Archives of Sexual Behavior (2024) 53:1141–1151
https://doi.org/10.1007/s10508-023-02760-x

ORIGINAL PAPER

Do Traditional Gender Role Beliefs Promote Abstinence and Sexual Health Behaviors Among Latina College Students?

Melissa M. Ertl[1,2] · **Cara L. Fresquez**[2]

Received: 16 September 2022 / Revised: 6 November 2023 / Accepted: 22 November 2023 / Published online: 29 December 2023

Abstract

Traditional gender role beliefs, or *marianismo* beliefs, are theorized to be largely protective against health risk behaviors, including sexual risk behaviors among Latina young adults. However, measurement differences across studies and research with heterogeneous samples of abstinent and sexually active Latina young adults have led to unclear findings. Thus, we investigated whether endorsement of certain marianismo beliefs may promote sexual health behaviors or solely promote abstinence. Guided by gender role schema theory, this study investigated the multidimensional construct of marianismo beliefs in relation to past-year abstinence from sexual activity, STI and HIV testing, and condom use among 611 Latina young adults. Results indicated that endorsement of the Virtuous and Chaste belief was associated with decreased odds of sexual activity (i.e., increased odds of being abstinent) in the past year. None of the five marianismo beliefs were significantly linked with condom use. Among sexually active participants, the Virtuous and Chaste belief was associated with decreased likelihood to be tested for both STIs and HIV in the past year. Findings support the notion that certain marianismo beliefs (e.g., the Virtuous and Chaste belief) may promote abstinence, yet pose a risk for sexual health via reduced likelihood for STI and HIV testing. Results may inform culturally-tailored HIV prevention interventions with Latinas to reduce the disproportionate HIV burden in this population.

Keywords STI testing/HIV testing · Condom use · Sexual risk · Gender role beliefs · Latinas · Marianismo

Introduction

Of the 26 million new sexually transmitted infections (STIs) in 2018, almost half of them were among youth and young adults aged 15 to 24 years in the U.S. (Centers for Disease Control and Prevention [CDC], 2021a). Significant disparities in sexual health exist for Latina compared to White young adult women, such that Latina young adult women are approximately two to four times more likely to be diagnosed with sexually transmitted infections (STIs) and HIV (Gavin et al., 2009; Guilamo-Ramos et al., 2012). Young adult Latinas are also less likely to be tested for HIV (Kim et al., 2007) and less likely to use condoms, birth control, and contraception consistently compared to White young adult women (Buhi et al., 2014; Foulkes et al., 2005; Harvey et al., 2006). Understanding factors associated with sexual health behaviors among Latina young adults is of critical public health importance to help reduce and eliminate the sexual health disparities that negatively affect their health and quality of life.

One factor theorized to be linked with sexuality and sexual health among Latina young adult women is traditional gender role beliefs, or *marianismo* beliefs, which have been described as a central organizing structure in Latinx culture (Cauce & Domenech-Rodriguez, 2002; Piña-Watson et al., 2014). This is consistent with gender role schema theory (Bem, 1981), which posits that women are socialized to endorse traditional gender role beliefs and adopt stereotypically gendered behaviors in everyday life. The idealized *marianista* Latina woman is viewed as virginally pure (i.e., abstinent from sex), non-sexual, or naïve about sex (Castillo & Cano, 2007; Jones et al., 2008), and someone who protects her sexual purity to maintain family honor. In order to maintain harmony, she does not talk about controversial topics such as sex and birth control (Castillo et al., 2010). In

✉ Melissa M. Ertl
mertl@umn.edu

[1] Department of Psychology, University of Minnesota, N218 Elliott Hall, 75 E River Pkwy, Minneapolis, MN 55455, USA

[2] Department of Educational and Counseling Psychology, University at Albany-State University of New York, Albany, NY, USA

the context of committed relationships, the ideal *marianista* defers sexual decision-making to her partner, remains faithful and avoids infidelity, and has strong aspirations for marriage and childbearing (Villalba et al., 2018).

Marianismo beliefs are conceptualized as a multidimensional construct that includes five belief pillars that are represented by five separate subscales: (1) Family Pillar, the belief that Latinas should be the main source of strength, connection, and cohesion for the family and should keep the family unified; (2) Virtuous and Chaste, the belief that Latinas should be pure and should abstain from premarital sex; (3) Subordinate to Others, the belief that Latinas should be obedient and submissive to men in a patriarchal paradigm; (4) Silencing Self to Maintain Harmony, the belief that Latinas should keep their opinions and needs to themselves in order to minimize discord in relationships; and (5) Spiritual Pillar, the belief that Latinas should be the spiritual leaders of the family (Castillo et al., 2010). In support of the multidimensional nature of the construct, the five distinct marianismo beliefs have been found to be differentially linked with health outcomes in previous research, including mental health symptoms (Nuñez et al., 2016), life satisfaction (Llamas et al., 2020), acculturative stress (e.g., Ertl et al., 2019), substance use (Sanchez et al., 2019), and sexual risk (Ertl et al., 2018). That is, depending on the context, certain marianismo beliefs have been found to be protective factors promoting health behaviors, and in other contexts, certain beliefs have been found to be associated with adverse health outcomes or health risk behaviors. As one example, research on marianismo beliefs in relation to mental health symptoms has found that four of the five marianismo beliefs (i.e., Family Pillar, Subordinate to Others, Silencing Self to Maintain Harmony, and Spiritual Pillar) tended to be associated with negative cognitive-emotional factors (e.g., depressive symptoms, anger, anxiety, cynical hostility), whereas the Virtuous and Chaste belief was associated with lower levels of negative cognitive-emotional factors (Nuñez et al., 2016). Thus, across different contexts and outcomes, certain marianismo beliefs may serve as risk or protective factors.

Although most studies that have documented the role of marianismo in relation to sexual health and increased risk for HIV have been qualitative (Hernandez et al., 2012; Moreno, 2007), limited quantitative research has examined marianismo beliefs and sexual risk behaviors. Moreover, of the available studies, large methodological differences in measurement of both marianismo beliefs and sexual risk behaviors exist. One quantitative study with a sample of recently arrived young adult Latina immigrants found support for links between marianismo beliefs and sexual risk behaviors (assessed by a latent construct of condom use, number of sexual partners, and sex under the influence of alcohol; Ertl et al., 2018); in this study, lower endorsement of the Virtuous and Chaste belief was associated with increased sexual risk, whereas greater endorsement of the Family Pillar belief was associated with increased sexual risk (Ertl et al., 2018). Another study conducted with a sample of heterosexual Latina college students found that greater endorsement of the Subordinate to Others belief was correlated with increased sexual risk (assessed by a composite variable of frequency of vaginal and anal sex with and without condoms, intoxicated sex, number of sexual partners, and sexual decision-making behaviors; de Almeida Cardoso Smith, 2019).

