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The Implications of Gender Roles on HIV Risk Behaviors and Latinas' HIV Risk Perception Among a College Sample

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Dedication

To my mother, Regina. Thank you for your unconditional love, support, and patience. Mom, you are my role model and I strive to be someone like you one day. To my husband, Christopher. You have always been a constant source of support and encouragement. I am thankful for having you in my life and sharing this wonderful journey with you. To my greatest friends, Katherine and Charlene, thank you for your friendship and support. To my friends Theresa and Celia, Rosi, Katia, Junior, and Marcos and Tania. Without you, this study would not have been possible.

THE IMPLICATIONS OF GENDER ROLES ON HIV RISK BEHAVIORS AND LATINAS'

HIV RISK PERCEPTION AMONG A COLLEGE SAMPLE

by

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Abstract

The primary aim of the proposed research was to investigate the moderating effects of gender roles in regards to HIV sexual risk behaviors and HIV risk perception. Human Immunodeficiency Virus (HIV) remains a serious public health concern that affects an estimated 1.2 million individuals in the United States, disproportionately affecting ethnic minorities. We hypothesize that gender roles will significantly moderate the relationship between HIV sexual risk behaviors and HIV risk perceptions. Additionally, we hypothesize that while subordinate marianismo and perceived partner's negative machismo will not moderate the relationship between HIV sexual risk behaviors and HIV risk perceptions by themselves; their addition to gender roles (moderated moderation) will significantly moderate the relationship between HIV sexual risk and HIV risk perception. A sample of 292 Latina college students currently in a heterosexual relationship completed an anonymous online survey. Results indicated that gender roles, subordinate marianismo, and perceived partner's negative machismo did not significantly moderate the relationship between HIV sexual risk behaviors and HIV risk perceptions. Post-hoc analyses were conducted to inform HIV sexual risk behaviors and HIV risk perceptions. Findings from the present study can inform the development of educational materials to increase HIV risk perception and protective behaviors.

Keywords: HIV risk perception, HIV sexual risk behaviors, gender roles

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Introduction

Human Immunodeficiency Virus (HIV) remains a serious public health crisis in the United States. An estimated 1.1 million people are living with HIV (PLWH) and approximately 15 percent of PLWH, or 1 out of 7 individuals are not aware of their seropositive status (Centers for Disease Control and Prevention [CDC], 2007). The financial public burden of new HIV infections in the United States was estimated at 36.4 billion dollars annually and the estimated national average total direct expenditure for PLWH of $31,147 per patient, leading to 800-900% higher expenditure when compared to individuals living without HIV/AIDS (Hutchinson et al., 2006; Ritchwood, Bishu, and Egede, 2017). US prevention programs have led to an estimated $129.9 billion medical savings from 361,878 HIV infections averted (Farnham, Holtgrave, Sansom, Hall, 2010). Since U.S. prevention programs related to HIV have shown to be potentially cost-effective, it is critical to better identify potential target populations for these prevention programs.

The short and long-term effects of HIV infection may encompass a myriad of negative health, psychological and emotional, social, and economic consequences. These consequences may include, but are not limited to: decreased immune system functioning and cognition (Hong & Banks, 2015; Canizares et al., 2014), and comorbid health and mental illnesses, such as depression (Nanni et al., 2014; Aljassem et al.,2014; Arseniou et al.,2013). Also, HIV may lead to increased stigma exposure, discrimination and higher unemployment rates (Arnold et al., 2014; Herek, Saha, & Burack, 2013; Katz et al., 2013; Maruthappu et al., 2015). If left untreated, HIV can progress to Acquired Immunodeficiency Syndrome (AIDS), or late-stage HIV, in which one's immune system is significantly weak to fight off infection and the disease becomes characterized by defining symptoms and illnesses, and may be fatal.

Discrepancy in Rates of HIV Diagnoses in Hispanics, Latinas Compared to Non-Latinas, and Heterosexual Intercourse Mode of Transmission

As of 2014, individuals of Hispanic/ Latino origin comprise the largest ethnic or racial minority in the United States (U.S. Census Bureau, 2015). In 2016, Hispanics/ Latinos represented 17.8% of the population in the United States (United States Bureau, 2016). Increased attention towards improving health care for this growing population is necessary. According to the Centers for Disease Control and Prevention, Hispanics/ Latinos accounted for 24% of new HIV infections in the United States (CDC, 2014). More alarmingly, Hispanics' rate of new HIV infection was estimated to be 3 times greater than of Caucasians (CDC, 2012), resulting in the highest amount of productivity losses compared to other ethnic groups (Hutchinson et al., 2006).

Overall, heterosexual intercourse was the second most frequent mode of transmission of new HIV diagnoses in the state of Texas from 2006-2015 (Texas Department of State Health Services, 2015). More specifically, according to the Texas Department of State Health Services, in 2013 the primary source for all female HIV infection was through heterosexual intercourse (accounting for 715 HIV diagnosis). In El Paso, Texas, there are approximately 2,841 individuals living with HIV. In 2013, El Paso ranked 12th place in the state of Texas with the highest case rates of HIV in Texas according to the Texas Department of State Health Services (2014) and there were 117 new diagnoses for HIV in both genders during 2013 (Texas Department of State Health Services, 2014).

The incidence of HIV infections among Hispanic women is more than 4 times that of white women and most new HIV infections among Hispanic Females/ Latinas (approximately 86%) were attributed to heterosexual sex (CDC, 2012). These findings highlight the importance of addressing HIV risk perception for this specific group. More importantly, the majority of HIV

seropositive women did not report any risk behaviors, which may imply having intercourse with their HIV positive partners, who may or may not have disclosed their diagnoses or even be aware of their HIV infection, as a potential risk source of contracting the HIV virus (American Foundation for AIDS Research, 2017).

HIV DIAGNOSES AND RISK BEHAVIORS AMONGST COLLEGE STUDENTS

In 2017, 8,164 (21%) out of the 38,739 new HIV diagnoses in the United States were among youth (CDC, 2018), with 4 out of 5 youth diagnosed with HIV were between the ages of 20-24 (CDC, 2018), demonstrating that college aged students may be at a higher risk for HIV compared to other youth ages. Among the new HIV diagnoses in young women, the most reported mode of HIV transmission was heterosexual contact, accounting for 86% of new diagnoses (CDC, 2018). Previous research indicates that young multiethnic college women may be at risk for STIs and HIV due to cultural norms and low perceived risk (Roberts & Kennedy, 2006). For example, Gurman and Borzekowski (2004) examined sexual behavioral patterns of Latino undergraduate students and reported that more than 60% of participants had not used condoms during their last sexual encounter and that 45.7% of Latinas surveyed had not received sexual health information on campus. Additionally, Dennison and colleagues' (2014) findings indicate that only 36.2% of general college students had ever been tested for HIV.

GENDER ROLES AND HIV RISK PERCEPTION

Gender Roles

There are a myriad of studies addressing the impact of gender roles on behavior in different contexts (e.g. different populations and settings). For example, Adler, Kless & Adler (1992) investigated the socialization process of adhering to gender roles in elementary school children. Adler and colleagues found that both boys and girls in elementary school already construct

idealized images of masculinity and femininity from a young age. This finding demonstrated the powerful effect that social exposure to gender roles has on socially constructed experiences.

The implications of gender roles have also been investigated in terms of their impact on sexuality, intimate partner violence (IPV), and HIV. For example, high endorsement of masculine gender roles has been associated with increased male sexual risk and intimate partner violence (Santana et al., 2006). Gender roles have also been investigated in terms of HIV risk for at-risk groups, such as African American men who have sex with men (MSM) (Lichtenstein et al., 2017; Fields et al., 2014). Also, higher endorsement of gender roles (e.g. self-silencing) has been significantly associated with increased risk for HIV for African American females in relationships and decreased quality of life for HIV+ African American females (Brody et al., 2014). However, there is still a gap in the research literature to address the impact of gender roles in Latina college students from the Mexico/ U.S. border region to better inform health professionals and improve testing and interventions in college settings, such as cultural adaptation of brief interventions in college settings to increase HIV testing.

CULTURE SPECIFIC GENDER ROLES

Machismo and marianismo are two previously established sociocultural constructs that are often used to describe traditional gender roles in the Hispanic/ Latino culture. Simplistically and generalizing, machismo and marianismo may be conceptualized as the opposite ends of a spectrum. Machismo is traditionally conceptualized as a cultural emphasis on male dominance, while marianismo may be conceptualized as a cultural emphasis on female submission. However, previous literature has shown that these constructs are multifaceted and complex, with various attributes dependent on individuals' gender, race, ethnicity, local culture, and socioeconomic status.

Machismo

The Merriam-Webster dictionary defines machismo as "a strong sense of masculine pride; an exaggerated masculinity". However, such definition is nowadays argued to be simplistic. The complexity of machismo is reflected in the current literature (e.g. Arniciega et al, 2008; Gutmann, 2007; Galanti, 2003; Gutmann, 1996). For example, in his ethnographic work in colonia Santo Domingo in Mexico, Gutmann (1996) describes the complexity of what it means to be a "macho" for men who are constantly negotiating their gender roles and the complex intersectionality of socioeconomic status, age, and local culture, in their identities. Currently, there is active debate within the research literature as to whether or not this construct is still currently applicable as a protective or risk factor to accurately represent male gender roles in the Hispanic/ Latino culture, especially in the Mexican culture.

