perceived control in the relationship (Harlow et al., 1998; Morokoff et al., 1997; Murphy, Rotheram-Borus, & Reid, 1998; Wingood & DiClemente, 1998). Women who are economically or socially dependent on their male partners may feel obligated to

engage in HIV risk behaviors imposed by their partners. This sexual division of power can increase the likelihood of a woman's exposure to sexual or physical abuse, steady high-risk partners, partners who disapprove of safer sex practices, or HIV prevention education (McFarlane, Parker, Soeken, & Bullock, 1992; National Abortion Rights Action League Foundation, 1995; Plichta, Weisman, Nathanson, Ensminger, & Robinson, 1992; Wingood & DiClemente, 1998). Several studies have found that Latina women feel embarrassed and uneasy about discussing sexuality and condoms with their partners (Hernandez et al., 2012; Rojas-Guyler, 2005). Many women believe Latino men dislike using condoms because doing so diminishes sexual pleasure (Hernandez et al., 2012; Mayo & Resnick, 1996). They also fear discussing condoms because they believe it will anger their male partners, and that requesting condoms signifies distrust and lack of respect, which could jeopardize their relationship (Mayo & Resnick, 1996; Rojas-Guyler, 2005). Research has shown that Latina women who fear that their partners will become angry if they ask to use condoms are less likely to use condoms (Marin, Gomez, & Tschann, 1993). In addition, women who have a steady partner that resists condom use are three times less likely to use condoms (Wingood & DiClemente, 1998). Conversely, Pulerwitz et al. (2002) found that women who have more egalitarian power in the relationship are five times as likely to report consistent condom use. Research has also found that Latino college students who perceive partner approval of condoms were more likely to self-report condom use (Jemmott, Jemmott, & Villarruel, 2002).

The Latino culture also holds strong value on family loyalty. *Familismo* refers to the responsibility and interconnectedness to both immediate and extended family members (Guilamo-Ramos, Bouris, Jaccard, Lesesne, & Ballan, 2009). It stresses

collective orientation in the Latino culture and prioritizes the desire to maintain family honor. Embracement of *familismo* may motivate Latina women to make sexual decisions that they believe is in the best interest of or is supported by family.

Family beliefs and religious affiliation can alter perceived norms around acceptability of HIV prevention and use of contraceptives. Motherhood and fertility is strongly valued in the Latino culture, which conflicts with interest of HIV prevention through condom use. In addition, many Latina women are followers of Catholicism, which forbids the use of birth control (Sable et al., 2006).

Individual. At the center of the model is the "individual" level, which refers to an individual's biological predisposition to HIV, as well as their demographics, immigration history, knowledge, attitudes, and personal behaviors risk factors.

For example, research has illustrated there are biological differences in susceptibility to contracting HIV between males and females (AIDSMEDS, 2012). Male-to-female HIV transmission during vaginal intercourse is significantly more likely to occur than female-to-male transmission because the female vagina has a larger mucosal surface area that is vulnerable to transmission compared to the male penis.

Studies also suggest there are differences in sexual risk behaviors according to education level and income. Women who have lower incomes and less than a high school education are less likely to use condoms and have access to or utilize other HIV preventive resources (Anderson, Brackbill, & Mosher, 1996; Peterson et al., 1992; Upchurch et al., 1992). Moreover, Latinos are over two and a half times more likely to

live under the poverty level than their White counterparts (33% and 13% respectively) (The Henry J. Kaiser Family Foundation, 2011).

Research has also found that Spanish-speaking women are generally less knowledgeable about HIV than their non-Hispanic White counterparts, which reduces the likelihood of engaging in HIV prevention activities like condom use (Marin, Tschann, et al., 1993; Wingood & DiClemente, 2000).

However, much of the research available on Latino populations and condom use does not distinguish by country of origin, ethnicity, or other immigration history characteristics. Homogenizing the Latino population may mask differences in sexual risk behavior patterns and thus opportunities for intervention that may arise from unique immigration experiences and documentation status. For example, Weiss & Tillman (2009) found differences in sexual risk behaviors between U.S. born and foreign-born Latina women. Specifically, women who immigrated before the age of six were less likely to have had recent vaginal and oral sex than their U.S.-born peers. Additionally, women who immigrated after the age of six reported fewer sex partners and were less likely to have recently had oral sex and used drugs while having sex than their U.S. born counterparts.

Finally, many studies have also found an association between condom attitudes and condoms use. Roberts and Kennedy (2006) found negative attitudes about condoms among college women as a key factor in lack of condom use. Additionally, several research studies found that positive condom attitudes are significantly related to intentions to condoms among Latino youth (Small & Weinman, 2009; Villarruel, Jemmott, Jemmott, & Ronis, 2004).

Summary

Research suggests that more traditional Latina women may be more likely to engage in risky sexual behaviors and less likely to use condoms. However, few studies have analyzed at whether these associations differ by immigration history and country of origin. In addition, research also indicates that Latinos are the most likely racial/ethnic group to be without health insurance. Therefore, we hypothesize the following:

Hypothesis 1. We predict that having health insurance, birth in the United States, fewer traditional views of gender roles, more egalitarian power in the relationship, more positive condom attitudes, greater time living in the United States, lower age of immigration, and legal immigration status will be associated with increased percent condom use during vaginal sex.

Hypothesis 2. We predict that having health insurance, birth in the United States, fewer traditional views of gender roles, more egalitarian power in the relationship, more positive condom attitudes, greater time living in the United States, lower age of immigration, and legal immigration status will be associated with increased percent condom use during anal sex.

Hypothesis 3. We predict that having health insurance, birth in the United States, fewer traditional views of gender roles, more egalitarian power in the relationship, more positive condom attitudes, greater time living in the United States, lower age of immigration, and legal immigration status will be associated with increased consistent condom use during vaginal sex.