Despite the burgeoning literature supporting differential associations between certain marianismo beliefs and sexual behaviors, including condom use, the available quantitative studies to date have examined sexual risk behaviors in heterogeneous samples comprising both sexually active participants and those who were not (de Almeida Cardoso Smith, 2019; Ertl et al., 2018). Furthermore, studies have not examined the sexual health behaviors of STI testing and HIV testing history in relation to marianismo beliefs, leaving a second gap in our understanding of potential links between traditional gender role beliefs and testing behaviors. Thus, a question in the literature remains as to whether endorsement of any of the five marianismo belief pillars is associated with both abstinence from sexual activity as well as with condom use and past-year STI and HIV testing among sexually active participants, or whether endorsement of marianismo beliefs may only promote abstinence (but not sexual health behaviors once sexually active). That is, by separately considering abstinent and sexually active participants in analyses, this study seeks to clarify under what conditions certain marianismo beliefs may serve as protective factors.

Guided by gender role schema theory (Bem, 1981) and its application to traditional Latina gender role beliefs (Castillo et al., 2010), this study sought to delineate associations between the five marianismo belief pillars and the sexual health outcomes of engagement in sexual activity, STI testing history, HIV testing history, and condom use among a large sample of Latina college student women. Based on theory and limited prior research in this area, we expected that certain marianismo beliefs would be associated with decreased odds of sexual activity and, when sexually active, more consistent condom use (e.g., Virtuous and Chaste, Spiritual Pillar). For example, the Virtuous and Chaste and Spiritual Pillar beliefs both place value on virginity and may encourage abstinence (e.g., Castillo et al., 2010; Edwards et al., 2011), and one prior study documented reduced sexual risk behaviors among immigrant Latinas with higher endorsement of the Virtuous and Chaste belief (Ertl et al., 2018). Conversely, we expected that other marianismo beliefs would be associated with increased odds of sexual activity and less consistent condom use (e.g., Family Pillar, Subordinate to Others, Self-Silencing to Maintain Harmony). In addition to the two extant studies that have found positive associations between increased sexual risk behaviors and the Family Pillar and Subordinate to

Others beliefs (de Almeida Cardoso Smith, 2019; Ertl et al., 2018), these expected associations are based on the wealth of prior research on gender sexual power dynamics, in which women's deference for the good of the family, subordinance in sexual relationships, and silencing or withholding of their needs can exacerbate HIV risk and reduce likelihood of negotiating condom use (e.g., Bowleg et al., 2000; Wingood & DiClemente, 2000, 2002). We also hypothesized that marianismo beliefs that promoted abstinence (instead of sexual activity) may be associated with decreased odds of testing (e.g., Virtuous and Chaste, Spiritual Pillar). Although no previous studies have investigated marianismo beliefs in relation to STI and HIV testing, we expected that the Virtuous and Chaste and Spiritual Pillar beliefs, which may be consistent with pressure to protect sexual purity and to know little about sex (Castillo et al., 2010), may not encourage someone to seek testing. Particularly for Latina college students, who are at the age of highest risk for STIs and HIV (CDC, 2021b) and who are embedded in university social contexts that may often include substance use and sexual risk behaviors (e.g., Roberts & Kennedy, 2006), research is needed to illuminate the factors implicated in preventing and addressing adverse sexual health outcomes in this population. Findings stand to inform prevention and intervention efforts to increase STI and HIV testing and condom use and reduce the significant disparities in sexual health for Latina young adult women.

Method

Participants and Procedure

To participate in this cross-sectional online study, interested individuals affirmed that they met eligibility criteria: that they (1) identified as Latinx/Hispanic/Chicanx; (2) identified as a cisgender woman, (3) were enrolled as a full-time undergraduate student in a U.S. college or university, and (4) were between ages 18 and 26 years.

Using convenience sampling, we recruited undergraduate participants for a self-administered online study about Latina college students' health and health risk behaviors from online social network sites, flyers posted on campus, classroom recruitment, and emails sent to psychology listservs and Latinx cultural resource centers on college campuses across the U.S to facilitate recruitment of a large national sample of Latina college students. The first page of the survey contained information on what participation entailed and provided individuals with informed consent to participate. Participants had to provide consent in order to initiate the survey. Participants who completed the survey could enter a raffle to win one of 10$20 Amazon e-gift cards or one Apple iPad. Data were collected from September 2018 to June 2019. Participation was fully anonymous, and participants had to access a separate survey to enter their contact information for the raffle, which was not linked to their responses from the first survey. The survey was programmed to prevent multiple responses from a single user, and survey response times were assessed to ensure participants completed the survey with fidelity.

The study sample included 611 Latina women between ages 18–26 years ($M = 20.85$; SD = 1.89) enrolled full-time as college students. See Table 1 for demographic characteristics of study participants.

Measures

Marianismo Beliefs

The 24-item Marianismo Beliefs Scale (MBS; Castillo et al., 2010) measured participants' endorsement of the five subscales that comprise the traditional gender role belief construct using a 4-point Likert-type scale (1 = *Strongly disagree*, 4 = *Strongly agree*). Subscales were examined separately given the multidimensional nature of the construct (Castillo et al., 2010). Example items are: "Should be a source of strength for her family" (Family Pillar); "Should be pure" (Virtuous and Chaste); "Should satisfy her partner's sexual needs without argument" (Subordinate to Others); "Should feel guilty about telling people what she needs" (Silencing Self to Maintain Harmony); and "Should be the spiritual leader of the family" (Spiritual Pillar). Reliability and validity of the MBS with Latina young adults have been supported in past research (Ertl et al., 2019). In this study, adequate internal consistency reliability was supported for all five subscales (Family Pillar $\alpha = 0.85$; Virtuous and Chaste $\alpha = 0.85$; Subordinate to Others $\alpha = 0.77$; Silencing Self to Maintain Harmony $\alpha = 0.89$; Spiritual Pillar $\alpha = 0.90$).

Sexual Activity and Sexual Health Behaviors

Sexual activity and sexual health behaviors were measured using seven items from the Youth Risk Behavior Surveillance Survey (YRBSS; CDC, 1997) that assessed sexual activity (1 item), STI testing (1 item), HIV testing (1 item), and condom use (4 items) in the past 12 months. Sexual activity in the past year was measured with the dichotomous item (i.e., "Yes" or "No"), "Have you engaged in sexual intercourse (vaginal, anal, or oral sex) in the last year?" STI and HIV testing outcomes in the past year were measured with the dichotomous items, "Have you been tested for sexually transmitted infections (STIs) in the past year?" and "Have you been tested for HIV/AIDS in the past year?" Condom use was measured using four items of the YRBSS rated on a 5-point Likert-type scale (1 = *Never*, 5 = *Always*) that assessed consistent condom use across sexual acts (i.e., vaginal and anal sex) in the past year. Participants who did not report having that type of sex in the past year could endorse an option of 6 = *Not applicable*.