Certain aspects of machismo can be found in different cultures. For example, Castillo (1995), through a postcolonial feminist lens, traces the roots of machismo to the northern African region, Maghreb, and traces its development through the Moorish (Islamic) invasion of Spain of approximately 800 years and its influence on Christianity. In addition, Castillo traces how machismo in Christianity spread to Latin America during the Spanish colonialism and merged with Native cultures and the Aztec culture; hence, leading machismo to be perceived as a Hispanic/ Latin cultural gender role.

On the one hand, some researchers describe machismo in negative terms. For example, Cianelli et al. (2008) describe machismo in terms of increased male dominance, authority, hypersexuality and increased sexual partners, regardless of males' relationship status. Similarly, Ingoldsby (1991) argues for the association of machismo and increased aggression. Such

descriptions may indicate that machismo is a risk factor in the sexual health for Latinas and increased risk of sexually transmitted infections and HIV exposure.

On the other hand, some researchers argue for potential positive implications of a machista adherence. For instance, Arciniega et al. (2008) describe machismo in terms of caballerismo, or emotional connectedness. Caballerismo involves greater levels of family responsibility, ethnic identity and problem-solving coping. Arciniega and colleagues' description of machismo helps to promote a two-dimensional view of machismo (a construct with both positive and negative factors) as opposed to a unilateral, negative construct.

Previous research has found that incorporating machismo in interventions may decrease the odds of sex-risk behaviors among non-drug users (Herbst et al., 2007). In addition, Villarruel and colleagues (2005) emphasize the need of considering machismo as a cultural factor in the development of educational curricula targeted towards Latinos to reduce HIV. College settings may provide an ideal opportunity to implement these educational curricula, despite current low implementation amongst college settings. Interestingly, there is a lack of research of Latinas' perceptions of their partners' negative machismo levels and how it may influence their own HIV risk perception.

Marianismo

Marianismo is associated with female cultural gender roles in the Hispanic/ Latino culture. Marianismo may be viewed as the belief that women must emulate the Virgin Mary. That is, emphasis is placed on the expectation that women should remain pure and dedicate their lives to their families, even be willing to sacrifice their own needs, if needed. Women displaying higher levels of marianismo value their family as a priority and their own health care may be a secondary concern to their attention (Thompson, 2014). Also, women are supposed to remain

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virgins until marriage and once they marry, they must remain faithful to their husbands. Castillo et al (2010) discuss the complexity of marianismo as a multidimensional construct based on their development and psychometric analyses of the Marianismo Beliefs Scale. Castillo and colleagues (2010) also discuss Latinas' cultural gender role as a passive and subordinate figure in the household. Therefore, Latinas who endorse high levels of subordination may be at higher risk for HIV.

Cianelli et al (2008) found support for the negative implications associated with increased marianismo and higher HIV risk for females in Chile. In addition, Cianelli et al (2013) also concluded that Latinas aged 50 or older may be at a greater risk of displaying higher marianismo tendencies and be at greater risk for sexually transmitted infections (STIs) and HIV/AIDS. Therefore, it is necessary to better understand how the subordinate facet of marianismo is represented amongst Latina college students living in the US/ Mexico border region to potentially inform educational curricula to reduce HIV incidence.

HIV RISK PERCEPTION

Prior research has shown that HIV testing practices among Hispanics/ Latinos seem to be significantly influenced by self-perception of risk for becoming infected (Lopez-Quintero, Shtarkshall, & Neumark, 2005; Fernandez et al., 2003; Sabogal & Catania, 1996). Minority populations may be more susceptible to underperceive their HIV risk. Previous studies assessing HIV risk perception in college students of African American descent have found that students may not perceive their HIV risk to be high (e.g. Adefuye et al., 2009). However, the literature is still relatively scarce in terms of how Latinas in relationships living in the U.S./Mexico border region perceive their own HIV risk. Addressing this gap may inform targeted HIV testing public interventions and programs. An example of such program is the "Tu no me conoces (You don't

know me)", in which 28% of individuals who tested for HIV in local clinics in the California/ Mexico border were able to identify the program's effectiveness (Olshefsky et al., 2007).

HIV KNOWLEDGE

HIV knowledge has been explored in previous studies, with findings indicating scarce knowledge about HIV even among college students. For example, compared to Caucasians, Latinos may demonstrate greater misunderstanding of transmission of HIV via casual contact, situations in which HIV is unlikely transmitted (e.g. belief that HIV is transmitted through kissing or holding a cup that someone seropositive has previously held) (Miller, Guarnaccia & Fasina, 2002). In addition, Latinas may receive less safe sex practice and HIV education compared to non-Latina females. For example, in a study of females of Puerto Rican and Mexican American descent (n= 1026) between the ages of 15 and 44, the majority of the participants (60%) received no sex education from parents and almost 40% received no sex education in schools (Zambrana et al., 2004).

HIV RISK BEHAVIORS

There are multiple HIV risk behaviors that can be divided into two main exposure categories: parenteal and sexual. Parenteal refers to exposure that occurs outside of the gastrointestinal tract, referring to injection drug use or percutaneous needle-stick. In terms of sexual exposure, receptive anal intercourse account for the greatest exposure risk. Research indicates that when individuals perceive their relationship to be close and intimate, they are less likely to use condoms, even though they may not know whether themselves or their partners.

GOALS OF THE CURRENT STUDY

Previous research indicates that it is important to consider the implications of gender roles in relation to sexual health behaviors, including in terms of HIV risk behaviors and HIV risk

perception. The present study seeks to investigate how gender roles, perceived partner's negative marianismo, and subordinate marianismo, influence HIV sexual risk and HIV risk perception in Latinas. Because the majority of Latinas who become HIV seropositive report acquiring the virus via unprotected heterosexual intercourse and to not have previously perceived HIV risk, we are interested in Latinas' perceptions of their partner's negative machismo as well as participants' own subordinate marianismo levels. The University of Texas at El Paso is an ideal institution to conduct this study due to its majority of the college student population being of Hispanic or Latino origin.

HYPOTHESES

The primary aim of the proposed study is to investigate the effects of gender roles on HIV risk behavior and HIV risk perception. The following hypothesis were tested:

H1: Reported HIV sexual risk behaviors will be significantly positively associated HIV risk perception.

H2: Gender roles will significantly moderate the relationship between reported HIV sexual risk behaviors and HIV risk perceptions; such that higher adherence to gender roles are associated with HIV risk perception.

H3: Perceived partner's negative machismo will not significantly moderate the relationship between reported HIV sexual risk behaviors and HIV risk perception.

H4: Subordinate marianismo will not significantly moderate the relationship between reported HIV sexual risk behaviors and HIV risk perception.

H5: The addition of subordinate marianismo and perceived partner's negative machismo, to gender roles (moderated moderation) will lead to greater moderation between reported HIV sexual risk behaviors and HIV risk perceptions; such that higher adherence to gender roles, lower

marianismo and lower partner's machismo are significantly associated with less HIV risk

perception scores.

Method

PARTICIPANTS

A sample of 292 undergraduate female students (M age= 21.06, SD = 3.687 years) were recruited through the University of Texas at El Paso's SONA system, the psychology department subject pool. The inclusion criteria for the present study was: Hispanic female or Latina, aged 18 or older, currently a student at the University of Texas at El Paso, and currently in a heterosexual relationship, marriage, or domestic partnership. All participants self-identified as Latinas or Hispanic females, and were currently in a relationship. For the purposes of the present study, relationship was defined as currently in a relationship, legally married, or in a domestic partnership. The majority of participants were born in the United States (90.8%), reported having health insurance (59.5%), were sophomores (29.5%), and reported an annual household income of less than $10,000 (49.8%). Additionally, the majority of participants (N=162) identified their partner as either of Hispanic or Latino origin. Participants reported their relationship duration in months (M=31.91, SD= 32.33). See Table 1 for further descriptive statistics. Participants were granted course 1 credit for their participation. The study was approved by the UTEP Institutional Review Board (IRB).

MATERIALS AND PROCEDURE

The Gender Role Beliefs Scale (GRBS)

The Gender Role Beliefs Scale (GRBS), developed by Kerr and Holden (1996), consists of 20 items on a 7-point scale where 1 equals "strongly agree", 4 equals "undecided" and 7 equals" strongly disagree" and was used as a measure of gender roles beliefs. The psychometric properties of the scale include strong internal consistency (α= .89) and good test-retest reliability (r = .83). The validity of the scale was supported by a strong relationship between scores on the GRBS and

the criterion groups (traditional, undifferentiated, and feminist groups) with an effect size of .94 (Kerr & Holden, 1996). Higher scores on the GRBS indicate higher feminist responding.

