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Review Article

Correlates and predictors of sexual health among adolescent Latinas in the United States: A systematic review of the literature, 2004–2015

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ABSTRACT

Adolescent Latinas in the United States (US) are disproportionately affected by early pregnancy, sexually transmitted infections (STIs) and human immunodeficiency virus (HIV) in comparison to their non-Hispanic white counterparts. However, only a few studies have sought to understand the multi-level factors associated with sexual health in adolescent Latinas. Adhering to the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines, we conducted a systematic literature review to better understand the correlates and predictors of sexual health among adolescent Latinas in the US, identify gaps in the research, and suggest future directions for empirical studies and intervention efforts. Eleven studies were identified: five examined onset of sexual intercourse, nine examined determinants of sexual health/risk behaviors (e.g., number of sexual partners and condom use), and three examined determinants of a biological sexual health outcome (i.e., STIs or pregnancy). Two types of variables/factors emerged as important influences on sexual health outcomes: proximal context-level variables (i.e., variables pertaining to the individual's family, sexual/romantic partner or peer group) and individual-level variables (i.e., characteristics of the individual). A majority of the studies reviewed (n = 9) examined some aspect of acculturation or Latino/a cultural values in relation to sexual health. Results varied widely between studies suggesting that the relationship between individual and proximal contextual variables (including acculturation) and sexual health may be more complex than previously conceived. This review integrates the findings on correlates and predictors of sexual health among adolescent Latinas, and supports the need for strengths-based theoretically guided research on the mechanisms driving these associations.

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1. Introduction

Early pregnancy, sexually transmitted infections (STIs) and human immunodeficiency virus (HIV) disproportionately affect adolescent Latinas compared to their non-Hispanic white counterparts (Centers for Disease Control and Prevention, 2012, 2014a, b, c; Franzetta et al., 2007; Ventura et al., 2014). In 2012, the birthrate for adolescent Latinas 15–19 years old was more than twice as high as their non-Hispanic white adolescents (Ventura et al., 2014). Similarly, in 2010, the rate of HIV infection among 13–24 year old Latinas was over 3 times as high as white female adolescents (Centers for Disease Control and Prevention, 2012). In 2012, rates of sexually transmitted infections (STI) for adolescent Latinas between 15 and 19 were considerably higher than white female counterparts (Centers for Disease Control and Prevention, 2014a, b, c).

Between 2000 and 2010 there was a dramatic increase in the Latino/a population in the US, particularly Latino/a youth (Passel et al., 2011). Given these sexual health disparities and growing population of young Latinos/as, it is important for research to examine factors associated with sexual health outcomes among Latino/a adolescents. However, only a few studies have sought to understand the multi-level factors associated with sexual health in adolescent Latinas. Despite wide consensus regarding the importance of gender in understanding sexual health disparities (Cardoza et al., 2012; Raffaelli and Ontai, 2004; Tolman and McClelland, 2011) even fewer studies have examined these factors among adolescent Latinas (most aggregate males and females). The goals of this systematic review were to: (1) summarize the literature on determinants of adolescent Latinas sexual health outcomes (sexual initiation, sexual health/risk and biological sexual health outcomes), (2) identify gaps in the research, and (3) suggest future directions for studies and interventions. This work was guided by the Socio-Ecological Model of Sexual Health (SEMSH) (Raffaelli et al., 2012; Tolman and McClelland, 2011). This model views the individual as nested in a set of socioecological levels of influence (i.e., individual, dating/romantic relationships, social relationships, and sociocultural context) and highlights the importance of gender in understanding sexual health.

We followed the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines in the development of this review (Moher et al., 2015; Shamseer et al., 2015).

2. Methods

We conducted a comprehensive search of three databases (PsychInfo, PubMed, and Google Scholar). Searches were limited to peer-reviewed, original studies. Given our interest in recent literature, we limited the search to the last 11 years. Terms cross-referenced in multiple searches (utilizing Boolean terms) were: adolescent Latinas/Latinos, sexual health, sexual initiation, sexual risk, STI/STD, pregnancy, and HIV. Terms were chosen based on our population of study and 4 sexual health outcomes of interest. We included quantitative empirical studies that met all criteria: were published in peer-reviewed journals or edited book chapters between January 1st 2004 and June 31st of 2015; had samples composed exclusively of Latinas or included individuals from other racial/ethnic backgrounds but stratified participants by race/ethnicity and reported results separately; had samples composed exclusively of female Latinas or included males but stratified the sample by gender and reported results separately or conducted post-hoc analyses to examine gender differences; had samples composed exclusively of adolescent Latinas ages ≥11 and ≤21 at baseline or included wider age-ranges but stratified the sample by age-group and reported results separately; and examined correlates or predictors of at least one of our dependent variables of interest. Given that "adolescence" has been defined in many different ways; we purposefully chose a wide age-range in order to encompass a full spectrum of studies with regard to adolescent sexual health development.