An example item is: "How frequently did you use a condom during anal sex?" A mean frequency of condom use across sexual acts was calculated, consistent with previous research (Ertl et al., 2018; Rojas et al., 2014), which demonstrated adequate internal consistency reliability ($\alpha = 0.70$). To facilitate analysis, the mean scores of this continuous variable were dichotomized to represent inconsistent condom use (i.e., responses 1–4 recoded to 0 = *Inconsistent condom use, reporting condom use less than always*) and consistent condom use (i.e. response 5, recoded as 1 = *Consistent condom use, reporting using condoms always*).

Demographics Questionnaire

Participants were asked to complete a demographic questionnaire that included items that assessed their gender identity, age, race, ethnicity, sexual orientation, country of origin, generational status, time in the US, and year in school.

Data Analytic Plan

Although hypotheses for this study were not preregistered, they were made a priori in the course of the first author's dissertation project. A power analysis was used to determine adequate sample size using the G*Power statistical power analysis program (Faul et al., 2007) for a model using an *F*-test with an R^2 increase that included five independent variables (i.e., each of the five marianismo beliefs), four covariates (i.e., age, sexual orientation, generational status, and year in school), and four outcome variables (i.e., sexual activity, STI testing, HIV testing, and condom use) with inputs of $\alpha = 0.05$, power $(1 - \beta) = 0.80$, and a small estimated effect size in the counseling health psychology literature (Haase et al., 2005), which is on par with estimates from previous research on marianismo beliefs in relation to sexual risk (e.g., Ertl et al., 2018). An estimated 395 participants were needed to detect a statistically significant effect if it is present, which the present sample of 611 exceeded. Based on changes during the peer review process, in which changes were suggested and incorporated to variable coding (i.e., condom use) and statistical analysis (i.e., logistic regressions instead of path analysis), the author(s) consider the study exploratory despite a priori hypotheses regarding variables under study in relation to sexual activity, STI and HIV testing, and condom use. Data were examined for missingness, and missing values were examined for patterned occurrences. Because the survey was programmed to prompt participants with a notification if they left an item missing, such that the notification invited them to complete the item before moving on to the next survey page, there were low levels of missingness in the sample (i.e., less than 5% missingness across all study variables). Little's (1988) Missing Completely at Random (MCAR) test revealed nonsignificant findings, indicating failure to reject the null hypothesis and suggesting data were missing completely at random, $\chi^2 = 19.58$ (41), $p = 0.998$.

Prior to main analyses, data were examined for adherence to the requisite assumptions, and descriptive statistics and correlations were calculated. Using suggested cutoff values for identifying outliers using Cook's distance (> 1) and *df*betas (>|1.0|) (Field, 2013), we assessed for multivariate outliers, thresholds which no cases exceeded. Additionally, no correlations exceeded thresholds identified for multicollinearity, $r = 0.80$ or VIF > 3.0 (Thompson et al., 2017). To test whether the five marianismo beliefs subscales were distinctly linked with sexual behaviors among Latina college students in the hypothesized directions, we conducted four logistic regressions in SPSS version 25.0 (IBM Corp., 2017) with outcome variables of sexual activity, STI testing, HIV testing, and condom use). The five marianismo beliefs subscales were independent variables in the models (i.e., Family Pillar, Virtuous and Chaste, Subordinate to Others, Silencing Self to Maintain Harmony, Spiritual Pillar). The analyses included the hypothesized covariates of age, sexual orientation, generational status, and year in school to control for potential confounding influences.

Results

Preliminary Analyses

Descriptive statistics of participants' self-reported rates of sexual activity and past-year STI and HIV testing history are also represented in Table 1. Table 2 contains means, standard deviations, and correlations among study independent variables. Approximately 28.1% ($n = 171$) of participants reported abstinence from sexual activity in the past year; nearly three-fifths of participants reported being tested for STIs (59.8%; $n = 262$), and approximately half reported being tested for HIV (50.0%; $n = 219$) in the past year.

Logistic Regressions

See Table 3 for estimates, odds ratios, and significance level for main study variables and covariates of age, sexual orientation, generational status, and year in school. The logistic regressions assessed the extent to which endorsement of the five marianismo beliefs was associated with sexual activity and sexual health behaviors (i.e., past-year testing for STIs and HIV and consistent condom use). The first model for sexual activity was statistically significant, χ^2 (9, $N = 604$) = 51.10, $p < 0.001$. The model explained 12.0% (Nagelkerke R^2) of the variance in sexual activity and correctly classified 74.5% of cases. There was a significant association between the Virtuous and Chaste belief and the odds of being sexually active, while adjusting for age, sexual

Table 1 Demographics and descriptive statistics of sexual prevention behavior outcomes

Variable	*M*	*SD*
Age (in years)	20.85	1.89
Sexual orientation	Percent	*n*
Exclusively heterosexual	64.5%	394
Nearly totally heterosexual	9.8%	60
Somewhat heterosexual	7.2%	44
Bisexual	12.9%	79
Somewhat gay	2.8%	17
Mostly gay	1.1%	7
Exclusively gay	1.6%	10
Year in school	Percent	*n*
First year	12.8%	78
Second year	16.4%	100
Third year	29.0%	177
Fourth year	32.6%	199
Fifth year	6.7%	41
Country of origin	Percent	*n*
U.S	84.1%	514
Foreign-born	15.9%	97
	M	*SD*
Time in U.S. (Non-U.S.-born)	13.86 years	5.50 years
Generational status in U.S	Percent	*n*
Self as a child or adult	8.0%	49
Parents	69.0%	420
Grandparents	17.1%	104
Great-grandparents or earlier	5.9%	36
Past-year sexual health behaviors	Percent	*n*
Sexual activity in past year		
Abstinent	28.1%	171
Sexually active	71.9%	438
Tested for STIs in past year		
Not tested	40.2%	176
Tested	59.8%	262
Tested for HIV in past year		
Not tested	50.0%	219
Tested	50.0%	219
Condom use in past year		
Inconsistent condom use (i.e., less than always)	76.1%	343
Consistent condom use (i.e., always)	23.9%	108

Time in the U.S. for participants not born in the U.S. ranged from 1 to 24 years

Table 2 Means, standard deviations, and correlations among study independent variables