Hypothesis 4. We predict that having health insurance, birth in the United States, fewer traditional views of gender roles, more egalitarian power in the relationship, more positive condom attitudes, greater time living in the United States, lower age of immigration, and legal immigration status will be associated with decreased likelihood of never using condoms.

METHODS

Design

This study is a quantitative, secondary analysis of the AMIGAS (*Amigas, Mujeres Latinas, Inform Andonos, Gui andonos, y Apoy andonos contra el SIDA* [friends, Latina women, informing each other, guiding each other, and supporting each other against AIDS]) dataset. AMIGAS was a randomized control trial that intended to assess the effectiveness of a culturally congruent HIV prevention intervention among Latina women in Miami, Florida. The Institutional Review Board at Emory University determined that this study to fit the category of non-human research and therefore withdrew it from review (see Appendix A)

Participants

Study participants were identified and recruited by Latina outreach workers, who had both trusting relationships with the Latino community and prior experience recruiting Latina women (Wingood et al., 2011). Outreach workers helped to develop culturally appropriate recruitment materials written in Spanish and recruited participants from October 2008 to October 2009 in the Miami metropolitan area. Of the initial convenience sample of 753 self-identified Latina women that were screened, 340 (45.2%) were eligible to participate in the study. Eligibility criteria included being a Spanish-speaking woman, 18 to 35 years of age, reporting having unprotected vaginal intercourse with a male sexual partner in the preceding 90 days, unmarried and not living with a male sexual partner, not pregnant or planning pregnancy, and providing written informed

consent. Of those who were eligible, 251 (73.8%) of women consented to participate in the study.

Procedures

The AMIGAS study was a longitudinal, randomized control trial with 3 data collection time points: baseline, 3-month post-intervention follow-up, and 6 month post-intervention follow-up. However, this study will report results based only on cross-sectional data collected at baseline assessment. The assessment survey was translated and administered in Spanish via audio computer-assisted self-interviews (ACASI). Participants were given a $50 gift card in compensation for their travel, out-of-pocket expenses, and for completing the study assessment.

Measures

The assessment survey included the following 17 sections: demographics, religious beliefs, acculturation, sexual behaviors, condom errors, HIV knowledge, HIV testing, condom use barriers, sexual negotiation self-efficacy, gender norms, power in relationship, condom attitudes, condom skills self-efficacy, drug and alcohol use, self-esteem, and depression. Participants were given the option to "refuse to answer" on all survey items. This secondary analysis will assess survey questions from sections including demographics, sexual behaviors, condom errors, condom use barriers, gender norms, condom attitudes, and condom skills self-efficacy.

Of the demographic variables included in the analysis, **age** was assessed as a continuous variable and entered by study staff at the start of the survey as was verbally

reported by the participant. **Education** was assessed categorically by stratifying responses to the question "what is the highest grade or year of school you completed" into "high school or less," "some college," and "post college." Additionally, **employment status** was assessed with the question "do you have a job for which you are paid for," with answer options including "no," "yes," and "refuse to answer." **Hourly wage** was assessed continuously with the question "how much do you make per hour. Finally, **income source** was assessed dichotomously with the question "where do you get most of your spending money," and responses were stratified into either "boyfriend" or "all other."

Hypothesized Society-Level Predictor Variables:

Health Insurance Status. Participants were asked about their health insurance status through the question "do you have health insurance," with answer options including "no" and "yes."

Country of Birth. Nativity was assessed categorically by the question "in what county were you born?" Participants were given the option to choose from 11 answer options, some of which include "Mexico," "Cuba", "Puerto Rico," "Central America (Guatemala, El Salvador, Nicaragua, Honduras, Panama, Costa Rica, Belize)," and "South America (Columbia, Venezuela, Ecuador, Peru, Bolivia, Chile, Brazil, Uruguay, Paraguay, Argentina, Suriname)." Responses were subsequently recoded into the following four categories: United States, Caribbean, Central America/Mexico, and South America.

Hypothesized Community-Level Predictor Variables:

Gender Norms (Machismo). *Machismo* was assessed using an 11-item scale with answer options ranging from (1) strongly agree to (4) strongly disagree. Sample items included "most women are attracted to sensitive men" and "sometimes it is good for a married man to have sex outside of his marriage." The former was reverse coded prior to computing the total scale score by summing the responses to all 11 items. Scores could range from 11 to 44, with higher scores indicating less traditional views of gender roles. Cronbach alpha reliability for this scale was .69, suggesting adequate internal consistency for scale items.

Hypothesized Interpersonal-Level Predictor Variables:

Power in Relationship. Sexual relationship power was assessed using a 17-item scale with answer options ranging from (1) strongly agree to (4) strongly disagree. Sample items included "if I asked my partner to use a condom, he would get violent" and "most of the time we do what my partner wants to do." Four items were reverse coded prior to computing the total scale by summing the responses to all 17 items. Scores could range from 17 to 68, with higher scores indicating increased feelings of power in the relationship. Cronbach alpha reliability for this scale was .81, suggesting good internal consistency for scale items.

Hypothesized Individual-Level Predictor Variables:

Condom Attitudes. Attitudes about using condoms was assessed using an 8-item scale with answer options ranging from (1) strongly agree to (4) strongly disagree.

Sample items included “people who carry condoms would have sex with anyone” and “people who use condoms sleep around a lot.” Five items were reverse coded prior to computing the total scale by summing the responses to all 8 items. Scores could range from 8 to 32, with higher scores indicating more positive condom attitudes. Cronbach alpha reliability for this scale was .82, suggesting good internal consistency of scale items.

Age of Immigration. Age at which participants immigrated to the United States was assessed continuously with the question “how old were you when you came to the United States?”

Time Living in the United States. Length residing in the U.S. was assessed with the question “how long have you been living in the United States?”