The literature search/selection process was conducted in four steps: key word search followed by title and abstract review; importing of relevant citations into citation manager with corresponding pdf link; review of full-text and exclusion of studies that did not meet review criteria or were duplicates; review of references list for each study for additional relevant studies; and repeating steps 1–4 until no new studies fitting the criteria could be identified. After article selection by the two authors, these data were extracted for each study: first author and year; source of data, location and year(s) when the data collection took place; study population; research design and theoretical framework; study objective(s); major findings (with regard to research question); and outcomes of interest. Given our goal of better understanding the determinants of sexual health among adolescent Latinas, studies that limited analyses to describing different racial/ethnic groups with regard to sexual health behaviors/outcomes (n = 5) were excluded. Data was coded and content-analyzed based on the gender-specific and multi-level lens of the SEMSH (Raffaelli et al., 2012). A descriptive profile of the studies and a summary of the results is provided in Tables 1 and 2.

3. Results

We identified 215 relevant titles and abstracts based on literature searches; 172 were selected for abstract review. After abstract review, 35 were excluded because: 9 were literature reviews, 23 were interventions, and 3 were dissertations. We conducted full-reviews of the remaining 137 studies. After full-reviews, 11 studies met all of the inclusion criteria and were included in this review (See Fig. 1). Four of the studies utilized a behavior-change theory (e.g., Theory of Planned Behavior) or broad theoretical framework (e.g., Ecological Systems Theory) (Bámaca-Colbert et al., 2014; Raffaelli et al., 2012; Smith, 2015; Villarruel et al., 2007). Five examined onset of sexual intercourse (Bámaca-Colbert et al., 2014; Lee and Hahm, 2010; Ma et al., 2014; McDonald et al., 2009; Raffaelli et al., 2012), nine examined sexual health/risk behaviors (Gilliam et al., 2011; Guilamo-Ramos et al., 2009; Lee and Hahm, 2010; Ma et al., 2014; McDonald et al., 2009; Raffaelli et al., 2012; Schwartz et al., 2012; Smith, 2015; Villarruel et al., 2007) and three examined a biological sexual health outcome (Lee and Hahm, 2010; McDonald et al., 2009; Rocca et al., 2010). (See Table 2.)

In light of the SEMSH we found that two types of variables/factors emerged as important influences on sexual health outcomes: proximal context-level variables (i.e., pertaining to the individual's family or sexual/romantic partner) and individual-level variables (i.e., psychosocial attributes or acculturation-level).

3.1. Proximal context-level

Four of the studies identified familial or partner-level influences on sexual health outcomes (Bámaca-Colbert et al., 2014; Gilliam et al., 2011; Lee and Hahm, 2010; Rocca et al., 2010). In their study of 320 Mexican-American young women from a Southwestern city, Bámaca-Colbert et al. (2014) found that adolescent Latinas who lived with a stepparent (compared with two biological parents) were at greater risk for early intercourse (HR 1.92(SE: 0.35); $p < 0.001$). In another study, Lee and Hahm (2010) found that adolescent Latinas whose parents had higher educational attainment were more likely to regret sexual initiation after alcohol use (OR 1.15; 95% CI = 1.01–1.30, p = 0.035) and less likely to *not* use condoms during recent sex (OR 0.89; 95% CI = 0.82–0.96, p = 0.004) in their Add Health sample (n = 1073).

Two studies found significant associations between a partner-level variable and a sexual health outcome (Gilliam et al., 2011; Rocca et al., 2010). Gilliam et al. (2011) found that partner

communication about birth control predicted effective contraceptive use among 143 non-pregnant adolescent Latinas in Chicago (OR 5.40; 95% CI = 2.07–14.13, p = 0.001)(Gilliam et al., 2011). Rocca et al. (2010) found that low relationship power (measured with 23-item scale) with a main partner (defined as someone with whom the participant had had sex with in the past six months and whom she considered to be "like a boyfriend") was independently associated with higher risk of pregnancy (OR 3.3; 95% CI = 1.3–8.4; p < 0.01) in their study of adolescent Latinas in San Francisco (Rocca et al., 2010). Having a main partner was also significantly associated with pregnancy in all of their models regardless of participants' reported level of relationship power (Rocca et al., 2010).