Variable	*M*	*SD*	1	2	3	4	5
1. Family pillar	2.92	0.66	–				
2. Virtuous and chaste	2.08	0.67	0.51***	–			
3. Subordinate to others	1.33	0.46	0.24***	0.55***	–		
4. Silencing self to maintain harmony	1.24	0.43	0.19***	0.51***	0.76***	–	
5. Spiritual pillar	1.78	0.82	0.47***	0.62***	0.48***	0.57***	–

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 3 Logistic regression results with odds ratios of marianismo beliefs in relation to sexual behaviors

Variable	Sexual activity in past year			Tested for STIs in past year			Tested for HIV in past year			Condom use in past year		
	β (*SE*)	*p*	O.R. [95% C.I.]	*β* (*SE*)	*p*	O.R. [95% C.I.]	*β* (*SE*)	*p*	O.R. [95% C.I.]	*β* (*SE*)	*p*	O.R. [95% C.I.]
Family Pillar	.12 (0.18)	.49	1.13 [0.80, 1.61]	.20 (0.19)	.28	1.22 [0.85, 1.76]	.27 (0.18)	.14	1.31 [0.92, 1.87]	.16 (0.21)	.97	1.17 [0.78, 1.77]
Virtuous and Chaste	**−.89 (0.21)**	**<.001**	**0.41 [0.27, 0.62]**	**−.56 (0.25)**	**.02**	**0.57 [0.35, 0.92]**	**−.56 (0.24)**	**.02**	**0.57 [0.36, 0.92]**	.22 (0.26)	.42	1.24 [0.75, 2.07]
Subordinate to Others	.66 (0.34)	.05	1.93 [0.99, 3.74]	.27 (0.35)	.45	1.31 [0.66, 2.60]	.15 (0.34)	.66	1.16 [0.60, 2.26]	.28 (0.38)	.18	1.33 [0.63, 2.80]
Silencing Self to Maintain Harmony	−.30 (0.37)	.41	0.74 [0.36, 1.52]	.45 (0.40)	.26	1.57 [0.72, 3.44]	.49 (0.39)	.20	1.64 [0.77, 3.48]	−.64 (0.44)	.52	0.53 [0.22, 1.24]
Spiritual Pillar	**.34 (0.17)**	**.04**	**1.40 [1.01, 1.94]**	.04 (0.18)	.83	1.04 [0.73, 1.47]	−.02 (0.17)	.93	0.99 [0.70, 1.38]	.01 (0.19)	.58	1.01 [0.69, 1.48]
Age	.11 (0.08)	.16	1.12 [0.96, 1.32]	.04 (0.08)	.66	1.04 [0.89, 1.21]	.11 (0.08)	.15	1.12 [0.96, 1.30]	−.09 (0.09)	.79	0.92 [0.77, 1.09]
Year in School	**.26 (0.12)**	**.03**	**1.30 [1.03, 1.65]**	**.36 (0.13)**	**.01**	**1.43 [1.11, 1.85]**	.14 (0.13)	.27	1.15 [0.90, 1.47]	−.01 (0.14)	.98	0.99 [0.75, 1.31]
Sexual Orientation	−.02 (0.07)	.73	0.98 [0.85, 1.12]	.05 (0.08)	.52	1.05 [0.91, 1.22]	.03 (0.07)	.73	1.03 [0.89, 1.18]	.13 (0.08)	.91	1.14 [0.97, 1.33]
Generational Status	.20 (0.15)	.19	1.22 [0.91, 1.64]	−.12 (0.15)	.44	0.89 [0.66, 1.20]	−.01 (0.15)	.98	1.00 [0.75, 1.33]	−.01 (0.17)	.92	1.00 [0.72, 1.38]

Values that are significant at the $p < .05$ level are represented in **bold**. Table depicts four multiple logistic regression analyses, which controlled for potential confounding influences of age, sexual orientation (0 = *Exclusively heterosexual*, 6 = *Exclusively gay*), generational status in U.S. (1 = *Self as child or adult*, 2 = *Parents*, 3 = *Grandparents*, 4 = *Great-grandparents or earlier*), and year in school (1 = *First year*, 2 = *Second year*, 3 = *Third year*, 4 = *Fourth year*, 5 = *Fifth year*). O.R. = Odds ratio. Sexual Activity in Past Year (0 = *Abstinent*, 1 = *Sexually active*). Tested for STIs in Past Year (0 = *Not tested*, 1 = *Yes tested*). Tested for HIV in Past Year (0 = *Not tested*, 1 = *Yes tested*). Consistent Condom Use in Past Year (i.e., vaginal and anal sex) (0 = *Inconsistent condom use, or reporting condom use less than always*, 5 = Consistent *condom use, or reporting using condoms always*)

orientation, generational status, and year in school. Specifically, there was a 59% decrease in the odds of being sexually active in the past year if Latina young adults reported one unit greater endorsement of the Virtuous and Chaste belief (O.R. = 0.41, 95% C.I. [0.27, 0.62]). Additionally, the Spiritual Pillar subscale was significantly associated with odds of being sexually active. There was a 40% increase in the odds of being sexually active in the past year if participants reported one unit greater endorsement of the Spiritual Pillar (O.R. = 1.40, 95% C.I. [1.01, 1.94]) belief. No other marianismo beliefs were significantly associated with sexual activity.

For the second model of STI testing in the past year, the overall model was statistically significant, χ^2 (9, $N = 435$) = 29.25, $p = 0.001$. The model explained 8.8% (Nagelkerke R^2) of the variance in STI testing and correctly classified 62.3% of cases. Only the Virtuous and Chaste belief was significantly associated with odds of STI testing while adjusting for age, sexual orientation, generational status, and year in school. There was a 43% decrease in the odds of being tested for STIs in the past year if Latina young adults reported one unit greater endorsement of the Virtuous and Chaste belief (O.R. = 0.57, 95% C.I. [0.35, 0.92]). No other marianismo beliefs were significantly associated with STI testing history.

In the third model of HIV testing in the past year, the overall model was statistically significant, χ^2 (9, $N = 435$) = 20.27, $p = 0.02$. The model explained 6.1% (Nagelkerke R^2) of the variance in HIV testing and correctly classified 57.9% of cases. The Virtuous and Chaste belief was similarly the only marianismo belief significantly associated with odds of HIV testing while controlling for age, sexual orientation, generational status, and year in school. There was a 43% decrease in the odds of being tested for HIV in the past year if participants reported one unit greater endorsement of the Virtuous and Chaste belief (O.R. = 0.57, 95% C.I. [0.36, 0.92]). No other marianismo beliefs were significantly associated with HIV testing history.

For the final model of condom use, the overall model was nonsignificant, χ^2 (9, $N = 448$) = 9.10, $p = ns$. The model explained 3.0% (Nagelkerke R^2) of the variance in consistent condom use and correctly classified 76.3% of cases. Contrary to hypotheses, none of the five marianismo beliefs were significantly associated with consistency of condom use while adjusting for age, sexual orientation, generational status, and year in school.