Immigration Status. Documentation status was assessed categorically by the question “what is your immigration status.” Response choices included “US citizen/resident,” “visa,” “parole/refugee,” “other,” and “refuse to answer.” Responses were dichotomized into legal and illegal immigration status. Participants were stratified to legal immigration status if they selected “US citizen/resident,” “visa,” or “parole/refugee,” or illegal immigration status if they selected “other.”

Hypothesized Outcome Variables:

Percent Condom Use. Percent condom use was assessed for both vaginal and anal sex, and for the preceding 30 and 90 days. Participants were asked “in the past 3 months, how many times have you had vaginal sex with a man” and “in the past 3 months of the [response to previous question] times you had vaginal sex with a man, how many

times did you use a condom." These questions were repeated with "the past 30 days" replacing "the past 3 months" and "anal sex" replacing "vaginal sex." Percent condom use was calculated by dividing the response to the second question by the response to the first.

Consistent Condom Use during Vaginal Sex. Consistent condom use during vaginal sex was assessed for the preceding 30 and 90 days with the same survey questions used to calculate percent condoms use. Sample questions included "in the past 3 months, how many times have you had vaginal sex with a man" and "in the past 3 months of the [response to previous question] times you had vaginal sex with a man, how many times did you use a condom." Participants who reported the same number for both questions were categorized as "consistent." Participants who reported using condoms less frequently than the number of times they have had vaginal sex were categorized as "inconsistent."

Never Used Condoms during Vaginal Sex. Never using condoms during vaginal sex was assessed for the preceding 30 and 90 days, again with the same questions used to calculate percent condom use and consistent condom use. Those who reported having vaginal sex in either the last 30 or 90 days, and reported using condoms zero times during the times they had vaginal sex, were categorized as "never use." Those who reported using condoms more than zero percent of the time they had vaginal sex in the preceding 30 or 90 days were categorized as "sometimes use."

Data Analysis Plan

All data was analyzed using SPSS 20 for Windows. Descriptive statistics were used to describe the sociodemographic characteristics of the sample population. Frequency and percent was reported for dichotomous and categorical variables, and the mean and standard deviation was reported for continuous variables. Next, bivariate analyses were run between all hypothesized predictor and outcome variables. Bivariate analysis was also used to assess the relationship between outcome variables and potential covariates. To assess the relationship with continuous outcome variables, Pearson r correlation was used for continuous predictor variables, one-way ANOVA tests were used for categorical predictor variables, and independent T-tests were used for dichotomous predictor variables. To assess the relationship with dichotomous outcome variables, independent T-tests were used for continuous predictor variables, while Chi-square tests were used for categorical and dichotomous predictor variables.

Variables reaching a significance level of $p<.20$ were included in multivariate analysis. Both linear and logistic regression models were used to determine whether health insurance, gender norms, power in the relationship, condom attitudes, time living in the United States, country of birth, and immigration status predicted the four hypothesized outcomes. Separate linear regression models were run for each continuous outcome variable, while separate logistic regression models were run for dichotomous outcome variables.

RESULTS

Sample Characteristics

A total of 251 women participated in this study, with a mean age of 30.27 (sd= 6.86) (see Table 1). Nearly half of participants (n= 126, 50.2%) reported having a college degree or completed at least some college, while 43.8% (n= 110) reported completing high school or less, and 6.0% (n= 15) reported completing post college studies. In addition, a majority of participants (n= 141, 57.1%) reported that they were not employed, and 14.9% (n= 35) received most of their money from their main sexual partner. Of those women that were employed (n= 106, 42.2%), their average hourly wage was $10.19 (sd= $3.94).

Almost all participants (n= 229, 91.2%) were foreign born: 38.2% (n= 96) were from South American countries, 25.5% (n= 64) from Cuba, 19.9% (n= 50) from Central American countries, 4.0% (n= 10) from the Dominican Republic, 2% (n= 5) from Puerto Rico, and 1.6% (n= 4) from Mexico. Only 8.8% (n= 22) were born in the United States. On average, women who were foreign born immigrated at the age of 21.96 (sd= 7.97) and resided in the United States for 10.51 (sd= 9.29) years. Additionally, most women reported legal status in the United States (n= 205, 83.7%), but did not have health insurance (n= 182, 72.5%).

Table 1. Characteristics of Sample

	Entire Sample	
	Mean (sd)	N (%)
Total		251
Age	30.27 (6.86)	
Country of Birth		
U.S.		22 (8.8)
Caribbean*		79 (31.5)
Central America/Mexico**		54 (21.5)
South America***		96 (38.2)
Years living in U.S. (of non-U.S. born)	10.51 (9.29)	
Age when arrived in U.S.	21.96 (7.97)	
Legal immigration status		205 (83.7)
Lacking health insurance		182 (72.5)
Education		
High school or less		110 (43.8)
Some college		126 (50.2)
Post college		15 (6.0)
Employed		106 (42.2)
Hourly wage	10.29 (3.94)	
Received most spending money from partner		35 (14.9)

* (Cuba, Puerto Rico, Haiti, and Dominican Republic)

**(Guatemala, Honduras, Panama, El Salvador, Nicaragua, Belize, and Costa Rica)

***(Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Brazil, Uruguay, Paraguay, Argentina, and Suriname)

Bivariate Analysis

Variables reaching a significance level of $p<.20$ in bivariate analysis (see Table 2) were included in multivariate analysis. However, age, employment status, education, income source, gender norms (machismo), power in the relationship, and condom attitude variables were included in all multivariate regression models because of previous literature that has demonstrated a relationship with condom use behaviors (Hillman, 2008; Marin, Gomez, et al., 1993; Miranda, Figueiredo, McFarland, Schmidt, & Page, 2011; Pulerwitz et al., 2002; Roberts & Kennedy, 2006; Tross, 2001; Wingood &

DiClemente, 1998). Immigration status was not found significantly associated with any of the outcome variables in bivariate analysis and so was subsequently excluded from the regression models.