The Machismo Scale

The Machismo Scale, developed by Castro and colleagues (2010), consists of 31 items rated on a 5-point Likert-type scale (1= strongly disagree, 5= strongly agree) and was used as a measure of machismo. The Machismo scale explores facets of male gender roles and attitudes towards: 1) Protecting Family, 2) Expressing Emotions, 3) Male Privilege, and frequency of behaviors: 4) Caring Conduct, 5) Honorable Conduct and 6) Selfish Conduct. The current study included the combination of the male privilege and selfish conduct subscales; since these items may lead to higher risk behaviors. Higher scores reflect higher perceived partner's negative machismo levels.

The Marianismo Beliefs Scale (MBS)

The Marianismo Beliefs Scale (MBS), developed by Castillo et al. (2010), consists of 24 items rated on a 7-point Likert-type scale (1= strongly agree, 7= strongly disagree) and was used as a measure of Marianismo. The scale items can be divided into five factors: 1) Family pillar, 2) Virtuous and chaste, 3) Subordinate to others, 4) Silencing to maintain harmony, and 5) Spiritual pillar. The MBS has demonstrated previous strong psychometric properties in a sample of 397 participants from predominantly Hispanic/ Latino origin. The subscales have previously demonstrated good internal validity (e.g. all factors with an $\alpha > .75$). The subordinate subscale was calculated and used in the analysis, in which higher scores indicate higher female subordination.

Perceived Risk HIV Scale

The Perceived Risk HIV Scale, developed by Napper et al. (2012), consists of 10 items rate on a 4-point Likert-type scale (1= lower risk perception, 4= higher risk perception) and was used

as a measure of perceived HIV risk. Higher scores are indicative of greater HIV risk perception. All items were added, providing a range from 10 (lowest HIV risk perception) to 40 (highest HIV perception).

Brief HIV Knowledge Questionnaire (HIV-KQ-18)

The Brief HIV Knowledge Questionnaire (HIV-KQ-18) consists of 18 items and was used as a measure HIV knowledge. Developed by Carey & Schroder (2002), the HIV-KQ-18's psychometric properties were initially assessed in a predominantly low income African American sample (n = 1019) and the scale has shown strong psychometric properties with strong internal consistency of (α= .89) and strong test-retest reliability. The scale includes 18 forced choice statements in which the test taker must select either "true", "false", or "don't know". Correct responses were added to provide an overall HIV knowledge score. Higher scores are indicative of greater HIV-related knowledge.

HIV Risk-Taking Behavior Scale (HRBS)

The HIV Risk-Taking Behavior Scale (HRBS), developed by Darke et al. (1990), consists of 11 items rated on a 5-point Likert-type scale and assesses two categories of risk behaviors associated with increased risk for HIV: drug-use and sexual behavior. Darke et al. (1990) reported a Cronbach's alpha of .70 and a test-retest reliability of .86 (r=.86) for the scale. Higher scores are indicative of higher engagement in risk behaviors. Scores for the sexual behavior subscale were used to assess HIV risk behavior.

Procedure

G*Power (Erdfelder, Faul & Buchner, 1996) was used to conduct an a-priori power analysis to explore appropriate sample sizes. A linear multiple regression F-test, fixed model, R^2 deviation from zero was used (α = .05, η^2 = .80); a sample size of 118 was indicated to detect a

medium effect. We also followed Franzier, Tix, and Barron (2004) recommendation of sample sizes of at least 200 regarding multiple interaction models. All participants were screened for inclusion criteria using the pre-screening tool from SONA. The study description on the SONA system informed participants that the current study was about sexual health; more specifically about HIV risk behaviors and HIV risk perceptions. The study was completed using the QuestionPro survey software. Participants were asked to provide informed consent. Since the survey contained sensitive questions about behaviors, no identifiable information was collected in order to ensure confidentiality and anonymity; each participant was assigned a random code via the SONA system and 1 research participation credit was automatically granted upon survey completion. The questionnaires, including demographic information, reported risk behaviors and risk perceptions, were completed on a computer and data from the survey were recorded in a secure server. The survey took approximately 30-45 minutes to complete. Once participants completed the survey, they were also provided the opportunity to download a pamphlet with local resources and services related to sexual health. The pamphlet can be found in Appendix A.

DATA ANALYSIS

Data were analyzed firstly using descriptive statistics (means and standard deviations) and correlations. Secondly, to analyze the effects of HIV sexual risk behaviors, gender roles, subordinate marianismo, and perceived partner's negative machismo in HIV risk perception, simple moderation, additive moderation, and moderated moderation models of regression were performed using Hayes' PROCESS macro for SPSS (Hayes, 2018). Significance was determined at 95% bias-corrected confidence intervals. All variables were treated as continuous for the moderation analyses.

Results

All Cronbach Alpha reliability analyses were conducted using SPSS Version 25 (IBM, 2017). The reliability for the scales and subscales of the present study were obtained. For the dependent variable of HIV risk perception, the Perceived Risk HIV Scale, estimate was α=0.84. The overall GRBS scale yielded a Cronbach's alpha of α= 0.79. For the Machismo scale, the male privilege subscale yielded an estimate of α=0.80 and for the selfish conduct subscale was α=0.53. The internal reliability coefficient of the two subscales combined yielded an α=0.67. The MBS subordinate subscale yielded a reliability of α= 0.75. The HIV-KQ-18 estimate was α= 0.82. The sexual risk subscale of the HRBS estimate was α= 0.42, indicating poor internal consistency. Table 2 describes means, standard deviations, and reliability coefficients.

REPORTED SEX AND DRUG USE BEHAVIORS IN THE PAST 3 MONTHS

Participants were asked how many times they engaged in HIV risk or protective behaviors within the past 3 months. Response means and standard deviations can be found in Table 3A and 3B, for sexual behaviors and drug use respectively. On average, participants reported higher engagement in unprotected vaginal sex (M= 12.33, SD= 17.24) and higher use of marijuana (N=83, 28.5%).

H1: LINEAR REGRESSION: HIV RISK PERCEPTION ON HIV SEXUAL RISK BEHAVIOR

We conducted a linear regression to test the first hypothesis that HIV sexual risk behavior will be significantly and positively associated with HIV risk perception. We did not find a significant regression equation (F (1,281) = 2.29, p = 0.13), with an R^2 of 0.01. The analysis shows that scores on the HRBS sexual risk subscale are not significantly associated with HIV

risk perception (β= 0.13, p = .13). Therefore, the data did not support our hypothesis that HIV risk behavior is significantly and positively associated with HIV risk perception.

H2: TWO-WAY INTERACTION: GENDER ROLES AS A MODERATOR OF THE RELATIONSHIP BETWEEN HIV SEXUAL RISK BEHAVIORS AND HIV RISK PERCEPTION

We conducted a moderation analysis using Hayes' PROCESS macro in SPSS to test the second hypothesis that gender roles will significantly moderate the relationship between HIV sexual risk behavior and HIV risk perception. Figure 1 illustrates the moderation conceptual diagram (X: HIV risk behavior, Y: HIV risk perception, W: Gender Roles). HIV sexual risk and gender roles were mean centered prior to analysis. The regression equation was non-significant ($F_{(3,257)}$ = .24, p = 0.87), with an R^2 of 0.01. The main effect for gender roles was not statistically significant (b = 0.005, p= 0.81). The interaction between gender roles and HIV sexual risk was not statistically significant, $F_{(1, 257)}$ = 0.05, p = .83, ΔR^2 = .0002. Because the interaction was non-significant, we did not conduct any further analysis to test this moderation model. Therefore, we were not able to support our hypothesis that gender roles significantly moderate the relationship between HIV sexual risk behavior and HIV risk perception.

H3: TWO WAY INTERACTION: PERCEIVED PARTNER'S NEGATIVE MACHISMO AS A MODERATOR OF THE RELATIONSHIP BETWEEN HIV SEXUAL RISK AND HIV RISK PERCEPTION

We conducted a moderation analysis using Hayes' PROCESS SPSS macro to test the third hypothesis that perceived partner's negative machismo will not significantly moderate the relationship between HIV risk behavior and HIV risk perception. Figure 2 illustrates the moderation conceptual diagram (X: HIV risk behavior, Y: HIV risk perception, W: Perceived Partner's Negative Machismo). We mean centered perceived partner's negative machismo and HIV sexual risk prior to analysis. We did not find a significant regression equation ($F_{(3,261)}$ =

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1.19, p = 0.31), with an R^2 of 0.01. The main effect for perceived partner's negative machismo was not statistically significant (b = -0.001, p= 0.99). The interaction between machismo and HIV sexual risk was not statistically significant, $F(1, 261) = 1.20$, p = .27, $\Delta R^2 = 0.005$. Because the interaction was non-significant, we did not conduct any further analysis to test this moderation model. Findings were consistent with our hypothesis that perceived partner's negative machismo does not significantly moderate the relationship between HIV risk behavior and HIV risk perception.