Discussion

The present study represents the first investigation of associations between endorsement of the five pillars of marianismo beliefs and (1) sexual activity as well as the sexual

health behaviors of (2) STI testing, (3) HIV testing, and (4) consistency of condom use among a large sample of Latina college students. Although past studies indicated that strong endorsement of certain marianismo beliefs may play a protective role against engagement in sexual risk behaviors (e.g., Ertl et al., 2018; Hernandez et al., 2012; Moreno, 2007), this study clarified a question in the literature on whether marianismo beliefs were linked with sexual health behaviors that can help prevent the spread of STIs and HIV (e.g., STI and HIV testing, consistency of condom use), or whether marianismo solely promoted abstinence among Latina young adults. Findings provide insight into how certain marianismo beliefs (e.g., Virtuous and Chaste belief) may promote abstinence but not protective sexual health behaviors among those who are sexually active. This distinction has relevance for culturally responsive sexual health education and health promotion efforts with Latina young adults and may inform efforts to reduce disparities in adverse sexual health outcomes in this population.

Consistent with expectations, endorsement of the Virtuous and Chaste belief was associated with decreased odds of sexual activity in the past year in this sample (i.e., increased odds of abstinence), yet was also associated with decreased odds of past-year STI testing and HIV testing. Thus, Latina young adult women who endorsed the Virtuous and Chaste belief to a greater extent were less likely to be sexually active, but once sexually active, these women may tend to be at higher risk for having an undiagnosed STI or HIV due to lack of testing than Latina women who endorsed the Virtuous and Chaste belief to a lesser extent. Findings suggest that the Virtuous and Chaste belief is a protective factor inasmuch as it is associated with reduced odds of sexual activity and promotes abstinence, but endorsement of the Virtuous and Chaste belief may serve as a risk factor for sexually active Latina young adults. Not being tested and having knowledge of one's STI status or HIV serostatus might increase risk of transmission and has implications for serostatus disclosure and their health if left untreated.

Because the Virtuous and Chaste marianismo belief may promote behaviors such as remaining abstinent until marriage and maintaining naïveté about sex, findings that endorsement of the Virtuous and Chaste belief promotes abstinence but was linked with decreased likelihood to be tested for STIs and HIV is in line with prior work on gendered sexual power dynamics and theories of sexual decision-making among women (Bowleg et al., 2000; Wingood & DiClemente, 2000, 2002). For example, some women who defer sexual decision-making to male partners may tend to perceive themselves as lacking education about HIV prevention or not having the control or power to avoid risky behaviors (Wingood & DiClemente, 2000). Thus, women who endorse the Virtuous and Chaste belief to a greater extent may place a strong value on virginity or endorse a stigmatized view of premarital sexual behavior and may not seek out sexual education. Once sexually active, they may continue to lack comfort with acknowledging their sexuality or engaging in sexual health behaviors like STI and HIV testing that, if known to others, could confer social risk (e.g., perceptions about promiscuous behavior, enactment of the sexual double standard; Espinosa-Hernández, et al., 2015). Prior studies have documented that among college students, as knowledge about HIV and sexual health increases, individuals report less HIV stigma and are likelier to be tested for HIV (James & Ryan, 2018). Thus, to the extent that naïveté about sex may minimize knowledge about sexual health, hinder the adoption of an empowered preventive mindset, and promote a stigmatized view of STI and HIV testing, the endorsement of the Virtuous and Chaste belief may serve as a risk factor that prevents Latina college students from accessing critical sexual health care and preventive services as needed and as recommended by national guidelines (e.g., CDC, 2023).

Surprisingly, and contrary to expectations, greater endorsement of the Spiritual Pillar belief was also associated with decreased likelihood to report abstinence from sexual activity, such that Latina young adults in this study who endorsed the Spiritual Pillar belief to a greater extent were at increased odds of being sexually active. This finding is in contrast to prior scholarship that suggested the role of spirituality and religiosity in promoting an emphasis on abstinence among Latina women (Edwards et al., 2008). It is worth noting that some literature suggests that religiosity, assessed by frequency of attendance and affiliation, had little impact on sexual behaviors once sexual activity occurred (e.g., Jones et al., 2005). Because prior research has identified religiosity and spirituality as a predominantly protective factor in HIV prevention with Latinx youth (Lescano et al., 2009), more research is needed to understand how spirituality and religiosity may influence sexual decision-making and sexual risk behaviors in Latina young adults.

Although not statistically significant, results of the 95% confidence interval suggested a potentially small-to-moderate effect of endorsement of the Subordinate to Others belief in association with increased likelihood to report sexual activity (i.e., decreased odds of abstinence). Thus, participants who endorsed the Subordinate to Others belief to a greater extent were, based on calculated confidence intervals, potentially more likely to be sexually active. Prior research has examined factors linked with Latina adolescents' decisions to initiate or delay sexual activity, finding that adherence to traditional gender roles marked by relational power imbalances contributed to early sexual debut (Gilliam et al., 2007). This study builds on this prior work and aimed to contribute a more nuanced understanding of marianismo beliefs by examining specifically how endorsement of the Subordinate to Others

belief might be linked with increased odds of sexual activity. As past studies have found that the Subordinate to Others belief was correlated with increased sexual risk in Latina college students (de Almeida Cardoso Smith, 2019), sexual health prevention efforts could consider emphasizing self-efficacy and sexual decision-making as a means of empowerment over health decisions for Latina young adults (Guzmán & Dello Stritto, 2012). For example, Latina women who are subordinate to their sexual partners may defer sexual decision-making to their partners (e.g., condom use negotiation), which may increase risk for STIs and HIV (Lee et al., 2013). Since this finding was not determined to be significant in this study, yet the confidence interval suggests a range consistent with a possible effect, future studies should continue to probe for the role of subordinance in sexual health and decision-making among Latinas.

In contrast with expectations, none of the five marianismo beliefs were significantly linked with consistency of condom use. This may be due to very low rates of consistent condom use in this sample compared to prior studies of Latina college students. Rates of consistent condom use have tended to be relatively low among Latina college students generally (e.g., 41% for vaginal sex; 5% for oral sex; 28% for anal sex; Buhi et al., 2014; Deardorff et al., 2010), which may be due to lack of comfort and self-efficacy with using condoms. However, only approximately 17.7% of participants in this study reported fully consistent condom use across sexual acts (i.e., always reporting condom use across vaginal and anal sex in the past year), which is notably lower than previous studies have found. Nevertheless, the lack of significant associations between marianismo beliefs and condom use in this study may suggest that marianismo beliefs represent distal sociocultural factors with little influence on condom use. As such, future studies should investigate other proximal factors that may be associated more strongly with condom use and could be leveraged as protective factors in sexual health promotion efforts with Latina young adults.