Table 2. Bivariate Analysis

	p-value			
	% Condom Use in Vaginal Sex		% Condom Use in Anal Sex	
	Past 90 days	Past 30 days	Past 90 days	Past 30 days
Sociodemographic factors				
Age*	**.077**	**.031**	.535	.548
Education†	.878	.437	.329	.778
Employment Status‡	**.149**	1.000	**.141**	.621
Hourly Wage*	**.199**	.514	.700	.951
Income Source‡	.800	.550	.253	.507
Society				
Health Insurance Status‡	.210	.909	**.160**	**.092**
Country of Origin†	**.180**	.326	**.139**	.397
Community				
Gender Norms*	.276	.947	**.064**	.210
Interpersonal				
Power in the Relationship*	**.029**	**.032**	**.062**	**.099**
Individual				
Condom Attitudes*	**.001**	**<.001**	**.001**	**.010**
Age of Immigration*	.545	.745	**.020**	**.007**
Time living in the U.S.*	.748	.223	**.193**	.373
Immigration Status‡	.686	.958	.387	.792

* Pearson r correlation
† One-way ANOVA
‡ Independent T-test

Table 2. Bivariate Analysis (continued)

	p-value			
	Consistent Condom Use		Never Used Condoms	
	Past 90 days	Past 30 days	Past 90 days	Past 30 days
Sociodemographic factors				
Age‡	.799	**.013**	**.005**	.215
Education§	.929	.412	.442	.348
Employment Status§	.819	**.111**	.203	.222
Hourly Wage‡	**.154**	.394	.521	.344
Income Source§	.861	.366	.602	.888
Society				
Health Insurance Status§	.662	.685	.383	.656
Country of Origin§	.727	.223	**.147**	**.097**
Community				
Gender Norms‡	.492	.749	.425	.786
Interpersonal				
Power in the Relationship‡	**.144**	**.012**	**.081**	.249
Individual				
Condom Attitudes‡	.351	**<.001**	**.049**	**.015**
Age of Immigration‡	.789	.971	.330	.621
Time living in the U.S.‡	.917	.262	.259	**.036**
Immigration Status§	.446	.611	.386	.273

‡ Independent T-test
§ Chi-Square test

Linear Regressions

Hypothesis 1: Predicting Percent Condom Use during Vaginal Sex

Results from the linear regression model (see Table 3) suggest that employment status is significantly associated **with percent condom use during vaginal sex in the past 90 days**. On average, those who had a paid job were 11.4% more likely to use condoms during vaginal sex in the past 90 days than those who did not have a paid job when controlling for age, education, income source, country of origin, gender norms,

power in the relationship, and condom attitudes (B= .114; 95%CI= .019, .209; p= .019). There was no significant association between age, education, income source, country of origin, gender norms, power in the relationship, and condom attitudes and percent condom use during vaginal sex in the past 90 days. The total regression model accounted for 9.1% of the variance in percent condom use during vaginal sex in the past 90 days.

Table 3. Linear Regression Analysis of Percent Condom Use during Vaginal Sex in the Past 90 Days

	B	95% CI	p-value
Sociodemographic factors			
Age	-.002	-.009 - .005	.538
Education			
High school or less	Referent		
Some college	-.041	-.137 - .055	.404
Post college	-.013	-.214 - .189	.900
Employment Status	**.114**	**.019 - .209**	**.019**
Income Source	.080	-.056 - .217	.249
Society			
Country of Birth			
U.S.	Referent		
Caribbean*	-.078	-.252 - .096	.378
Central America/Mexico**[1]	--------	----------	------
South America***	-.039	-.210 - .132	.655
Community			
Gender Norms	.008	-.005 - .020	.214
Interpersonal			
Power in the Relationship	.003	-.005 - .011	.487
Individual			
Condom Attitudes	.010	-.001 - .020	.064

* (Cuba, Puerto Rico, Haiti, and Dominican Republic)

**(Guatemala, Honduras, Panama, El Salvador, Nicaragua, Belize, and Costa Rica)

***(Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Brazil, Uruguay, Paraguay, Argentina, and Suriname)

[1] Results could not be estimated due to small sample size

Results from the second linear regression model (see Table 4) suggest that condom attitudes are significantly associated **with percent condom use during vaginal sex in the past 30 days**. On average, for each unit increases in condom attitude score there was a 1.6% increase in percent condom use during vaginal sex in the past 30 days when controlling for age, education, employment status, income source, gender norms, and power in the relationship (B= .016; 95%CI= .005, .026; p= .003). There was no significant association between age, education, employment status, income source, gender norms, and power in the relationship and percent condom use during vaginal sex in the past 30 days. The total regression model accounted for 9.0% of the variance in percent condom use during vaginal sex in the past 30 days.

Table 4. Linear Regression Analysis of Percent Condom Use during Vaginal Sex in the Past 30 Days

	B	95% CI	p-value
Sociodemographic factors			
Age	-.003	-.010 - .004	.341
Education			
High school or less	Referent		
Some college	-.033	-.129 - .062	.493
Post college	-.077	-.293 - .139	.483
Employment Status	.050	.046 - .145	.309
Income Source	.072	-.067 - .210	.308
Community			
Gender Norms	.001	-.012 - .013	.961
Interpersonal			
Power in the Relationship	.004	-.004 - .012	.336
Individual			
Condom Attitudes	**.016**	**.005 - .026**	**.003**