H4: TWO-WAY INTERACTION: SUBORDINATE MARIANISMO AS A MODERATOR OF THE RELATIONSHIP BETWEEN HIV SEXUAL RISK AND HIV RISK PERCEPTION

We conducted a moderation analysis using Hayes' PROCESS macro to test the hypothesis that subordinate marianismo will not significantly moderate the relationship between HIV sexual risk behavior and HIV risk perception. Figure 3 illustrates the moderation conceptual diagram (X: HIV risk behavior, Y: HIV risk perception, W: Marianismo). We mean centered the variables of subordinate marianismo, gender roles, and HIV risk behaviors prior to analysis. We did not find a significant regression equation (F (3,276) = 1.09, p = 0.36, with an R^2 of .11. The main effect for subordinate marianismo was not statistical (b=0.03, p= 0.54). The interaction between subordinate marianismo and HIV sexual risk fell was not statistically significant, F(1, 276) = .001, p = .98, $\Delta R^2 < .0001$. Because the interaction was non-significant, we did not conduct any further analysis to test this moderation model. Findings were consistent with our hypothesis that subordinate marianismo does not significantly moderate the relationship between HIV sexual risk behavior and HIV risk perception.

H5A. THREE-WAY INTERACTION: MODERATED MODERATION OF PERCEIVED PARTNER'S NEGATIVE MACHISMO AND GENDER ROLES `

We conducted a three-way interaction (moderated moderation) using Hayes' PROCESS SPSS macro to test the hypothesis that perceived partner's negative machismo and gender roles will significantly moderate the relationship between HIV sexual risk and HIV risk perception. Figure 4 illustrates the moderation conceptual diagram (X: HIV risk behavior, Y: HIV risk perception, W: Gender Roles, Z: Perceived Partner's Negative Machismo). We mean centered perceived partner's negative machismo, gender roles, and HIV sexual risk prior to analysis. The three-way interaction between perceived partner's negative machismo, gender roles, and HIV sexual risk was not statistically significant, $F(1,237) = .002$ $p = .97$, $\Delta R^2 < .0001$. Because the interaction was non-significant, we did not conduct any further analysis to test this moderation model. We did not support our hypothesis that HIV sexual risk behavior, higher adherence to gender roles and lower perceived partner's negative machismo are significantly associated with lower HIV risk perception.

H5B. THREE-WAY INTERACTION: MODERATED MODERATION OF SUBORDINATE MARIANISMO AND GENDER ROLES

We conducted a three-way interaction (moderated moderation) using Hayes' PROCESS macro to test the hypothesis that subordinate marianismo and gender roles will significantly moderate the relationship between HIV sexual risk and HIV risk perception. Figure 5 illustrates the moderation conceptual diagram (X: HIV risk behavior, Y: HIV risk perception, W: Gender Roles, Z: Subordinate Marianismo). We mean centered subordinate marianismo, gender roles, and HIV sexual risk behaviors prior to analysis. The three-way interaction between subordinate marianismo, gender roles, and HIV sexual risk was not statistically significant, $F(1,250) = .78$, p

$= .38$, $\Delta R^2 = .003$. Because the interaction was non-significant, we did not conduct any further analysis to test this moderation model and did not support our hypothesis that HIV sexual risk behaviors, higher adherence to gender roles and lower marianismo are significantly associated with lower HIV risk perception.

H5C. MODERATED MODERATION OF MARIANISMO, PARTNER'S MACHISMO, GENDER ROLES, AND HIV SEXUAL RISK

Because we found that the two-way and three-way interactions were not statistically significant, we did not conduct further interaction analyses. Figure 6 illustrates the moderation conceptual diagram (X: HIV sexual risk behavior, Y: HIV risk perception, W: Gender Roles, Z: Subordinate Marianismo, A: Perceived Partner's Negative Machismo).

POST-HOC ANALYSES

As opposed to examining predictors of HIV risk behaviors, an exploratory post-hoc analysis was conducted to inform the association of demographic information with HIV risk perception. An exploratory multiple linear regression was conducted in SPSS and included age, student classification, relationship length, relationship status, country of birth, health insurance status and work status as predictor variables of HIV risk perception. Student classification, relationship status, country of birth, health insurance status, and work status were dummy coded prior to being entered in the multiple linear regression. For the categorical variables, we selected junior student classification, currently in a relationship, and employed for wages as the reference categories. The results of the regression indicated the predictors explained 11% of the variance ($R^2 =0.11$, $F (17,254) =1.85$, p=0.02. Age ($\beta=.185$, p=.10), country of birth ($\beta= -1.6448$, p=.11), and health insurance ($\beta=-.173$, p= .93) are not significantly associated with HIV risk perception. However, relationship length ($\beta= -.024$, p=.02) was significantly associated with HIV risk

perception. On average, those who reported being in a relationship longer significantly perceived themselves to be at lower risk for HIV compared to those who reported more recent relationships.

In terms of work status, we found that on average, individuals who are out of work but not currently looking for work have significantly higher scores in HIV risk perception ($\beta=2.369$, $p=.046$) compared to individuals who are employed for wages. We also found that on average, freshman (first year college) students ($\beta=-1.647$, $p=.05$) score significantly less on HIV risk perception compared to junior students. Additionally, individuals who reported as currently being legally married on average have significantly lower HIV risk perception scores ($\beta=-3.492$, $p=.027$) compared to individuals who reported currently being in a relationship.

Since the HRBS sexual risk subscale estimate was $\alpha= 0.42$ indicating poor internal consistency, we used 11 survey questions that were related to protective or risk sex behaviors (See Table 3A for sex related behaviors). We conducted a linear multiple regression treating each reported sexual risk or protective behavior as a continuous measure to assess their association with HIV risk perception. We found that higher engagement in anal sex with condoms is significantly associated with higher HIV risk perception scores ($\beta=2.77$, $p=.02$) and that having more frequent HIV testing conversations ($\beta=.93$, $p=.001$) is significantly associated with higher HIV risk perception scores.

Given that we found an effect of HIV sexual risk behaviors on HIV risk perception in our post-hoc analyses, we were interested in investigating whether there were differences between participants who reported engaging in at least once in unprotected behavior within the past 3 months and participants who reported never engaging in unprotected behavior within the past 3 months. We divided participants into two groups: one group that did not report engaging in unprotected anal

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or vaginal sex (N= 78) and one group that reported engaging at least once in unprotected anal or vaginal sex (N= 215) within the past 3 months. For the purpose of simplicity, we will refer to the group that did not report engaging in unprotected sex as the "no risk group" and the group that reported engaging in unprotected sex as the "at-risk group".

We then conducted an independent samples t-test using SPSS to assess whether there were significant differences in age, relationship length, gender roles, perceived partner's machismo, and marianismo between the two groups. There was not a significant difference in the scores for HIV risk perception between the no-risk group (M=15.17, SD=5.15) and the at-risk group (M=15.89, SD=4.36); t (286) = -1.18, p = 0.24. There was not a significant difference in the scores for gender roles between the no-risk group (M=98.87, SD=16.66) and the at-risk group (M=97.97, SD=15.35); t (264) =.419, p = .67. There was not a significant difference in the scores for subordinate marianismo between the no-risk group (M=9.54 SD=4.640) and the at-risk group (M=10.25, SD=5.20); t (286) = -1.06, p = .29. However, there was a significant difference in age for the no-risk group (M=20.15, SD= 2.52) and the at-risk group (M=21.39, SD=3.85); t (289) =-2.56, p = .01. Additionally, there was a significant difference in relationship length for the no-risk group (M=23.57, SD= 2.52) and the at-risk group (M=34.64, SD= 35.26); t (278) = -2.49, p= 0.04. We found a significant difference in scores for perceived partner's negative machismo between the no-risk group (M=38.21, SD=6.36) and the at-risk group (M=40.67, SD=7.53); t (270) = -2.45, p = .01 (Table 4 describes the independent samples t-tests).

We were also interested in assessing differences in the means between the two groups in terms of engaging in other sexual behaviors. We conducted another independent samples t-test (Table 5 describes the independent samples t-tests for sexual behaviors). While there were no significant differences in the frequency of conversations related to HIV/AIDS testing, refusal to

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have unprotected sex, and conversations about condom use, we did find significant differences in the means of having condoms nearby and the number of male sex partners between the two groups. We found a significant difference in scores having condoms nearby between the no-risk group (M=2.95, SD=1.75) and the at-risk group (M=3.60, SD=1.58); t (214) = -3.01, p <0.01. Additionally, we found a significant difference in the numbers of male sexual partners in the last 3 months between the no-risk group (M=.60, SD=0.63) and the at-risk group (M=1.09, SD= 0.49); t (289) = -6.90, p <.01.

A hierarchical logistic regression was performed to ascertain the effects of perceived partner's negative machismo, subordinate marianismo and gender roles on the likelihood that participants engage in unprotected sexual behaviors. Because of the significant correlation among the main predictors, we mean centered the following variables to reduce multicollinearity: perceived partner's negative machismo, subordinate marianismo, and gender roles. (Table 6 describes the hierarchical logistic regression). The first model with only age and relationship length was significant χ^2(2) =7.598, p= 0.02. The second model with age, relationship length, gender roles, marianismo and partner's machismo was significant χ^2(5) =15.240, p= 0.009. The latter findings indicate that perceived partner's negative machismo was significantly associated with engaging in unprotected sexual risk behavior. An examination of the odds ratio indicated that for perceived partner's negative machismo, a one unit increase in the negative aspects of the Machismo scale increased the odds (i.e., the ratio of the probability of engaging in unprotected sexual behavior) by 1.067.