Strengths, Limitations, and Future Directions

This study has several notable strengths, including recruitment of a large sample of Latina college students. However, findings should be considered in light of limitations. Because convenience sampling methods were used in this online survey, this sample is not representative of the Latina college population as a whole. Although we used strategies like preventing multiple responses and screening response times to ensure data quality, a wide array of more sophisticated strategies are available to avoid illegitimate submissions or poor quality responses that should be employed in future online studies (Shaw et al., 2023). Future research should build on this exploratory study and consider larger-scale studies to assess marianismo beliefs in relation to sexual health behaviors among Latinas given that some near-significant confidence intervals and p values suggested that increased statistical power may have improved our ability to detect a significant effect. Indices in this study, including sexual activity, condom use, STI testing, and HIV testing were measured using a past-year timeframe, but other timeframes should be examined in future research. Assessing behaviors across other relevant timeframes (e.g., 6-month, 1-month, last sexual encounter) would have provided valuable insight into a more detailed, proximal range of behavior reported by participants. The measure of condom use used did not account for frequency of sexual behavior, such that individuals who only engaged in the unprotected sexual behavior once may report "Never" using condoms and thus may receive a similar score as someone at substantially higher risk who more frequently engaged in unprotected sex. Accordingly, researchers should consider accounting for levels of sexual activity that may be an important driving influence on cumulative sexual risk. Additionally, this study did not control for relational factors relevant to condom use (e.g., relationship and marital status) as well as factors like contraception use and characteristics of main and casual sexual partners. Importantly, because this study did not include a measure of relationship status, we were not able to assess the context regarding gender role norms and beliefs within the relationship, for which relationship status may be a possible proximal contributing factor to decision-making regarding sexual activity and behavior. Future research would benefit from a nuanced examination of sexual risk among Latina college students across other timeframes that accounts for a wider variety of sexual behaviors and relationship-specific factors, especially given that endorsement of marianismo beliefs rooted in familial connection and responsibility may particularly influence decisions in the context of committed relationships and marriage. Studies should also examine other metrics of sexual risk and might consider studying other sexual health promotion behaviors among young adult Latinas (e.g., pap testing, HPV vaccine uptake, pre-exposure prophylaxis [PrEP] uptake where clinically indicated) as well as pleasure-oriented outcomes like sexual pleasure and satisfaction. Furthermore, we did not collect information about participants' census regions or geographical locations to minimize the collection of identifiable data, although this restricted our ability to analyze for patterns by geographic area or characterize our sample based on their location in the U.S. We also did not collect data on institution type (e.g., public versus private) or other institutional characteristics that may be related to the outcomes under study. Future research should consider the role that academic environment characteristics may play in sexual health and preventive behaviors among college students. Finally, based on study findings, research is needed to elucidate potential ways to increase the likelihood of STI and HIV testing among Latina young adults as a sexual risk reduction strategy.

Implications

Given that marianismo beliefs are linked with sexual behaviors among Latina young adults, this sociocultural factor may be highly relevant for the adaptation of culturally responsive prevention programs with this population. Preliminary studies suggest increased effectiveness of culturally responsive sexual health promotion efforts with Latinx populations (Sanchez et al., 2012, 2016), highlighting the promise of this research to inform efforts to reduce pernicious sexual health disparities and work to end the HIV epidemic. Particularly in regard to the Virtuous and Chaste belief, which was associated with decreased odds of STI and HIV testing, prevention programs with Latina young adults should account for how traditional gender role beliefs, such as the belief that Latinas should be abstinent until marriage, be chaste, and remain naïve about sex, may influence their likelihood to engage in behaviors to promote their sexual health and decrease sexual risk (Lee et al., 2013).

Approximately half of participants in this sample were tested for HIV in the last year, which underscores the need to incorporate STI and HIV testing into routine care. Although many states require that providers offer HIV testing during primary care services (CDC, 2017), it is unclear how these policies have been implemented and if racial and ethnic disparities in testing persist. Public health practice should emphasize similar system-level policies that may be especially important given findings that suggested that individuals are less likely to seek out STI and HIV testing. Public health campaigns on college campuses should emphasize sexual health literacy and empowered sexual decision-making.

Conclusion

The present study provided a nuanced understanding of the influence of traditional gender role beliefs in relation to sexual activity and STI and HIV testing among a large sample of Latina college student women. Findings supported the notion that certain marianismo beliefs (e.g., the Virtuous and Chaste belief) promoted abstinence, but were associated with decreased likelihood to be tested for STIs and HIV once sexually active. Results highlight the Virtuous and Chaste marianismo belief as a risk factor for STI and HIV transmission due to lack of knowledge about status and may inform efforts to culturally tailor HIV prevention and sexual health promotion efforts with Latina young adults.

Acknowledgements We are grateful to Dr. Susie Hoffman and Dr. Curtis Dolezal, who provided extremely helpful feedback on earlier drafts of this work through the tremendous HIV Center Manuscript Writing Workshop. We also appreciate the support and recommendations from Cale Basaraba and Dr. Martina Pavlicova, whose statistical consultation was very valuable to our analytic decision-making.

Author Contributions Study conception and design: ME; Data collection: ME; Data coding and analysis: ME; Manuscript preparation: ME, CF; Manuscript review and editing: ME, CF.

Funding This work was supported by a National Institute of Mental Health Center Grant (P30-MH43520; Remien, PI). Dr. Ertl was also supported by a National Institute of Mental Health Training Grant (T32-MH19139; Sandfort, PI) as well as a training grant funded by the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism (R25DA050687-01A1; Valdez, PI). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health or any of its institutes and centers.

Availability of Data and Material Data and material can be made available on request as permitted by Institutional Review Board approval.

Code Availability Code can be made available on request.

Declarations

Conflicts of interest We the authors have no conflicts of interest to report.

Ethics Approval All study procedures and forms were reviewed and approved by the Institutional Review Boards of University at Albany-State University of New York and New York State Psychiatric Institute.

Consent to Participate All participants received full informed consent prior to their voluntary participation.

Consent for Publication The authors have each contributed to this work and agree to submit it for publication in its current form. No data or images are reproduced in this submission without proper permissions.

References

Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review, 88*(4), 354–364.

Bowleg, L., Belgrave, F. Z., & Reisen, C. A. (2000). Gender roles, power strategies, and precautionary sexual self-efficacy: Implications for Black and Latina women's HIV/AIDS protective behaviors. *Sex Roles, 42*, 613–635. https://doi.org/10.1023/A:1007099422902

Buhi, E. R., Marhefka, S. L., Wheldon, C. W., Tilley, D. L., Klinkenberger, N., Lescano, C., & Hoban, M. T. (2014). Sexual and reproductive health disparities in a national sample of Hispanic and non-Hispanic white US college students. *Journal of Health Disparities Research and Practice, 7*(1), 19–36.