Hypothesis 2: Predicting Percent Condom Use during Anal Sex

Results from the linear regression model (see Table 5) suggest that health insurance status, gender norms (machismo), length living in the United States, and being born in the Caribbean are significantly associated with **percent condom use during anal sex in the past 90 days**. On average, those with health insurance were 23.8% more likely to report using condoms during anal sex in the past 90 days than those without health insurance when controlling for age, education, employment status, income source, gender norms, power in the relationship, condom attitudes, length living in the United States, and country of origin (B= .238; 95%CI= .033, .444; p= .024). In addition, those born in the Caribbean were 50.2% less likely to report using condoms during anal sex in the past 90 days than those who were born in the United States when controlling for age, education, employment status, income source, health insurance status, gender norms, power in the relationship, condom attitudes, length living in the United States, and being born in the Central America/Mexico or South America (B= -.502; 95%CI= -.931, -.074; p= .022). Furthermore, every unit increase in gender norms score was associated with a 2.8% increase in use of condoms during anal sex in the past 90 days when controlling for age, education, employment status, income source, health insurance status, power in the relationship, condom attitudes, length living in the United States, and country of origin (B= .028; 95%CI= .008, .047; p= .008). Finally, for every additional year living in the United States, there was on average a 2.1% decrease in condom use during anal sex in the past 90 days when controlling for age, education, employment status, income source, health insurance status, gender norms, power in the relationship, condom attitudes, and country of origin (B= -.021, 95%CI= -.035, -.007; p= .003). There was no significant

association between age, education, employment status, income source, power in the relationship, condom attitudes, or being born in the Central America/Mexico or South America and percent condom use during anal sex in the past 90 days. The total regression model accounted for 41.5% of the variance in percent condom use during anal sex in the past 90 days.

Table 5. Linear Regression Analysis of Percent Condom Use during Anal Sex in the Past 90 Days

	B	95% CI	p-value
Sociodemographic factors			
Age	-.010	-.005 - .025	.169
Education			
High school or less	Referent		
Some college	.031	-.157 - .218	.744
Post college	.056	-.337 - .450	.776
Employment Status	-.035	-.231 - .162	.725
Income Source	.177	-.048 - .402	.120
Society			
Health Insurance Status	**.238**	**.033 - .444**	**.024**
Country of Birth			
U.S.	Referent		
Caribbean*	**-.502**	**-.931 - -.074**	**.022**
Central America/Mexico**	-.271	-.664 - .121	.171
South America***	-.369	-.790 - .053	.085
Community			
Gender Norms	**.028**	**.008 - .047**	**.008**
Interpersonal			
Power in the Relationship	-.002	-.017 - .012	.773
Individual			
Condom Attitudes	.019	-.002 - .047	.077
Length Living in U.S.	**-.021**	**-.035 - -.007**	**.003**

* (Cuba, Puerto Rico, Haiti, and Dominican Republic)

**(Guatemala, Honduras, Panama, El Salvador, Nicaragua, Belize, and Costa Rica)

***(Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Brazil, Uruguay, Paraguay, Argentina, and Suriname)

Results from the regression model (see Table 6) suggest that income source, health insurance status, gender norms, and age at immigration are significantly associated with **percent condom use during anal sex in the past 30 days**. On average, those who received most of their money from their boyfriend were 22.8% more likely to use condoms during anal sex in the past 30 days compared to those receiving most of the money from other sources when controlling for age, education, employment status, health insurance status, gender norms, power in the relationship, condom attitudes, and age at immigration (B= -.228, 95%CI= -.432, -.203; p= .030). Additionally, on average those with health insurance were 24.0% more likely to use condoms during anal sex in the past 30 days when controlling for age, education, employment status, income source, gender norms, power in the relationship, condom attitudes, and age at immigration (B= .240; 95%CI= .032, .447; p= .025). Moreover, for every unit increase in gender norms score, there was on average a 2.8% increased use of condoms during anal sex in the past 30 days when controlling for age, education, employment status, income source, health insurance status, power in the relationship, condom attitudes, and age at immigration (B= .028; 95%CI= .007, .049; p= .011). Finally, for each additional year in age at immigration, there was a 2.0% increased likelihood of using condoms during anal sex in the past 30 days when controlling for current age, education, employment status, income source, health insurance status, gender norms, power in the relationship, condom attitudes, and country of origin (B= .020; 95%CI= .008, .032; p=.002). There was no significant association between current age, education, employment status, power in the relationship, condom attitudes, and country of origin and percent condom use during anal

sex in the past 30 days. The total regression model accounted for 46.0% of the variance in percent condom use during anal sex in the past 30 days.

Table 6. Linear Regression Analysis of Percent Condom Use during Anal Sex in the Past 30 Days

	B	95% CI	p-value
Sociodemographic factors			
Age	-.006	-.023 - .011	.501
Education			
High school or less	Referent		
Some college	-.065	-.239 - .108	.452
Post college	-.011	-.331 - .309	.946
Employment Status	.034	-.146 - .215	.704
Income Source	**.228**	**.203 - .432**	**.030**
Society			
Health Insurance Status	**.240**	**.032 - .447**	**.025**
Community			
Gender Norms	**.028**	**.007 - .049**	**.011**
Interpersonal			
Power in the Relationship	.000	-.014 - .015	.969
Individual			
Condom Attitudes	.013	-.008 - .034	.211
Age at Immigration	**.020**	**.008 - .032**	**.002**

Logistic Regressions

Hypothesis 3: Predicting Consistent Condom Use during Vaginal Sex

Multivariate logistic regression results (see Table 7) suggest that with each dollar increase in hourly wage, there is a 60% decreased odds in **consistent condom use during vaginal sex in the past 90 days** (AOR= .398; 95%CI= .160, .989; p= .047). However, age (p= .066), gender norms (p= .810), power in the relationship (p= .752), and condom attitudes (p= .635) did not significantly predict consistent condom use during vaginal sex

in the past 90 days. Additionally, some college education (p = .366) and post college education (p= .366) did not significantly differ from high school education or less, though both had large confidence intervals due to small sample sizes.