The data did not support hypothesis 1 that reported HIV sexual risk behaviors are significantly and positively associated with HIV risk perception. Additionally, the data did not support hypothesis 2 and hypothesis 5, that gender roles significantly moderate the relationship

between reported HIV sexual risk behaviors and HIV risk perception and that the addition of subordinate marianismo and perceived partner's negative machismo to gender roles (moderated moderation) significantly moderates the relationship between reported HIV sexual risk behaviors and HIV risk perception, respectively. The data was consistent with hypothesis 3 and hypothesis 4, that perceived partner's negative machismo and subordinate marianismo do not significantly moderate the relationship between reported HIV sexual risk behaviors and HIV risk perception. Given that the main effects, two-way and three-way interactions were not statistically significant, we did not test our proposed four-way interaction model.

For the post-hoc analyses examining the relationship between HIV risk perception and demographic information, the data supported that relationship length, work status, and relationship status were significantly associated HIV risk perception. For the post-hoc analyses examining the relationship between HIV risk perception and reported sexual risk or protective behaviors, the data supported that engagement in protected anal sex and having HIV testing conversations were significantly associated with HIV risk perception scores. In relation to reported sexual behaviors, the data supported significant differences in age, relationship length and perceived partner's negative machismo between the group who did not engage in unprotected behavior and the group who reported engaging at least once in either anal or vaginal unprotected sex.

Discussion

We found that on average, individuals who are out of work but not currently looking for work, are college juniors, and reported being in a relationship had significantly higher scores in HIV risk perception. It is interesting that being unemployed and not looking for work was significantly associated with higher HIV risk perception. One reason for this finding may be that students who are not working and not looking for work may have greater financial support from family members while attending college; this may indicate a higher SES with more access to health information, in particularly to HIV information. One possible explanation for college juniors to have higher HIV risk perception is that they may have had more opportunities to receive sexual health information, since they are on average older and have completed more classes. Previous research indicates that individuals who have more than a high school diploma are often at a lower relative risk compared to individuals who have a high school or less than high school level of education (CDC, 2018). Therefore, higher education levels may be associated with a higher HIV risk perception. As we expected, individuals who reported being in a relationship perceived themselves to be more at risk for HIV than individuals who were married. A likely reason is that individuals who are married have increased levels of intimacy in their relationship and trust in their partners.

While previous studies (Bonar et. al., 2014) supported the internal consistency of the HIV Risk Taking Behaviour Scale (HRBS), our study found that the internal consistency of the sexual risk subscale was inadequate. This is most likely that the subscale needs to be validated to assess sexual risk behaviors among Latina college-aged participants. Given the poor internal consistency of the HRBS sexual risk subscale in the present study, we decided to conduct post-hoc analyses to assess whether sexual risk or protective behaviors within the past 3 months were

significantly associated with HIV risk perception scores. We found that higher engagement in protective anal sex and HIV testing conversations were significantly associated with higher HIV risk perception scores. Previous research has found inconsistent condom use with anal sex and HIV risk perception among women (Khawcharoenporn, Kendrick & Smith, 2012) and a significant association between high HIV risk perception and inconsistent condom use during anal sex among men-who-have-sex with men (Koh & Young, 2014).

Our findings may differ from these because of the college-aged population currently in a relationship and because of similar education level attainment (e.g. all college students). The base rates of HIV risk behaviors may be too low in this particular population. As we found, it may be more meaningful to explore HIV risk perception in this population. To examine risk behaviors, it may be more appropriate to test these hypotheses in a clinical sample, such as patients in medical settings. It is also possible, that college students underreport engagement in HIV sexual risk behaviors. The sample was largely female and it is possible that, while they may engage in risk behaviors, they may not report them because they are considered taboo or, otherwise, culturally inappropriate.

Another context that may affect reporting, is the college campus setting. HIV risk behaviors may be well understood in this population and, thus, occur less often. Students at this particular college are unique in that they are most often first-generation college students. This may mean that engagement in HIV risk behaviors may be appropriately perceived as a possible barrier to successful completion of a college education.

We were also interested in comparing participants who reported engaging at least once in unprotected sexual behaviors to participants who only engaged in protected sex behaviors within the past 3 months. The two groups significantly differed in age, relationship length and perceived

partner's negative machismo. Participants on the unprotected, or "at risk" group, on average, were older, had longer relationships, and had higher scores on perceived partner's negative machismo. It is important to emphasize that the "at-risk group" was defined based on engagement in unprotected vaginal or anal sex. Future educational materials targeted to increase rates of sexual protective behaviors among Latina college students may benefit from incorporating the importance of Latinas' perceptions of partners' masculine roles.

In relation to participant's sexual behaviors, those who reported engaging in unprotected sex within the past 3 months significantly differed in having condoms nearby and the number of male sexual partner compared to the group that did not engage in unprotected sex. Those who reported unprotected sex, on average, reported having condoms nearby more often and had a higher number of male partners compared to the other group. This is an interesting finding that may suggest a reluctance to engage in protective sexual behaviors, even though condoms may be easily accessible. We found that perceived partner's negative machismo significantly increased engagement in unprotected sexual behaviors. Future studies may investigate how Latinas perceive their partner's negative masculine gender role and may develop more effective prevention materials to increase the likelihood of Latinas' engagement in protective sexual behaviors (e.g. condom use).

There are several limitations to the present study. A design limitation of the present study is its cross-sectional nature. Therefore, causal relationships cannot be made based on the data from the present study. As noted earlier, machismo and marianismo were not significantly related to HIV risk behaviors and HIV risk perception in the moderation analyses. The absence of a significant relationship is consistent with the conceptual model. However, it is important to note that the current study lacks statistical power to draw conclusions for the null model.

Additionally, the study description of sexual health during recruitment may have introduced bias and reduced variability in subordinate marianismo; participants likely to complete the survey might be low on the construct of subordinate marianismo. While the present study assessed participant's perception of partner's negative machismo, inferences cannot be made about their partner's actual behaviors. We were particularly interested in understanding Latinas' perceptions of their partner's negative machismo; however, we cannot assume that their partner(s) actually adhere to these negative gender roles. It is worth noting that any negative traits of masculine and feminine gender roles can be found across cultures and that these characteristics also vary within cultures. Therefore, it is important to emphasize that certain aspects of machismo and marianismo are not unique to the Latino/Hispanic culture and can also be found in other cultural groups.

Additionally, we were unable to assess whether there were generational differences. While all participants self-identified as Latinas or Hispanic females currently in a relationship, they were all college students with similar education attainment levels. More research is needed to investigate if there are generational and educational differences in adherence to and perception of gender roles. In particular whether gender roles may be perpetuated across different generations and within the context of a relationship. Similarly, because participants displayed low variability in risk behaviors and perceptions, which may be explained by the reported relationship length average, future studies should include dating as another inclusion criteria option.

Differences in HIV rates between ethnic groups remain a central public health issue that must be addressed. More specifically, Latinas are more likely to be diagnosed with HIV compared to White females and the majority of Latinas who become HIV seropositive reported

not having perceived themselves to be at risk. Additionally, it is important to consider that the majority of Latinas or Hispanic females who become HIV seropositive report acquiring HIV through heterosexual intercourse, and most did not report feeling at risk. The present study supports that Latinas who are married have lower HIV risk perception.

As described in this thesis, the present study sought to investigate whether gender roles, subordinate marianismo, and perceived partner's negative machismo influenced the relationship between HIV sexual risk behaviors and HIV risk perception for Latinas currently in a heterosexual relationship. We did not find a significant moderating effect of gender roles. Future studies may benefit from utilizing other gender role measures and to assess HIV risk behaviors in a clinical setting. To our knowledge, the present study is the first to assess how specific gender roles influence the relationship between reported HIV risk behaviors and HIV risk perception for Latina/ Hispanic female college students who are currently in a relationship.

The present findings can inform targeted interventions in college settings to increase both HIV risk perception and engagement in protective sexual behaviors. In relation to HIV risk perception, relationship status, relationship length and work status should be considered when developing targeted HIV prevention efforts and educational materials. Additionally, emphasis on empowering women to discuss HIV testing with their partner and promoting condom use is important to increase HIV risk perception among Latina college students. In relation to protective sex behaviors, it is important to consider age, relationship length, and perceived partner's negative masculinity in the development of educational materials to promote protective sex behaviors. Findings indicate that while promoting the availability of condoms nearby to engage in protective sex is necessary, it may not always be sufficient. Future research is needed to develop specific and effective condom use promotion strategies.

This study is part of an ongoing research trajectory aiming to better understand how perceptions and adherences to gender roles may influence HIV sexual risk behaviors and HIV risk perceptions. There is a need to address the health disparities in which Latinas/ Hispanic females are disproportionately affected by HIV compared to White/ Caucasian females. Future research studies should investigate how gender roles may impact Latinas' HIV risk perception and HIV risk behaviors within a clinical population across different generations, socioeconomic backgrounds, and education attainments.