Castillo, L. G., & Cano, M. A. (2007). Mexican American psychology: Theory and clinical application. In C. Negy (Ed.), *Cross-cultural psychotherapy: Toward a critical understanding of diverse client populations* (2nd ed., pp. 85–102). Bent Tree Press Inc.

Castillo, L. G., Perez, F. V., Castillo, R., & Ghosheh, M. R. (2010). Construction and initial validation of the Marianismo Beliefs Scale. *Counselling Psychology Quarterly, 23*(2), 163–175. https://doi.org/10.1080/09515071003776036

Cauce, A. M., & Domenech-Rodriguez, M. (2002). Latino families: Myths and realities. In J. M. Contreras, K. A. Kerns, & A. M. Neal-Barnett (Eds.), *Latino children and families in the United States* (pp. 5–25). Praeger Press.

Centers for Disease Control and Prevention (CDC). (1997). Youth risk behavior surveillance: National college health risk behavior survey—United States, 1995. *Surveillance Summaries, 46*(SS-6),

1–54. https://www.cdc.gov/mmwr/preview/mmwrhtml/00049859.htm
Centers for Disease Control and Prevention (CDC). (2017). *State HIV testing laws: Consent and counseling requirements*. https://www.cdc.gov/hiv/policies/law/states/testing.html
Centers for Disease Control and Prevention (CDC). (2021a). *STI prevalence, incidence, and cost estimates*. https://www.cdc.gov/std/statistics/prevalence-incidence-cost-2020.html
Centers for Disease Control and Prevention (CDC). (2021b). *Adolescents and young adults*. https://www.cdc.gov/std/life-stages-populations/adolescents-youngadults.htm
Centers for Disease Control and Prevention (CDC). (2023). *Screening recommendations and considerations referenced in treatment guidelines and original sources*. Retrieved from https://www.cdc.gov/std/treatment-guidelines/screening-recommendations.htm
de Almeida Cardoso Smith, J. (2019). *The implications of gender roles on HIV risk behaviors and Latinas' HIV risk perception among a college sample* (Doctoral dissertation, The University of Texas at El Paso).
Deardorff, J., Tschann, J. M., Flores, E., & Ozer, E. J. (2010). Sexual values and risky sexual behaviors among Latino youths. *Perspectives on Sexual and Reproductive Health, 42*(1), 23–32. https://doi.org/10.1363/4202310
Edwards, L. M., Fehring, R. J., Jarrett, K. M., & Haglund, K. A. (2008). The influence of religiosity, gender, and language preference acculturation on sexual activity among Latino/a adolescents. *Hispanic Journal of Behavioral Sciences, 30*(4), 447–462. https://doi.org/10.1177/0739986308322912
Edwards, L. M., Haglund, K., Fehring, R. J., & Pruszynski, J. (2011). Religiosity and sexual risk behaviors among Latina adolescents: Trends from 1995 to 2008. *Journal of Women's Health, 20*(6), 871–877. https://doi.org/10.1089/jwh.2010.1949
Ertl, M. M., Dillon, F. R., Cabrera Tineo, Y. A., Verile, M., Jurkowski, J. M., & De La Rosa, M. (2018). Sexual risk during initial months in US among Latina young adults. *AIDS Care, 30*(3), 353–360. https://doi.org/10.1080/09540121.2017.1368442
Ertl, M. M., Rentería, R., Dillon, F. R., Babino, R., De La Rosa, M., & Brenner, R. E. (2019). Longitudinal associations between marianismo beliefs and acculturative stress among Latina immigrants during initial years in the United States. *Journal of Counseling Psychology, 66*(6), 665–677. https://doi.org/10.1037/cou0000361
Espinosa-Hernández, G., Bissell-Havran, J., & Nunn, A. (2015). The role of religiousness and gender in sexuality among Mexican adolescents. *Journal of Sex Research, 52*(8), 887–897. https://doi.org/10.1080/00224499.2014.990951
Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175–191. https://doi.org/10.3758/BF03193146
Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage.
Foulkes, R., Donoso, R., Fredrick, B., Frost, J. J., & Singh, S. (2005). Opportunities for action: Addressing Latina sexual and reproductive health. *Perspectives on Sexual and Reproductive Health, 37*(1), 39–44. https://doi.org/10.1363/3703905
García, L. (2009). Now why do you want to know about that? Heteronormativity, sexism, and racism in the sexual (mis)education of Latina youth. *Gender & Society, 23*(4), 520–541. https://doi.org/10.1177/0891243209339498
Gavin, L., MacKay, A. P., Liddon, N., Markowitz, L., Sternberg, M., Winstock, H., … Ryan, G. (2009). Sexual and reproductive health of persons aged 10–24 years - United States, 2002–2007. *Morbidity and Mortality Weekly Report Surveillance Summary, 58*(6), 1–58. http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5806a1.htm
Gilliam, M. L., Berlin, A., Kozloski, M., Hernandez, M., & Grundy, M. (2007). Interpersonal and personal factors influencing sexual debut among Mexican-American young women in the United States. *Journal of Adolescent Health, 41*(5), 495–503. https://doi.org/10.1016/j.jadohealth.2007.05.009
Guilamo-Ramos, V., Goldberg, V., Lee, J., McCarthy, K., & Leavitt, S. (2012). Latino adolescent reproductive and sexual health behaviors and outcomes: Research informed guidance for agency-based practitioners. *Clinical Social Work Journal, 40*(2), 144–156. https://doi.org/10.1007/s10615-011-0355-0
Guzmán, B. L., & Dello Stritto, M. E. (2012). The role of sociopsychological determinants in the sexual behaviors of Latina early adolescents. *Sex Roles, 66*(11–12), 776–789. https://doi.org/10.1007/s11199-012-0133-7
Haase, R. F., Martens, M. P., Ferrier, A. G., & Corbett, K. (2005). *Some observations on a quarter of a century of magnitude of effects*. Unpublished manuscript.
Harvey, S. M., Henderson, J. T., & Casillas, A. (2006). Factors associated with effective contraceptive use among a sample of Latina women. *Women & Health, 43*(2). https://doi.org/10.1300/j013v43n02_01
Hernandez, A. M., Zule, W. A., Karg, R. S., Browne, F. A., & Wechsberg, W. M. (2012). Factors that influence HIV risk among Hispanic female immigrants and their implications for HIV prevention interventions. *International Journal of Family Medicine, 2012*. https://doi.org/10.1155/2012/876381
IBM Corp. (2017). *IBM SPSS statistics for Mac* (Version 25.0) [Computer software]. IBM Corp.
James, T. G., & Ryan, S. J. (2018). HIV knowledge mediates the relationship between HIV testing history and stigma in college students. *Journal of American College Health, 66*(7), 561–569. https://doi.org/10.1080/07448481.2018.1432623
Jones, R. K., Darroch, J. E., & Singh, S. (2005). Religious differentials in the sexual and reproductive behaviors of young women in the United States. *Journal of Adolescent Health, 36*(4), 279–288. https://doi.org/10.1016/j.jadohealth.2004.02.036
Jones, S. G., Patsdaughter, C. A., Jorda, M. L., Hamilton, M., & Malow, R. (2008). SENORITAS: An HIV/sexually transmitted infection prevention project for Latina college students at a Hispanic-serving university. *Journal of the Association of Nurses in AIDS Care: JANAC, 19*(4), 311–319. https://doi.org/10.1016/j.jana.2008.04.002
Kim, S., De La Rosa, M., Trepka, M., & Kelley, M. (2007). Condom use among unmarried students in a Hispanic-serving university. *AIDS Education and Prevention, 19*(5), 448–461. https://doi.org/10.1521/aeap.2007.19.5.448
Lee, Y. M., Dancy, B., Florez, E., & Holm, K. (2013). Factors related to sexual practices and successful sexually transmitted infection/HIV intervention programs for Latino adolescents. *Public Health Nursing, 30*(5), 390–401. https://doi.org/10.1111/phn.12039
Lescano, C. M., Brown, L. K., Raffaelli, M., & Lima, L. A. (2009). Cultural factors and family-based HIV prevention intervention for Latino youth. *Journal of Pediatric Psychology, 34*(10), 1041–1052. https://doi.org/10.1093/jpepsy/jsn146
Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83*(404), 1198–1202.
Llamas, J. D., Piña-Watson, B., Lorenzo-Blanco, E. I., Das, M., & Rivera Perez, M. (2020). Keeping it old school: Profiles of traditional gender role values and life satisfaction among Mexican descent adolescents. *Journal of Latinx Psychology, 8*(4), 280–299. https://doi.org/10.1037/lat0000152
Moreno, C. L. (2007). The relationship between culture, gender, structural factors, abuse, trauma, and HIV/AIDS for Latinas. *Qualitative Health Research, 17*(3), 340–352.
Nuñez, A., González, P., Talavera, G. A., Sanchez-Johnsen, L., Roesch, S. C., Davis, S. M., Arguelles, W., Womack, V. Y., Ostrovsky, N. W., Ojeda, L., Penedo, F. J., & Gallo, L. C. (2016). Machismo,