3.2. Individual-level

All of the studies (n = 11) identified at least one individual-level variable which influenced sexual health. Three types of individual-level variables/factors emerged: sociodemographic variables (n = 1), psychosocial/behavioral attributes (n = 5), and acculturation-level/cultural values (n = 9).

In the only study to find a significant association between sociodemographic variables and a sexual health outcome in controlled analyses, Gilliam et al. (2011) found that the more children an adolescent had given birth to the more likely she was to use very effective contraception (i.e., intrauterine device, implants or pills) (OR 7.83; 95% CI = 3.25–18.91, p < 0.001) (Gilliam et al., 2011). Forty-three percent of the adolescent Latinas, 13–20 years old, in this Chicago sample had given birth to one child (Gilliam et al., 2011).

Five of the studies found at least one significant association between a psychosocial/behavioral variable and a sexual health/risk behavior (Bámaca-Colbert et al., 2014; Lee and Hahm, 2010; Rocca et al., 2010; Smith, 2015; Villarruel et al., 2007).

Villarruel et al. (2007) found that condom use intentions positively predicted condom use among 233 adolescent Latinas in North Philadelphia (β = .58). Similarly, Rocca et al. (2010) found that pregnancy wantedness was independently and positively associated with pregnancy (OR 2.6; 95% CI = 1.1–6.1; p < .05).

Lee and Hahm (2010) found that depressive symptoms during adolescence were associated with having 4+ lifetime sexual partners during young adulthood (OR 1.03; 95% CI = 1.01–1.06, p = 0.021) (Lee and Hahm, 2010). Binge drinking was associated with regretting sexual initiation after alcohol use (OR 3.55; 95% CI = 1.44–8.78), increased odds of having 4+ lifetime sexual partners (OR 2.94; 95% CI = 1.88–4.60, p = 0.000), and not using condoms during recent sex (OR 2.02, 95% CI = 1.18–3.46, p = 0.012) in this same study.

Finally, two studies examined religiosity and sexual behaviors (Smith, 2015; Villarruel et al., 2007). Smith (2015) found that intrinsic religiosity (measured with three-item scale on beliefs and prayer) was protective against sexual risk (measured with seven-item scale) in his Add Health sample of 1168 Latinas. Interestingly, he also found that extrinsic religiosity (measured with a two-item religious attendance scale) was associated with increased sexual risk (Smith, 2015). Finally, Villarruel et al. (2007) found that religiosity (measured with 5-point scale) significantly predicted condom use among adolescent Latinas (Villarruel et al., 2007).

3.3. Acculturation and cultural values

A majority of the studies (n = 9) examined some aspect of acculturation or Latino/a cultural values in relation to sexual health (Bámaca-Colbert et al., 2014; Guilamo-Ramos et al., 2009; Lee and Hahm, 2010; Ma et al., 2014; McDonald et al., 2009; Raffaelli et al., 2012; Schwartz et al., 2012; Smith, 2015; Villarruel et al., 2007). Acculturation was measured in five different ways: scale-based measure, preferred language (Spanish/English), generation/amount of time in the US, country of origin, or a combination of these.

Two studies examined the effects of generation/time in the US on sexual initiation (Bámaca-Colbert et al., 2014; Raffaelli et al., 2012). Bámaca-Colbert et al. (2014) found that first-generation immigrant girls (Mexican-born to Mexican-born mothers) were at greater risk than second-generation immigrant girls (US-born to Mexican-born mothers) to engage in early intercourse in their Southwestern sample. In contrast, Raffaelli et al. (2012) found that first-generation (foreign-born, came to the US at 13 or older) and 1.5-generation adolescent Latinas (foreign-born, moved the US before age 13) were less likely to report sexual intercourse compared to third-generation (US-born with US-born parents) adolescent Latinas (β = −2.93, SE 1.06; β = −0.80, SE 0.29, respectively) in their Add Health sample of 1601 Latina girls (p < 0.01 for both). They also found that first and third-generation adolescent Latinas reported greater birth control use (62.9% and 57.5%, respectively) than 1.5 and second-generation adolescent Latinas (51.3%).

In their Add Health sample of 1614 Latino/a adolescents, McDonald et al. (2009) found that young women from "other" countries had greater odds of transitioning to sexual intercourse before age 18 (OR 1.6; 95% CI = 1.25–2.04; p < 0.01) when compared to young women of Mexican-origin (McDonald et al., 2009). In this same study, second-generation adolescent Latinas (US-born with at least one biological foreign-born parent) had reduced odds of reporting 100% consistent contraceptive use compared with third-generation counterparts (US-born with biological US-born parents) (OR .28; 95% CI = .15–.53; p < .001)(McDonald et al., 2009).