<div align="center">**References**</div>

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Table 1. Sample Demographics: Frequencies, Means and Standard Deviations

Demographics		N (%)	M (SD)
Age		291	21.06 (3.687)
Country of Birth			
	Mexico	25 (8.6)	
	United States	265 (90.8)	
	Colombia	1 (.3)	
Health Insurance			
	Yes	172 (59.5)	
	No	111 (38.4)	
	Unsure	6 (2.1)	
Student Classification			
	Freshman	71 (24.7)	
	Sophomore	85 (29.5)	
	Junior	79 (27.4)	
	Senior	53 (18.4)	
Annual Household Income			
	Less than $10,000	144 (49.8)	
	$10,000-$19,999	50 (17.3)	
	$20,000-$29,999	14 (4.8)	
	$30,000-$39,9999	20 (6.9)	
	$40,000-$49,9999	13 (4.5)	
	$50,000 or more	48 (16.6)	
Relationship Status			
	In a relationship	264 (91)	
	Legally Married	19 (6.5)	
	In a Domestic Partnership	6 (2.1)	
Relationship Length in Months			31.91 (32.326)
Partner's ethnicity	Mexican	54 (18.6)	
	Mexican American	185 (63.6)	
	Another Hispanic, Latino, or Spanish	23 (7.9)	
	Unknown/ Not Sure	6 (2.1)	
Partner's race			
	White	205 (73.7)	
	Black or African American	10 (3.4)	
	Asian Indian	1 (.3)	
	American Indian or Alaska Native	4 (1.4)	
	Unknown/ Not sure	37 (13.3)	
	Other	21 (7.6)	

Table 2. Summary of Reliabilities, Intercorrelations, Means, and Standard Deviations for Scores on the HRBS, HIV-KQ-18, GRBS, MBS, Machismo, and PRHS.

Measures	1	2	3	4	5	6	α	M	SD	N
1.HRBS	---						.42	3.669	3.212	287
2. HIV-KQ-18	-0.056	---					.73	10.996	4.091	271
3. GRBS	-0.099	0.209**	---				.79	98.210	15.675	266
4. MBS	0.127*	-0.084	-.376**	- --			.75	10.066	5.060	288
5. Machismo	0.187**	-0.095	-.274**	0.43**	---		.67	40.026	7.310	272
6. PRHS	0.090	0.087	0.007	0.048	0.024	--	.84	15.70	4.586	288

Note. Items 7-11 from the HRBS were added to create a sexual risk subscale. Items 11-15 from the MBS were added to create a subordinate subscale. Items related to male privilege and selfish conduct (1, 3, 5, 6, 8, 9,10, 11, 12, 12, 17, 18, 23, 25, 31) were added to create a negative machismo factor. The male privilege and the selfish conduct subscales had a correlation of .68**
**. Correlation is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)

Table 3.A. Reported Means and Standard Deviations of Sex Related Behaviors Within the Past 3 Months

	N(%)	M (SD)
Vaginal Sex (without condoms)	202 (73)	12.33 (17.24)
Vaginal Sex (with condoms)	133 (47)	3.85 (8.02)
Anal Sex (without condoms)	29 (11)	.26 (1.15)
Anal Sex (with condoms)	9 (3)	.05 (.31)
Alcohol Use Prior to Sex	129 (41)	1.67 (3.7)
Marijuana, Cocaine, or other Drug Use Prior to Sex	49 (15)	.90 (4.6)
Number of male sexual partners	254 (13)	.96 (.57)
Refusal to engage in sexual activities due to no condom	134 (52)	.32 (1.55)
Discussion with sex partner to get tested for HIV/AIDS	32 (13)	.46 (1.12)
Discussion with sex partner about condom use or safer sex	72 (25)	2.07 (4.39)
Kept condom nearby	162 (55)	3.42 (1.65)

N(%)= number and percentage of participants who responded at least once; M (SD) of all participants' responses

Table 3.B. Reported Frequency Drug Use Within the Past 3 Months

		N (%)
Marijuana (Hash, THC)		291
	Never	208 (71.5)
	About one time a month	53 (18.2)
	About one time a week	8 (2.7)
	About several times a week	11 (3.8)
	About every day	11 (3.8)
Cocaine (crack, powder)		287
	Never	280 (97.6)
	About one time a month	7 (2.4)
Nitrates Inhalants (poppers)		285
	Never	283 (99.3)
	About one time a month	1 (.4)
	About one time a week	1 (.4)
Speed/ Uppers/ Methamphetamine		286
	Never	283 (99.3)
	About one time a month	1 (.4)
	About one time a week	1 (.4)
Heroin or other opioids		286
	Never	286 (100)
Any drug injected with a needle (shot-up)		285
	Never	285 (100)
Tobacco/ Cigarettes		287
	Never	253 (88.2)
	About one time a month	18 (6.3)
	About one time a week	6 (2.1)
	Several times a week	7 (2.4)
	About every day	3 (1)
Any other drug		284
	Never	277 (97.5)
	About one time a month	5 (1.8)
	About one time a week	1 (.4)
	About every day	1 (.4)

Table 4. Results of t-tests and Descriptive Age, Relationship Length, Gender Roles, Partner's Machismo, and Marianismo by Engagement in Unprotected Sexual Risk Behavior

| Variables | Group | | | | | | 95% CI for | | |
| | Protected | | | Unprotected | | | Mean | | |
	M	SD	n	M	SD	n	Difference	t	df
Age	20.15	2.518	78	21.39	3.85	213	-2.19, -0.28	-2.56*	289
Relationship length	23.57	18.79	69	34.64	35.26	211	-19.82, -2.34	-2.49*	278
Gender Roles	98.87	16.66	70	97.97	15.35	196	-3.39, 5.22	.419	264
Partner's Machismo	38.21	6.36	71	40.67	7.53	201	-4.42, -.49	-2.45*	270
Marianismo	9.54	4.64	76	10.25	5.20	212	-2.05, .62	-1.06	286
Risk Perception	15.17	5.15	77	15.89	4.36	211	-1.923, .479	-1.18	286

* p < .05.

Table 5. Results of t-tests and Descriptive Report on Sexual Behaviors and Drug Use by Engagement in Unprotected Sexual Risk Behavior

| Variables | Group | | | | | | 95% CI for Mean | | |
| | Protected | | | Unprotected | | | | | |
	M	SD	n	M	SD	n	Difference	t	df
Condoms Nearby	2.95	1.75	78	3.60	1.58	214	-1.07, -0.22	-3.01*	290
Testing Conversation	.29	.90	77	.52	1.20	214	-0.52, 0.06	-1.57	289
Refusal	.47	2.33	76	.26	1.14	210	-0.19, 0.62	1.02	284
Condom Use Conversation	2.03	3.22	75	2.09	4.76	206	-1.23, 1.11	-.10	279
Male Sex Partners	.60	.63	78	1.09	.49	213	-0.62, -0.35	-6.90**	289

* p < .05, ** p < .01

Condoms Nearby: During the past 3 months, how often did you keep condoms nearby where you would get them quickly?; Testing Conversation: In the past 3 months, how many times did you talk with a sex partner about getting tested for the HIV/AIDS virus?; Refusal: In the past 3 months, how many times have you refused to have sex because a person would not use a condom?; Condom Use Conversation: In the past 3 months, how many times have you talked with a sex partner about using condoms or having safer sex?; Male Sex Partners: In the past 3 months, how many men have you had sex with?

Table 6. Summary of Hierarchical Logistic Regression Analysis for Variables Predicting Engagement in Unprotected Sexual Behaviors (N=292)

Model and Predictors	Model χ^2	Df	-2LL	Nag R^2	β	OR	95% C.I. for Odds Ratio
Model 1	7.598*	2	258.208	0.045			
Age					0.067	1.069	(.953, 1.199)
Relationship length					0.013	1.013	(.999, 1.027)
Model 2	15.240**	5	247.773	0.089			
Age					0.079	1.082	(0.962, 1.217)
Relationship length					0.014	1.014	(1.00, 1.029)
Gender Roles					-0.001	0.999	(0.978, 1.020)
Marianismo					-0.035	0.965	(0.901, 1.034)
Partner's machismo					0.065**	1.067**	(1.015, 1.121)

Note: −2 LL =−2 Log Likelihood; Nag R^2 = Nagelkerke R^2; *p* < .05. **p* < .01., Gender Roles, Marianismo, and Partner's Machismo were mean centered prior to analysis.