Table 7. Logistic Regression Analysis of Consistent Condom Use during Vaginal Sex in the Past 90 Days

	Odds of Consistent Condom Use		
	AOR	95% CI	p-value
Sociodemographic factors			
Age	1.204	.988 – 1.467	.066
Education			
High school or less	Referent		
Some college	1.434	.176 – 111.908	.366
Post college	14.391	.265 – 781.886	.191
Employment Status[1]	-------	----------	------
Income Source[1]	-------	----------	------
Hourly wage	**.398**	**.160 - .989**	**.047**
Community			
Gender Norms	1.045	.729 – 1.498	.810
Interpersonal			
Power in the Relationship	1.039	.820 – 1.316	.752
Individual			
Condom Attitudes	1.077	.793 – 1.461	.635

[1] Results could not be estimated due to small sample size

Multivariate logistic regression results (see Table 8) suggest that for each unit increase in condom attitudes, the odds of **consistent condom use during vaginal sex in the past 90 days** increased by 1.192 (or 19.2%) (AOR= 1.192; 95%CI= 1.022, 1.390; p= .026). However, age (p= .349), some college education (p= .398), employment (p= .790), receiving most money from a boyfriend (p= .402), having less traditional gender norms (p= .704), and more egalitarian power in the relationship (p= .356) did not significantly predict consistent condom use during vaginal sex in the past 90 days.

Table 8. Logistic Regression Analysis of Consistent Condom Use during Vaginal Sex in the Past 30 Days

	Odds of Consistent Condom Use		
	AOR	95% CI	p-value
Sociodemographic factors			
Age	.961	.883 – 1.045	.349
Education			
High school or less	Referent		
Some college	1.469	.470 – 4.589	.508
Post college[1]	------	----------	-----
Employment Status	.857	.275 – 2.673	.790
Income Source	2.007	.394 – 10.227	.402
Community			
Gender Norms	.974	.850 – 1.116	.704
Interpersonal			
Power in the Relationship	1.045	.952 – 1.146	.356
Individual			
Condom Attitudes	**1.192**	**1.022 – 1.390**	**.026**

[1] Results could not be estimated due to small sample size

Hypothesis 4: Predicting Never Using Condoms

Multivariate logistic regression results (see Table 9) suggest that for each year increase in age, there is a 1.049 (or 4.9%) increased odds of never using condoms during vaginal sex in the past 90 days (AOR= 1.049' 95%CI= 1.001, 1.100; p= .043). Additionally, those who are employed are 53% less likely to **never use condoms during vaginal sex in the past 90 days**. However, receiving most money from a boyfriend (p=.522), having less traditional gender norms (p= .455), more egalitarian power in the relationship (p= .527), and more positive condom attitudes (p= .561) did not significantly predict never using condoms during vaginal sex in the past 90 days. There was no difference between some college education (p= .145) and completing high school or less,

Table 9. Logistic Regression Analysis of Never Using Condoms during Vaginal Sex in the Past 90 Days

	Odds of Never Using Condoms		
	AOR	95% CI	p-value
Sociodemographic factors			
Age	**1.049**	**1.001 – 1.100**	**.043**
Education			
High school or less	Referent		
Some college	1.595	.851 – 2.989	.145
Post college	1.359	.351 – 5.256	.657
Employment Status	**.471**	**.252 - .880**	**.018**
Income Source	.748	.307 – 1.821	.522
Society			
Country of Birth			
U.S.	Referent		
Caribbean*	1.735	.560 – 5.374	.339
Central America/Mexico**	.802	.240 – 2.690	.720
South America***	.850	.279 – 2.583	.774
Community			
Gender Norms	.970	.894 – 1.051	.455
Interpersonal			
Power in the Relationship	.983	.933 – 1.036	.527
Individual			
Condom Attitudes	.980	.915 – 1.049	.562

* (Cuba, Puerto Rico, Haiti, and Dominican Republic)

**(Guatemala, Honduras, Panama, El Salvador, Nicaragua, Belize, and Costa Rica)

***(Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Brazil, Uruguay, Paraguay, Argentina, and Suriname)

or between having post-college education (p= .657) and completing high school or less. Finally, there was no difference between birth in United States and birth in the Caribbean (p= .339), Central America/Mexico (p= .720), or South America (p= .774).

Multivariate logistic regression results (see Table 10) suggests that those who have some college education are 2.344 times more likely to **never use condoms during vaginal sex in the past 30 days** than those who have completed high school or less

Table 10. Logistic Regression Analysis of Never Using Condoms during Vaginal Sex in the Past 30 Days

	Odds of Never Using Condoms		
	AOR	95% CI	p-value
Sociodemographic factors			
Age	.995	.941 – 1.051	.851
Education			
High school or less	Referent		
Some college	**2.344**	**1.153 – 4.764**	**.019**
Post college	2.242	.454 – 11.083	.322
Employment Status	**.393**	**.195 - .793**	**.009**
Income Source	.864	.330 – 2.260	.765
Society			
Country of Birth			
U.S.	Referent		
Caribbean*	**5.036**	**1.012 – 25.059**	**.048**
Central America/Mexico**	1.105	.254 – 4.808	.894
South America***	2.758	.566 – 13.444	.209
Community			
Gender Norms	.976	.894 – 1.066	.593
Interpersonal			
Power in the Relationship	.979	.926 – 1.035	.460
Individual			
Condom Attitudes	**.916**	**.847 - .990**	**.027**
Length Living in the U.S.	**1.102**	**1.035 – 1.173**	**.002**

* (Cuba, Puerto Rico, Haiti, and Dominican Republic)
**(Guatemala, Honduras, Panama, El Salvador, Nicaragua, Belize, and Costa Rica)
***(Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Brazil, Uruguay, Paraguay, Argentina, and Suriname)

(AOR= 2.344; 95%CI= 1.153, 4.764; p= .019). Among those that are employed, the odds of never using condoms in the past 30 days are 61% lower than those who are not employed (AOR= .393; 95%CI= .195, .793; p= .009). In addition, those born in the Caribbean were over 5 times more likely to never use condoms during vaginal sex in the past 30 days than those born in the United States (AOR= 5.036; 95%CI= 1.102, 25.059; p= .048). Moreover, for every unit increase in condom attitude score, the odds of never

using condoms during vaginal sex in the past 30 days decreased by 8% (AOR= .916; 95%CI= .847, .990; p= .072). Finally, for each additional year living in the United States, the odds of never using condoms during vaginal sex in the past 30 days increased by 1.102 (or 10.2%) (AOR= 1.102; 95%CI= 1.035, 1.173; p= .002). Age (p= .851), receiving most money from a boyfriend (p= .765), having less traditional gender norms (p= .593), and more egalitarian power in the relationship (p= .460) did not significantly predict never using condoms during vaginal sex in the past 30 days. There was also no significant difference between those who complete post college education (p= .322) and those who completed high school or less. Lastly, there was no significant difference found between being born in Central America/Mexico (p= .984) or South America (p= .209) and being born in the United States.