One study used a combination of country of origin (US versus other) and language (English/Spanish) to examine the relationship between acculturation and sexual risk/protective behaviors (Lee and Hahm, 2010). They found that, compared to foreign-born adolescent Latinas who spoke Spanish at home: (1) US-born adolescent Latinas who spoke English at home were more likely to have 4+ lifetime sexual partners (OR 4.83; 95% CI = 2.09–11.15, p = 0.000) and to have a history of STDs (OR 5.71; 95% CI = 1.30–25.04, p = 0.021); (2) Foreign-born adolescent Latinas who spoke English at home were significantly more likely to regret sexual initiation after alcohol use (OR 10.67; 95% CI = 2.07–55.08, p = 0.005), have 4+ life time sexual partners (OR 8.51; 95% CI = 2.48–29.23, p = 0.001), and have a history of STDs (OR 6.62; 95% CI = 1.10–39.84, p = 0.039).

Finally, three studies used scale-based measures of acculturation (Ma et al., 2014; Schwartz et al., 2012; Smith, 2015). Smith found that youth who were more "American-acculturated" (measured with two-item generation and language scale) engaged in higher sexual risk taking (measured with seven-item scale).

In their study of 226 Latino adolescents in the Southeast, Ma et al. (2014) found adolescent Latinas who had a stronger "Latino orientation" (measured with Bicultural Involvement Questionnaire—Short Version)(Guo et al., 2009; Szapocznik et al., 1980) reported sex with fewer sex partners (β = −.64, F(1,17) = 11.72, p < .01)(Ma et al., 2014).

In their sample of 302 recently immigrated Hispanic adolescents from Miami and Los Angeles, Schwartz found that US-practices (measured with 12 items including speaking English and eating American food) was associated with a greater number of sexual partners (OR 1.87; 95% CI = 0.92–3.81; p < .10) and fewer reported instances of sex without condoms (OR 0.21; 95% CI = .09–.40; p < .001). Interestingly, they also found that Hispanic practices (measured with 12 items) was associated with fewer instances of unprotected sex (OR .33; 95% CI = 0.10–1.04; p < .10).

Finally, two studies examined Latino/a cultural values in relation to sexual health behaviors (Guilamo-Ramos et al., 2009; Ma et al., 2014). Guilamo-Ramos et al. (2009) found that familismo (closeness/interconnectedness between family members and felt responsibility toward each other; measured with 19-item scale) (Marin and Marin, 1991) was negatively associated with sexual risk behaviors (measured

Table 1
Correlates and predictors of sexual health among adolescent Latinas; 2004–2015.