Figure 1. Conceptual Diagram of the Moderating role of Gender Roles on the relationship between HIV sexual risk and HIV Risk Perception
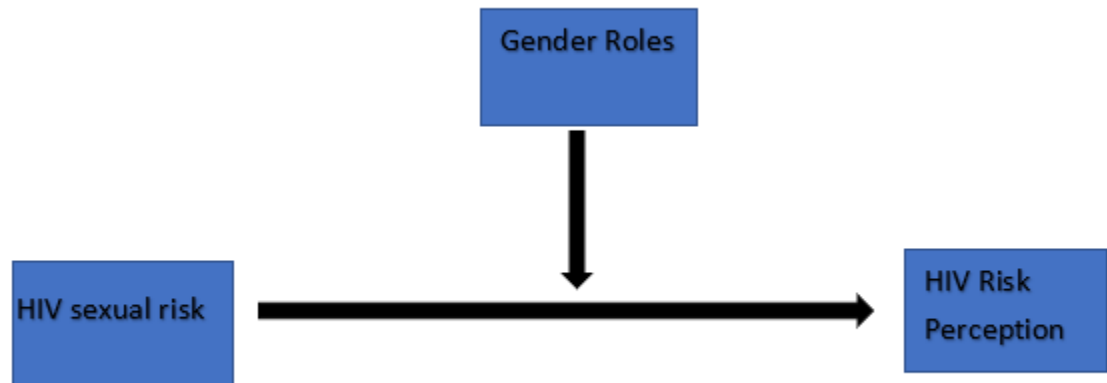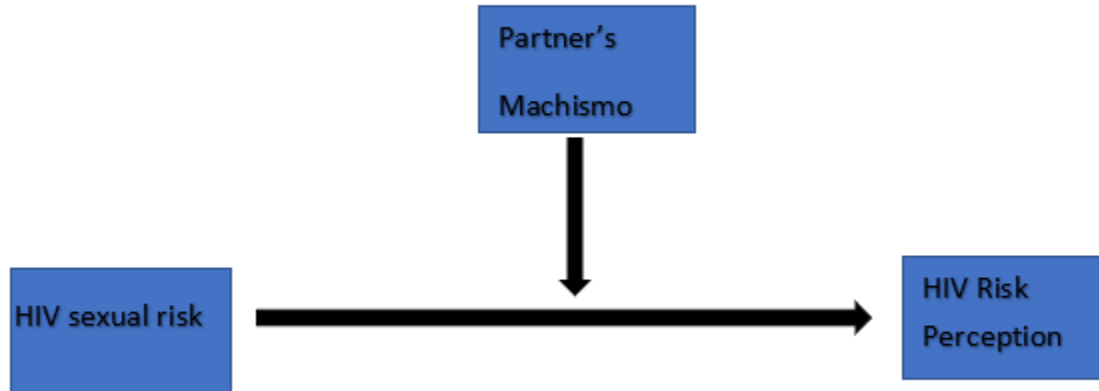

H2: Moderation (HIV sexual risk= X, Gender Roles= W, HIV Risk Perception= Y)

	R	R²	MSE	F	p
Overall Model	.053	.003	21.82	.24	.87

	B	SE	t	LLCI	ULCI	p
Constant	15.76	.291	54.10	15.18	16.33	<0.0
HIV Sexual Risk	.07	.092	.79	-.11	.25	.43
Gender Roles	.005	.019	.25	-0.03	.04	.81
HIV Sexual Risk x Gender Roles	-0.001	.006	-.22	-0.01	.01	.83

Note: CIs = 95%

Figure 2. Conceptual Diagram of the Moderating role of Perceived Partner's Negative Machismo on the relationship between HIV Sexual Risk and HIV Risk Perception.
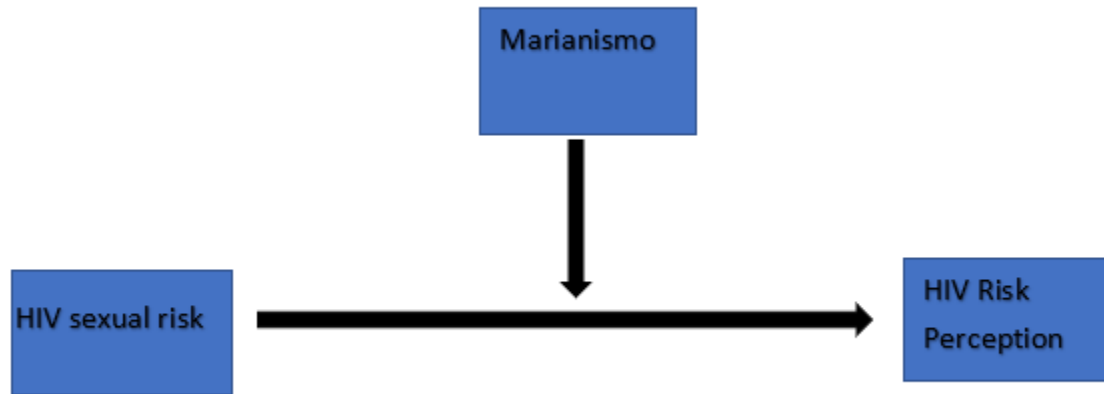

H3: Moderation (HIV sexual risk= X, Perceived Partner's Negative Machismo= W, HIV Risk Perception= Y)

	R	R²	MSE	F	p
Overall Model	.116	.014	21.40	1.189	.314
	B	SE	t	LLCI	ULCI	p
Constant	15.72	.29	54.51	15.15	1629	<0.00
HIV Sexual Risk	.13	.09	1.38	-.05	.31	.17
Perceived Partner's Machismo	-0.001	.04	-.01	-.08	.08	.99
HIV Sexual Risk x Perceived Partner's Machismo	.01	.01	1.09	-0.01	.04	.27

Note: CIs = 95%

Figure 3. Conceptual Diagram of the Moderating role of Subordinate Marianismo on the Relationship between HIV Sexual Risk and HIV Risk Perception.
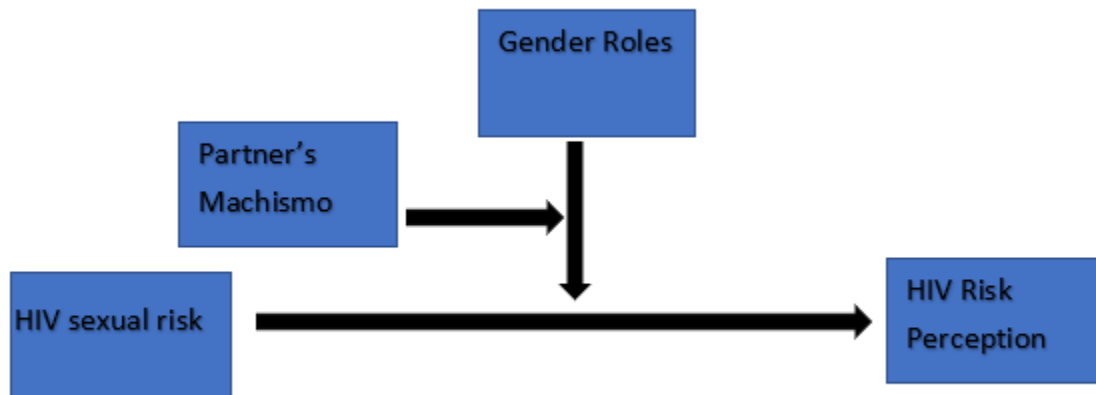

H4: Moderation (HIV Sexual Risk= X, Marianismo= W, HIV Risk Perception= Y)

	R	R^2	MSE	F	p
Overall Model	.108	.012	21.263	1.09	.356
	B	SE	t	LLCI	ULCI	p
Constant	15.77	.28	56.85	15.22	16.31	<0.00
HIV Sexual Risk	.14	.09	1.60	-.03	.31	.11
Marianismo	.03	.05	.61	-0.07	.14	.54
HIV Sexual Risk x Marianismo	-0.001	.02	-.02	-0.03	.03	.98

Note: CIs = 95%

Figure 4. Conceptual Diagram of the Moderated Moderation role of Gender Roles and Perceived Partner's Negative Machismo on the relationship between HIV Sexual Risk and HIV Risk Perception.
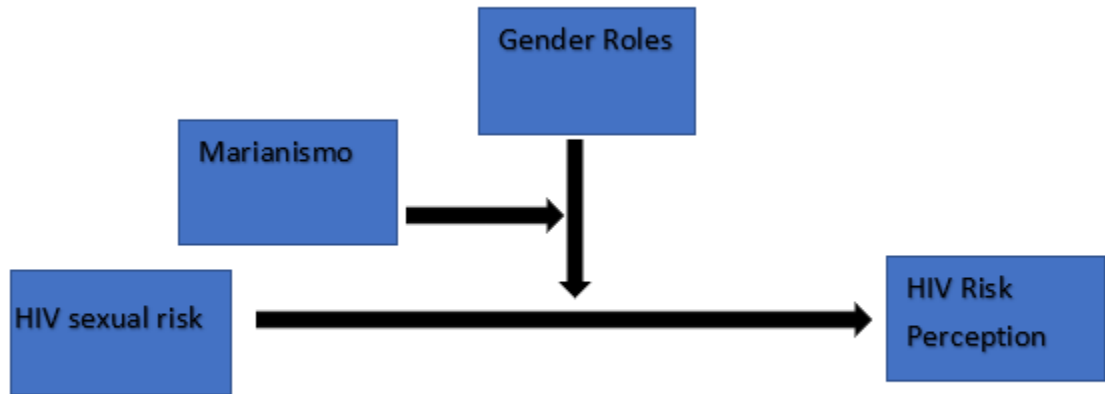

H5a: Moderated Moderation (HIV sexual risk= X, Gender Roles= M, Perceived Partner's Negative Machismo= W, HIV Risk Perception= Y)

	R	R^2	MSE	F	p	
Overall Model	.114	.013	22.302	.443	.875	
	B	SE	t	LLCI	ULCI	p
Constant	15.63	.32	49.48	15.01	16.26	<0.00
HIV Sexual Risk	.08	.10	.74	-.13	.28	.46
Gender Roles	.001	.02	-0.45	-0.04	.04	.96
HIV Sexual Risk x Gender Roles	-0.001	.01	-.05	-0.01	.01	.96
Perceived Partner's Machismo	-.004	.04	-.09	-.09	.08	.93
HIV Sexual Risk x Perceived Partner's Machismo	.01	.01	.65	-.02	.04	.52
Gender Roles x Perceived Partner's Machismo	-.003	.002	-1.30	-0.01	.002	.19
HIV Sexual Risk x Gender Roles x Perceived Partner's Machismo	-.000	.01	.04	-0.002	.002	.97

Note: CIs = 95

49

Figure 5. Conceptual Diagram of the Moderated Moderation role of Gender Roles and Subordinate Marianismo on the Relationship Between HIV Sexual Risk and HIV Risk Perception.