marianismo, and negative cognitive-emotional factors: findings from the hispanic community health study/study of Latinos sociocultural ancillary study. *Journal of Latina/o Psychology, 4*(4), 202–217. https://doi.org/10.1037/lat0000050

Piña-Watson, B., Castillo, L. G., Jung, E., Ojeda, L., & Castillo-Reyes, R. (2014). The Marianismo beliefs scale: validation with Mexican American adolescent girls and boys. *Journal of Latina/o Psychology, 2*(2), 113–130.

Roberts, S. T., & Kennedy, B. L. (2006). Why are young college women not using condoms? Their perceived risk, drug use, and developmental vulnerability may provide important clues to sexual risk. *Archives of Psychiatric Nursing, 20*(1), 32–40.

Rojas, P., Dillon, F. R., Cyrus, E., Ravelo, G. J., Malow, R. M., & De La Rosa, M. (2014). Alcohol use as a determinant of HIV risk behaviors among recent Latino immigrants in South Florida. *Journal of the Association of Nurses in AIDS Care, 25*(2), 135–144. https://doi.org/10.1016/j.jana.2013.02.003

Sanchez, J., Serna, C. A., & de La Rosa, M. (2012). Project Salud: Using community-based participatory research to culturally adapt an HIV prevention intervention in the Latino migrant worker community. *International Public Health Journal, 4*(3), 301–308.

Sanchez, M., Rojas, P., Li, T., Ravelo, G., Cyrus, E., Wang, W., Kanamori, M., Peragallo, N. P., & De La Rosa, M. R. (2016). Evaluating a culturally tailored HIV risk reduction intervention among Latina immigrants in the farmworker community. *World Medical & Health Policy, 8*(3), 245–262. https://doi.org/10.1002/wmh3.193

Sanchez, D., Vandewater, E. A., & Hamilton, E. R. (2019). Examining marianismo gender role attitudes, ethnic identity, mental health, and substance use in Mexican American early adolescent girls. *Journal of Ethnicity in Substance Abuse, 18*(2), 319–342. https://doi.org/10.1080/15332640.2017.1356785

Schwartz, S. J., Weisskirch, R. S., Zamboanga, B. L., Castillo, L. G., Ham, L. S., Huynh, Q. L., Huynh, Q. L., Park, I. J., Donovan, R., Kim, S. Y., Vernon, M., Davis, D. M. J., & M. J. (2011). Dimensions of acculturation: Associations with health risk behaviors among college students from immigrant families. *Journal of Counseling Psychology, 58*(1), 27–41. https://doi.org/10.1037/a0021356

Shaw, T. J., Cascalheira, C. J., Helminen, E. C., Brisbin, C. D., Jackson, S. D., Simone, M., Sullivan, T. P., Batchelder, A. W., Scheer, J. R. (2023). Yes stormtrooper, these are the droids you're looking for: A method paper evaluating bot detection strategies in online psychological research. *psyarxiv*. https://psyarxiv.com/gtp6z/download?format=pdf

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Allyn and Bacon.

Thompson, C. G., Kim, R. S., Aloe, A. M., & Becker, B. J. (2017). Extracting the variance inflation factor and other multicollinearity diagnostics from typical regression results. *Basic and Applied Social Psychology, 39*(2), 81–90. https://doi.org/10.1080/01973533.2016.1277529

Villalba, K., Ramirez-Ortiz, D., Dévieux, J. G., Attonito, J., & Rojas, P. (2018). Gender-role attitudes among immigrant Latinas: Empowering women. *World Medical & Health Policy, 10*(4), 401–414. https://doi.org/10.1002/wmh3.288

Wingood, G., & DiClemente, R. (2002). The theory of gender and power. In: *Emerging theories in health promotion practice and research: Strategies for improving public health* (pp. 313–345). Jossey-Bass.

Wingood, G. M., & DiClemente, R. J. (2000). Application of the theory of gender and power to examine HIV-related exposures, risk factors, and effective interventions for women. *Health Education & Behavior, 27*(5), 539–565.