1st author (year)	Source of data, location, year(s)	Study population N, % Latino/as, % female, age range & mean years (SD)[a]	Research design & theoretical framework	Study objective (as stated by authors)	Major findings[b,c]	Outcome(s) of interest
Bámaca-Colbert et al. (2014)	*Source of data*: Primary data collection *Location*: Metropolitan area in Southwestern US *Year(s)*: 2006–2010	N = 320 girls of Mexican-origin who had not experienced sexual intercourse at time 1 100% Latino/as 100% female 11–17 years of age at time 1	Quantitative longitudinal study Ecological model of adolescent sexuality	To explore whether time 1 sociocultural, interpersonal, and developmental variables predicted the occurrence and timing of 1st sexual intercourse reported 2.5 and 3.5 years later.	• 1st generation immigrants (girls born in Mexico to Mexican-born mothers) were more likely than 2nd generation immigrants (girls born in the US to Mexican-born mothers) to engage in early sexual intercourse [HR 0.63(SE: 0.12); $p < 0.05$].[d] • Youth who lived with a stepparent (compared with two biological parents) were at greater risk for early intercourse [HR 1.92(SE: 0.35); $p < 0.001$]. • Young women with earlier autonomy expectations were more likely to report earlier intercourse than young women with later autonomy expectations [HR 0.63(SE: 0.11); $p < 0.01$].	Sexual initiation
Gilliam et al. (2011)	*Source of data*: Primary data collection *Location*: Two community-based outpatient clinics on Chicago's West Side *Year(s)*: 2003–2005 .	N = 143 non-pregnant Latina adolescents, predominantly Mexican (young adults were included in this study but their data was analyzed separately. Only adolescent data has been included in this review.) 100% Latino/as 100% female 13–20 years of age Median age: 19 years	Quantitative cross-sectional study	To compare culturally relevant factors associated with ever having used a very effective method of contraception (i.e., intrauterine device [IUD], contraceptive implants, depot metroxy--progesterone acetate injection, metroxy-progesterone acetate/estradiol cypionate, contraceptive patch, or contraceptives pills) among a cohort of predominantly Mexican American females.	In multivariate analyses the following predicted effective contraceptive use among Latina adolescents: • Number of children Latina adolescents had given birth to [OR 7.83; 95% CI = 3.25–18.91, $p < 0.001$]. • Partner communication about birth control [OR 5.40; 95% CI = 2.07–14.13, $p = 0.001$].	Ever use of very effective contraception (IUD, implants, pills, etc.)
Guilamo-Ramos et al. (2009)	*Source of data*: Primary data collection *Location*: New York City *Year(s)*: 2006–2007	N = 702 Latino 8th graders and their mothers in New York City 100% Latino/as 52.1% female 8th grade students	Quantitative cross-sectional study	Examine the relationship between acculturation, familismo and HIV-related sexual risk behavior.	Among female participants: • Familismo (measured with 19-item scale assessing maternal and youth embracement of this construct along 4 dimensions: familial support, familial interconnectedness, familial honor, and subjugation of the self for family) was negatively associated with sexual risk behaviors (measured with 6 separate items including vaginal intercourse and anal sex). • The "subjugation to the family" dimension (measured with 3 items including *A person should be a good person for the sake of his or her family*) was the most consistent predictor of sexual risk behavior, with high levels being associated with lowest risk (OR .10–.39; $p < .05$ for all).	HIV-related sexual risk
Lee and Hahm (2010)	*Source of data*: National Longitudinal Study of Adolescent to Adult	N = 1073 Latina adolescents 100% Latino/as	Quantitative longitudinal study	To examine the longitudinal association between Latina adolescents' level of acculturation and multiple sexual risk	Multivariate analyses assessed the longitudinal association between predictors at Wave 1 and sexual risk behaviors at Wave 3. These indicated	Sexual risk behaviors (items examined separately/not collapsed into measure: History

	Health *Location*: Nationwide survey *Year(s)*: Waves I–III	100% female 11–20 years of age at Wave I & 18–27 at Wave 3 At Wave I 28.6% of participants were 11–14, 70.2% of participants were 15–18 and 1.2% of participants were 19–20.		outcomes, including self-report STD diagnosis, four or more life-time sex partners, regret of sexual initiation after alcohol use, and lack of condom use during young adulthood.	that: • US born Latinas who spoke English at home were more likely to have STIs (OR 5.71; 95% CI = 1.30–25.04, p = 0.021) and to have 4 or more lifetime sexual partners (OR 4.83; 95% CI = 2.09–11.15, p = 0.000) than Latinas who were foreign-born and did not use English at home. • Foreign born Latinas who spoke English at home were significantly more likely to have a history of STIs (OR 6.62; 95% CI = 1.10–39.84, p = 0.039), four or more life time sexual partners (OR 8.51; 95% CI = 2.48–29.23, p = 0.001) and regret sexual initiation after alcohol (OR 10.67; 95% CI = 2.07–55.08, p = 0.005) use than those who were foreign-born and did not speak English at home. • Binge drinking was associated with increased odds of having four or more life-time sexual partners (OR 2.94; 95% CI = 1.88–4.60, p = 0.000), regretting sexual initiation after alcohol use (OR 3.55; 95% CI = 1.44–8.78), and not using condoms during recent sex (OR 2.02, 95% CI = 1.18–3.46, p = 0.012). • Depressive symptoms during adolescence were associated with having four or more life-time sexual partners during young adulthood (OR 1.03; 95% CI = 1.01–1.06, p = 0.021). • Latinas whose parents had higher educational attainment were more likely to regret sexual initiation after alcohol use (OR 1.15; 95% CI = 1.01–1.30, p = 0.035) and less likely to *not* use condoms during recent sex (OR 0.89; 95% CI = 0.82–0.96, p = 0.004).	of STD, 4 or more sexual partners, regret of initiation after alcohol use, not using condom during recent sex. STDs (self reported)
Ma et al. (2014)	*Source of data*: Primary data collection *Location*: Southeastern US	N = 226 Latino adolescents; data collected through purposive sampling 100% Hispanic 53% female 13–16 years of age Mean age (SD): 14.4 (1.0) years	Quantitative cross-sectional study	Examine the relationship between acculturation, core Latino values and sexual risks among Latino adolescents.	Stepwise regression analyses showed: • A significant association between gender and simpatía (4-item scale measuring cultural value of maintaining harmony in relationships). Greater levels of simpatía were associated with older sexual debut [β = .56, F(1,17) − 7.94, p < .05]. • Young women who had stronger Latino orientation (measured with Bicultural Involvement Questionnaire-Short Version [1]) • Reported sex with fewer sex partners [β = −.64, F(1,17) = 11.72, p < .01]. • Stronger sexual initiation efficacy (measured on 5-point Likert scale from the Youth Health Risk Behavioral Inventory) [β = .19, F(1,119) = 4.35, p < .05]	Ever had sexual intercourse Age at first sexual intercourse Number of sexual partners Condom use at first sexual intercourse Condom use frequency Intention to have sex while in secondary school