DISCUSSION

Findings by Theory

Latinos are disproportionately affected by HIV compared to other racial and ethnic groups, and nearly half of Latina women contract HIV from heterosexual contact. It is of vital importance that more research is done to understand the unique social cultural risk factors that influence sexual health behavior in the Latino population. This study looked at the relationship between condom use and health insurance status, gender norms, power in the relationship, condom attitudes, time living in the United States, country of birth, and legal immigration status.

Demographic factors

Each additional year in **age** was found to be significantly associated with a 4.9% increased odds of never using condoms during vaginal sex in the past 90 days. In addition, **having a paid job** was found to predict more protective health behaviors. Those who were employed were 11.4% more likely to have used condoms during vaginal sex in the past 90 days compared to those who were unemployed. They also had a 53% decreased odds of never using condoms during vaginal sex in the past 90 days and a 61% decreased odds in the past 30 days.

Contrary to what would be expected, those who reported receiving most of their **income source** from their boyfriend exhibited more risky sexual behavior. Specifically, they were 22.8% more likely to use condoms during anal sex in the past 30 days than those who reported obtaining most of their money other sources. Given that a majority of participants were religious (59.0% Catholic and 20.9% Christian), this finding might be

explained by the fact that those who received most of their money form their boyfriend were significantly more likely to report religion as “very important” in their life compared to those who received their income from other sources (p= .014). It is possible that religious stigma against anal sex may foster more negative normative beliefs around anal sex and, therefore, increase desire to use condoms as a way to protect against what may be perceived as “dirty” or “sinful” behavior.

Results of the analysis also indicated that for every dollar increase in **hourly wage**, the odds of consistent condom use in the past 90 days decreased by 60%. However, the significance of this finding may be negated by the small difference in hourly wage between “higher-wage” and “lower-wage” workers in this population. The mean hourly wage among employed participants was $10.29, which is only minimally higher than the minimum wage of $7.21 in Florida in 2009, with a small standard deviation of $3.94. Therefore, the difference in financial resources between “higher-wage” and “lower-wage” participants was relatively small and not likely to have significantly impacted ability to access and afford condoms.

Finally, no difference was found between post college education and high school or less (p= .322) due to a small sample size. However, those who completed some college **education** were 2.344 times more likely to never use condoms during vaginal sex in the past 30 days than those who had completed high school or less. These findings may be explained be the fact that women with higher education levels had significantly older main partners (p= .001) while women with high school education or less did not (p= .07). This aligns with previous research of young women in the U.S. that has found

having older sex partners is associated with reduced condom use (Darroch, Landry, & Oslak, 1999).

Society

This study found that women with **health insurance** were nearly 24% more likely to use condoms during anal sex in both the past 30 and 90 days. While there is no literature that has previously found a significant relationship between health insurance and condom use, this finding is consistent with a previous literature that has found that women with health insurance are more likely to access STD and other health care services (Cashman et al., 2011; CDC, 2010). It is possible that through increased use of health services, women with health insurance are more likely to use condoms because they have easier access to condoms, receive more education regarding condom use, and come in more frequent contact with providers that promote condom use. However, the exact mechanism for this relationship merits further study.

Additionally, **birth in the Caribbean** was found to be significantly associated with more risky sexual behavior compared to birth in the United States. Specifically, those who were born in the Caribbean were 50.2% less likely to use condoms during anal sex in the past 90 days. In addition, those born in the Caribbean were over 5 times more likely to never use condoms in the past 30 days, though the confidence interval was large (95%CI= 1.012, 25.059). However, we found no statistically significant difference between birth in Central America/Mexico and the U.S. or birth in South America and the U.S. These findings imply there may be unique cultural norms in Caribbean countries that serve as barriers to condom use.

Community

Having fewer traditional views of **gender roles** was associated with a moderate, but significant (2.8%) increase in condom use during anal sex in the both the past 30 and 90 days. This confirms our hypothesis and is consistent with previous literature identifying machismo as a barrier to condom use (Hillman, 2008; Tross, 2001).

Interpersonal

In this study, **power in the relationship** did not significantly predict condom use behaviors. However, we found multicollinearity between power in the relationship and condom attitudes ($p<.001$) and gender norms ($p<.001$). When condom attitudes and gender norms are dropped from the regression models, power in the relationship is significantly related to all outcome variables except consistent condom use and never using condoms in the past 90 days. When condom attitudes and gender norms are added to the models, these significant relationships disappear. In other words, condom attitudes and gender norms appear to mask the association between power in the relationship and condom use behaviors. Future research could assess if condom attitudes is a mediator between the power in the relationship and condom use.

Individual

As hypothesized, we found that having more positive **condom attitudes** was associated with increased condom use. On average, every unit increase in condom attitudes score was associated with a 1.6% increase in percent condom use during vaginal sex in the past 30 days. Each unit increase in condom attitudes score was also significantly associated with a 19.2% increased odds of consistent condoms use during

vaginal sex in the past 30 days and an 8% decreased odds of never using condoms during vaginal sex in the past 30 days. These results support that having more positive attitudes about condoms predicts increased condom use (Roberts & Kennedy, 2006; Small & Weinman, 2009; Villarruel et al., 2004).