H5b: Moderated Moderation (HIV sexual risk= X, Gender Roles= M, Subordinate Marianismo= W, HIV Risk Perception= Y)

	R	R^2	MSE	F	p
Overall Model	.180	.032	22.358	.885	.539

	B	SE	t	LLCI	ULCI	p
Constant	15.86	.31	50.77	15.24	16.47	<0.00
HIV Sexual Risk	.12	.10	1.25	-.07	.32	.21
Gender Roles	.004	.02	.16	-0.04	.04	.87
HIV Sexual Risk x Gender Roles	-0.003	.01	-.36	-0.02	.01	.72
Marianismo	.03	.07	.46	-.10	.17	.64
HIV Sexual Risk x Marianismo	.006	.02	.29	-.03	.05	.77
Gender Roles x Marianismo	.001	.004	.29	-.01	.01	.77
HIV Sexual Risk x Gender Roles x Marianismo	.001	.001	.88	-.001	.003	.38

Note: CIs = 95%

Figure 6. Conceptual Diagram of the Moderated Moderation of Gender Roles, Marianismo, and Perceived Partner's Machismo on the relationship between HIV sexual risk and HIV Risk Perception.
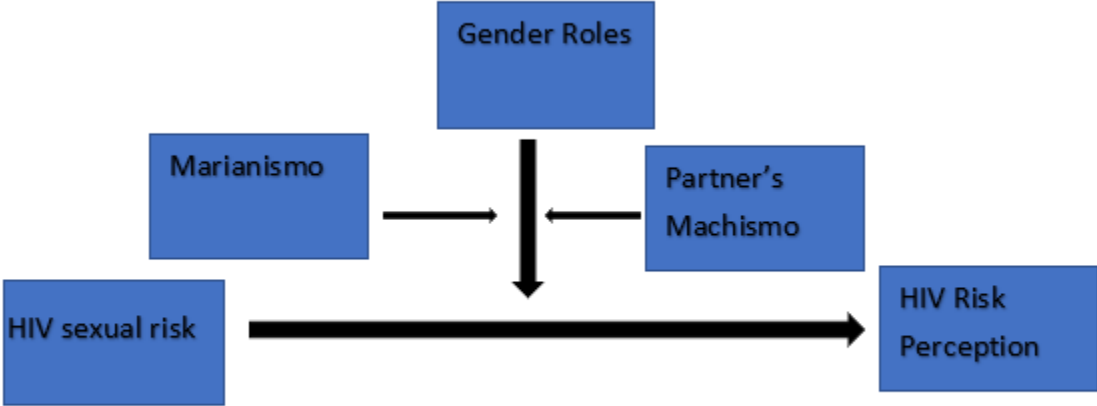
Resources in El Paso

Aliviane, Inc.
1900 Wyoming, Suite A
El Paso, Texas 79903
Tel: (915) 782-4042
Fax: (915) 856-2272
E-mail: info@aliviane.org

Anonymous HIV testing, confidential HIV testing, risk reduction counseling, health education/risk reduction, HIV prevention education, STD prevention education, hepatitis prevention education, street outreach, peer education, substance abuse intervention, educational materials, case management for HIV/AIDS, HIV early intervention, support groups. Spanish speaking staff available.

City of El Paso Department of Public Health
5115 El Paso Drive, Suite B
El Paso, Texas 79905
Tel: (915) 771-1200
Fax: (915) 771-1201

Anonymous HIV testing, confidential HIV testing, STD testing, TB testing, health education/risk re- duction, HIV prevention education, STD prevention education, hepatitis prevention education, educa- tional materials, STD clinical treatment, TB clinical treatment, physician on-site, nurse on-site, hepati- tis vaccine, Paps with STD exams. Spanish speaking staff available.

The University of Texas at El Paso
Student Health and Wellness Center
Union Building East
351 W. University Ave. Ste 100
El Paso, Texas 79968
E: lpcastro@utep.edu Tel: (915) 747 - 5624
Fax: (915) 747 – 5015

The student health clinic offers current students HIV testing for a fee of $36 USD. Appointments are preferred.

Sources:

Information obtained from Texas Department of State Health Services and the Center for Disease Control and Prevention

About HIV

Basic information about HIV and resources list for El Paso

For further questions, contact:

Juliana Cardoso Smith

jdcardoso@miners.utep.edu

Resources in El Paso

International AIDS Empowerment
800 Montana Avenue
El Paso, Texas 79902
Tel: (915) 590-2118
Toll Free: (888) 767-8474
Fax: (915) 590-2127
E-mail: skiprosenthal@internationalaids.org
Web: www.internationalaids.org [IAE]

Anonymous HIV test (free), confidential HIV test (free), prevention counseling, peer counseling, health education/risk reduction, HIV prevention education, STD prevention education, hepatitis prevention education, peer education, case management for HIV/AIDS, clothing assistance, financial assistance, food pantry, support groups, volunteer services, HIV infected and affected Speakers' Bureau, smoking cessation. Spanish speaking staff available.

La Fe CARE Center
1505 Mescalero
El Paso, Texas 79925
Tel: (915) 772-3366
Fax: (915) 772-2178
E-mail: jojeda@htq.net or rchavez@htq.net

Anonymous HIV testing, confidential HIV testing, peer education, case management for HIV/AIDS, primary care clinic, clinical treatment for HIV/AIDS, nurse on-site, physician on-site, hepatitis education/counseling, Hepatitis A vaccine-adults, Hepatitis B vaccine-adults, TB testing, prescription assistance, dental care, immunizations, support groups, peer counseling, food pantry, transportation, volunteer services, buddy program, housing assistance, home visits/home health care, brochures.

SPCAA Project CHAMPS El Paso
1201 East Schuster, Building 1A
El Paso, Texas 79902
Tel: (915) 533-3393
Fax: (915) 533-3378
E-mail: aserrano@spcaa.org

By the numbers...

Approximately one in four people living with HIV infection in the United States are women.

Most new HIV infections in women are from heterosexual sex (90 %).

An estimated 88% of women who are living with HIV are diagnosed, but only 32% have the virus under control.

Hispanics or Latinos are disproportionately affected by HIV, relative to other races/ethnicities.

The estimated new HIV infection rate among Hispanics or Latinos in 2010 in the United States was more than 3 times as high as that of whites.

How can I reduce my risk of getting HIV?

Anybody can get HIV, but here are some ways:

- Get tested and know your partner's HIV status.
- Have less risky sex.
- Use a condom every time you have vaginal, anal, or oral sex.
- Limit your number of sexual partners.
- Talk to your health care provider about pre-exposure prophylaxis (PrEP). (Medication that helps to prevent HIV)
- Don't inject drugs.
- Also, talk to your doctor about questions you have

What is HIV?

HIV stands for human immunodeficiency virus. It is the virus that can lead to acquired immunodeficiency syndrome, or AIDS. Unlike some other viruses, the human body cannot get rid of HIV. That means that once you have HIV, you have it for life.

How is HIV passed from one person to another?

HIV can be transmitted in three main ways:

- Sexual transmission (via unprotected sex without a condom)

- Transmission through blood (such as used needles and blood donations)

- Mother-to-child transmission (during pregnancy, labor, delivery or breastfeeding).

In the United States, HIV is spread mainly by having sex with someone who has HIV. In general:

Anal sex is the highest-risk sexual behavior.

Vaginal sex is the second highest-risk sexual behavior.

Having multiple sex partners or having other sexually transmitted infections can increase the risk of infection through sex.

Vita

Juliana de Almeida Cardoso Smith was born in the state of Rio de Janeiro, Brazil and raised in Rio de Janeiro and subsequently Queens, New York. She was a pre-med student at Hunter College City of New York and graduated with a Psychology B.A. in 2012. Subsequently, she went to Queens College City of New York to pursue her Masters in Psychology and also taught as a Psychology Adjunct, graduating in 2013.While she was pursuing her Masters, she was also working in the Emergency Department helping survivors of sexual assaults with their experiences in the Emergency Room. The Fall of 2014, she entered the University of Texas at El Paso Psychology doctoral program, in the concentration of Health Psychology. Broadly speaking, she is passionate about improving Latinas' experiences in medical settings and understanding Latinas' sexual health using a multidisciplinary approach through a feminist theoretical lens. Currently, her research focuses on improving patients' experiences and screening rates in a hospital setting, addressing topics such as HIV incidence/prevalence in the Latino population and HIV screening.

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