(continued on next page)

Table 1 (*continued*)

1st author (year)	Source of data, location, year(s)	Study population N, % Latino/as, % female, age range & mean years (SD)[a]	Research design & theoretical framework	Study objective (as stated by authors)	Major findings[b,c]	Outcome(s) of interest
McDonald et al. (2009)	*Source of data*: National Longitudinal Study of Adolescent to Adult Health *Location*: Nationwide survey *Year(s)*: 1997–2003	N = 1614 Hispanic adolescents and a participating parent (parent data only collected at baseline; only adolescent data included in this review) of Mexican, Puerto Rican, Cuban, Central/South American or other origin. 100% Latino/as 48.8% female 12–16 years of age at baseline	Quantitative longitudinal study	To explore relationships between immigration measures and risk of reproductive and sexual events among U.S. Hispanic adolescents.	Interaction analyses showed: o Second generation females had reduced odds of consistent contraceptive use compared with third generation females (OR .28; 95% CI = .15–.53; p < .001)	Transition to sexual intercourse before 18 Consistent contraceptive use (100%) Live birth
Raffaelli et al. (2012)	*Source of data*: National Longitudinal Study of Adolescent to Adult Health *Location*: Nationwide survey *Year(s)*: Wave I	N = 3162 Latino/a and Asian American boys and girls 69.3% Latino/as 50.6% female (in Latino/a sub-sample) 7th to 12th grade	Quantitative cross-sectional study Integrative ecological model of immigrant adolescent sexuality	To examine differences across immigrant generations in three sexual behaviors: ever had sexual intercourse, age at 1st intercourse and use of birth control at 1st sexual intercourse.	• 1st generation girls (foreign born, came to the US at 13 or older) reported a mean age of 1st intercourse (16.95 years) that was higher than their 2nd (US born with at least one foreign-born parent) and 3rd generation (US born with US born parents) counterparts. • 1st and 3rd generation Latinas reported greater birth control use (62.9% and 57.5%, respectively) than 1.5 and 2nd generation Latinas (51.3%). • In logistic regression analyses, 1st and 1.5 generation Latinas were less likely to report sexual intercourse ($\beta = -2.93$, SE 1.06; $\beta = -0.80$, SE 0.29, respectively. $p < 0.01$ for both) compared to 3rd generation Latinas.	Sexual initiation Mean age at 1st sex Birth control at 1st sex
Rocca et al. (2010)	*Source of data*: Mission Teen Health Project (a prospective cohort study) *Location*: San Francisco, California *Year(s)*: 2001–2004	N = 213 Latina adolescents in San Francisco who completed 2 consecutive study visits over a 2-year period 100% Latino/as 100% female 15–19 years of age Mean age (SD): 16.1 (1.5) years	Quantitative longitudinal study	Evaluating the mediating role of pregnancy intentions in the relationships between pregnancy and risk factors identified in previous research.	• In controlled logistic regression analyses, pregnancy wantedness was independently associated with pregnancy [OR 2.6; 95% CI = 1.1–6.1; p < .05]. (Contrary to hypotheses, however, it did not mediate the relationship between risk factors and pregnancy, however.) • In all models, having a main partner was significantly associated with greater reported pregnancy (regardless of relationship power level).	Pregnancy
Smith (2015)	*Source of data*: National Longitudinal Study of Adolescent to Adult Health *Location*: Nationwide Survey *Year(s)*: Waves I and III	N = 1168 Hispanic females in Wave I who participated in Wave III and answered all of the questions used to create the outcome variable (i.e., sexual risk). 100% Hispanic 100% female	Quantitative longitudinal study Ecological systems theory	To explain how intrinsic and extrinsic religiosity and acculturation predict risky sexual behavior using structural equation modeling.	Structural equation modeling showed: • Intrinsic religiosity (measured with 3 item scale regarding religious beliefs and prayer) was protective against sexual risk (1 unit increase resulted in intrinsic religiosity resulted in .35 [p < .001] decrease in sexual risk). • Extrinsic religiosity (measured with 2 item scale	Sexual risk