For each additional year in **age at immigration**, on average there was a 2.0% decrease in use condoms during anal sex in the past 30 days. Though previous research has not analyzed the relationship between age of immigration and condom use, this finding aligns with literature identifying greater acculturation as a predictor of more frequent condom use (Ford & Norris, 1993; Marin, Tschann, et al., 1993; Norris, Ford, & Bova, 1996; Rojas-Guyler, 2005). It is possible that those who immigrate at later ages may experience lower levels of acculturation than those who immigrate at earlier ages, thus leading to lower frequency of condom us. However, contrary to hypothesized, we also found that greater **time living in the U.S.** was significantly associated with reduced condom use. For each additional year spent living in the United States, there was a 2.1% decreased use of condoms during anal sex in the past 90 days and a 10.2% increased odds of never using condoms during vaginal sex in the past 30 days. These findings may support prior literature that has found an association between greater acculturation and riskier sexual behavior (Lee & Hahm, 2010; Rapkin & Erickson, 1990). Though Latina immigrants in Miami may become more linguistically acculturated over time, it is possible that living within the Latino-dominated metropolitan area of Miami creates a unique social environment that allows for maintenance of traditional values. This possibility is further strengthened by the finding that length of living in the U.S. is not associated with gender norms ($p = .808$).

Strengths and Limitations

Whereas previous studies primarily only distinguishes between U.S. and foreign birth among Latina populations, this study explores a diverse array of immigration factors as potential predictors of condoms use. Specifically, it analyzed country of origin, time living in the United States, age of immigration, and immigration status and their relation to condom use behaviors. Also otherwise absent in the literature, this study assessed the predictive value of health insurance status on condom use among Latinas. Additionally, this analysis was grounded in the theoretical underpinnings of the Social-Ecological Model, promoted by the Centers for Disease Control and Prevention as a framework for prevention. Using this model helps to conceptualize how findings may be translated into HIV prevention interventions and at what level (i.e. individual, inter-personal, community, and society) these interventions may most effectively be implemented.

There are also several limitations of this study. Firstly, this study utilized secondary data analysis. Therefore, the original survey instrument was not tailored to answer the research questions in this study. This, for example, limited the ability to explore how cultural norms may differ by country or origin and impact condom use attitudes and behaviors. Study participants were also recruited through convenience sampling in the Miami metropolitan area, suggesting that findings may not be generalizable to Latina women outside of this geographic location.

Additionally, given that this study utilized a cross-sectional design, causation cannot be inferred. Bias may have also been introduced if participants were not able to accurately recall their behaviors in the past 30 and 90 days. All condom use behaviors were determined using self-reported data, which may not necessarily accurately reflect

true behavior. As a result, recall bias may mask true relationships between predictor and outcome variables.

Implications and Recommendations for Research and Practice

Areas of future research could include further assessment of the relationship between health insurance and condom use. Future analysis may look at whether health insurance is a mediator between access to health services and condom use.

Additionally, the finding that views of gender roles were associated with increased condom use during anal sex emphasizes the need to design culturally sensitive prevention programs. Messaging campaigns that simply tell women to use condoms will be ineffective without consideration of the constraints introduced my machismo norms. Therefore, future messaging approaches need to promote condom use in a way that still upholds machismo ideologies. For example, condom use could be promoted as a way for men to protect women. Future interventions could also focus on empowerment of Latino women with the skills to obtain and negotiate the use of condoms.

However, given that condoms attitudes were found to be a more salient predictor of condom use than power in the relationship and gender roles, it may be important to design interventions that focus on instilling more positive beliefs of condoms among Latina women. These findings support the continued implementation of educational interventions, such as AMIGAS, that teach Latina women about the health benefits of condom use, as well as how to negotiate safer sex with their partners.

The results of this analysis also highlight the need to consider diversity within the Latino community when designing interventions. The findings that birth in the

Caribbean was associated with reduced condoms use suggests a need to explore the unique cultural risk factors in this region of the world that may pose as barriers to safer sexual behavior. It also implies a need to tailor specific interventions towards Latina women who immigrate from Caribbean countries, as they likely experience unique barriers than women born in the U.S. or other countries.

However, the finding that greater time living in the U.S. is associated with reduced condom use indicates that preservation of traditional values may in some cases protect against more risky sexual behavior. Further investigation is needed to assess whether there are varying degrees of acculturation for populations who live in relatively ethnically homogeneous societies. For example, greater time living in the U.S. may lead to great English proficiency, but living in a predominately Latino area may allow for maintenance of traditional values, especially in relation to gender norms and sexual health behaviors.

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APPENDIX A: IRB Letter of Determination

EMORY UNIVERSITY
Institutional Review Board

DATE: October 9, 2012

Name Christina Lee
CC Delia Lang, PhD

RE: Determination: No IRB Review Required
eIRB#: 58300
Title: Immigration History and Health Insurance Influence on Sexual Risk Behaviors among Hispanic/Latina Women
PI: Christina Lee

Dear Christina:

Thank you for requesting a determination from our office about the above-referenced project. Based on our review of the materials you provided, we have determined that it does not require IRB review because it does not meet the definition(s) of "research" or "clinical investigation" involving "human subjects" as set forth in Emory policies and procedures and federal rules, if applicable. Specifically, in this project, the dataset of the AMIGAS study for secondary analysis. The work done will not have any identifiable information (or PHI) and therefore, does not require IRB review.

Please note that this determination does not mean that you cannot publish the results. If you have questions about this issue, please contact me.

This determination could be affected by substantive changes in the study design, subject populations, or identifiability of data. If the project changes in any substantive way, please contact our office for clarification.

Thank you for consulting the IRB.

Sincerely,

Leslie Justice, BS/BA
Research Protocol Analyst

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