	(1995–2002)	12–20 years of age Mean age (SD): 15.8 (1.7) years			regarding religious service attendance) was related to increased sexual risk (1 unit increase in extrinsic religiosity resulted in .24 [p < .05] increase in sexual risk). Acculturation (measured with 2 item scale regarding generation and language spoken at home) was associated with increased sexual risk (1 unit increase in acculturation resulted in .37 [p < .001] increase in sexual risk).	
Schwartz et al. (2012)	*Source of data*: Primary data collection *Location*: Miami and Los Angeles *Year(s)*: 2010–2011	N = 302 recently immigrated (5 years or less) Hispanic adolescents primarily from Mexico and Cuba. 100% Latino/as 47% female 14–17 years of age Mean age (SD): 14.5 (.88) years	Quantitative longitudinal study	Evaluate the "immigrant paradox" by ascertaining the effects of multiple components of acculturation on substance use and sexual behavior among recent Hispanic immigrant adolescents.	Structural equation model did not fit equivalently across gender, so analyses were separated for males and females. Among girls: • US practices (measured with 12 items including speaking English, eating American food and associating with American friends) was associated with: • Fewer reported instances of unprotected sex (oral, vaginal or anal sex without a condom) (OR 0.21; 95% CI = .09–.40; p < .001). • Identifying with the US (measured with the American Identity Measure [2] which has an alpha of .88 examines American identity affirmation and exploration; e.g., *I am happy to be an American* and *I have spent time trying to find out more about the United States, such as its history, traditions, and customs*) was: • Protective against having a greater number of sexual partners (OR .48; 95% CI = 0.25–0.92; p < .05). • Associated with greater frequency of unprotected sex (OR 8.79; 95% CI = 1.9–40.7; p < .01).	Number of sexual partners Number of oral sex partners Frequency of unprotected sex
Villarruel et al. (2007)	*Source of Data*: Primary data collection *Location*: North Philadelphia *Year(s)*: 2000–2004	N = 233 Hispanic/Latino/a youth 100% Latino/a 48.1% female Years of age Mean age (SD): 15.4 (1.5) years	Quantitative cross-sectional study Theory of planned behavior		Regression analyses by gender showed that: • Condom use intention and religiosity were significant predictors of condom use for females [β = .58 & .25, respectively]. • Contrary to hypothesized relationships, familism, gender roles, and religiosity did not moderate adolescents' past condom use.	Past condom use

1. Szapocznik, J., W.M. Kurtines, and T. Fernandez, *Bicultural involvement and adjustment in Hispanic-American youths*. International Journal of intercultural relations, 1980. 4(3): p. 353–365.
2. Schwartz, S.J., et al., The American Identity Measure: development and validation across ethnic group and immigrant generation. Identity, 2012. 12(2): p. 93–128.

Notes: OR, odds ratio; HR, hazard ratio; SE: standard error.

[a] Mean age, standard deviation, and age range were reported when available. Where not available the distributional property measures that were available in the article (e.g., median) were reported.
[b] Only findings directly pertaining to our dependent variables of interest were included.
[c] Odds ratios, adjusted odds ratios, p-values, and confidence intervals were reported where available.
[d] Full model HRs provided.

with 6 separate items). The "subjugation to the family" dimension of familismo (3-items including "A person should be a good person for the sake of his or her family") was positively associated with lower risk (OR .10–.39; $p < .05$ for all) (Guilamo-Ramos et al., 2009). Similarly, Ma et al. (2014) found that Latinas with greater levels of simpatía (maintaining harmony in relationships measured with 4-item scale) had an older sexual debut ($\beta = .56$, $F(1,17) - 7.94$, $p < .05$).

4. Discussion

Overall, the reviewed studies identified factors associated to sexual health among adolescent Latinas within the individual-level and social-level contexts of the SEMSH. Most studied the relationship between acculturation or Latino/a cultural values and sexual health outcomes. However, the study findings were not consistent between studies suggesting that these relationships are likely more complicated than what has been previously described in the literature.

4.1. Social context

Two studies (Bámaca-Colbert et al., 2014; Lee and Hahm, 2010) showed a significant association between a family structure variable and adolescent sexual health. These findings confirm previous work (conducted with adolescent Latinos/as) which has found an association between familial characteristics and sexual health/risk (Santelli et al., 2000; Upchurch et al., 2001; Veliz, 2009). However, they fail to elucidate the mechanisms underlying these associations. For example, is it that parents with greater levels of educational attainment are more likely to speak to their teens about sexually protective behaviors or is educational attainment perhaps a proxy for other community-level risk factors (e.g., lack of access to reproductive health services) known to be related to decreased sexual health? Studies that can elucidate the mechanisms that drive these relationships, will be important in developing effective interventions.

Consistent with other studies (conducted with African American adolescent girls and gender and hererogenous race/ethnicity adolescent samples) (Davies et al., 2006; Manlove et al., 2007), one paper found that partner variables (i.e., lack of communication about birth control and low power in the relationship) were associated with increased sexual risk (Gilliam et al., 2011; Rocca et al., 2010). This finding is well-aligned with other adolescent research which has found a significant association between lower relationship power and increased sexual risk (Sanchez et al., 2013; Teitelman et al., 2008). It is likely that young women who report lower relationship power are less able to enact safe-sex practices, particularly in the context of main partnerships. These studies highlight the importance of programming focused on sexual health communication and relationship power.

4.2. Individual

Five studies found significant associations between sociodemographic or behavioral/psychosocial variables and sexual health (Bámaca-Colbert et al., 2014; Gilliam et al., 2011; Lee and Hahm, 2010; Rocca et al., 2010; Villarruel et al., 2007). One article found that adolescent Latinas who had previously given birth to one or more children were more likely to use very effective contraception (Gilliam et al., 2011). Previous research has suggested that Latina women become aware of very effective contraceptive methods after the birth of their first-child (Gilliam et al., 2004). This work highlights the need for interventions that facilitate knowledge and access to very effective contraception for adolescent Latinas. Given traditional gender roles prescribing purity and virginity to young women (known as "marianismo") this work must be undertaken in a culturally-aware and community-driven manner to be effective (Marin and Marin, 1991).

Binge drinking was associated with increased sexual risk (Lee and Hahm, 2010). These findings confirm other work which has also linked "problem-behaviors" to sexual risk and STDs in adolescents (Cook and Clark, 2005; Kann et al., 2014; Miller et al., 2007; Thompson et al., 2005) and highlight the need for youth programming that promotes sexual health as part of broader healthy lifestyle interventions. For example, the SHERO's intervention by Harper and colleagues took a community-driven, strengths-based, culturally-affirming approach to intervention development and implementation including sessions on cultural pride and pressure to be a mother (Harper et al., 2009).

Two studies examined religiosity in relation to sexual risk (Smith, 2015; Villarruel et al., 2007). The first of these, consistent with other research conducted with Latino adolescents and mixed gender/race-ethnicity adolescents (Edwards et al., 2008; Vesely et al., 2004), found that higher levels of religiosity positively predicted condom use (Villarruel et al., 2007) contrasting previous work on church attendance (Manlove et al., 2006).

In more nuanced analyses, Smith (2015) found that intrinsic religiosity was protective against sexual risk while extrinsic religiosity was associated with increased sexual risk (Smith, 2015). This finding contradicted one study with college students which found both (intrinsic and extrinsic) to be protective from sexual activity and condom use (Zaleski and Schiaffino, 2000). Despite being widely-cited as a potentially important factor in Latino/as sexual health, the literature on religiosity and sexual health is mixed. More nuanced measures like the one used by Smith (2015) are important steps in better understanding the

Table 2
Study characteristics.

First author (year)	Dependent outcomes			Sample type		Data collection type		Study design	
	Onset of sexual intercourse (n = 5)	Sexual behaviors/sexual health (n = 9)	STIs/ pregnancy (n = 3)	Males & females[a] (n = 6)	All female (n = 5)	Add health[b] (n = 4)	Primary data collection (n = 7)	Cross-sectional (n = 5)	Longitudinal (n = 6)
Bámaca-Colbert et al. (2014)	X				X		X		X
Gilliam et al. (2011)		X			X		X	X	
Guilamo-Ramos et al. (2009)		X		X			X	X	
Lee and Hahm, (2010)	X	X	X		X	X			X
Ma et al. (2014)	X	X		X			X	X	
McDonald et al. (2009)	X	X	X	X		X			X
Raffaelli et al. (2012)	X	X		X		X		X	
Rocca et al. (2010)			X		X		X		X
Schwartz et al. (2012)		X		X			X		X
Smith (2015)		X			X	X			X
Villarruel et al. (2007)		X		X			X	X	

[a] Sample stratified by gender.
[b] National Longitudinal Study of Adolescent to Adult Health.

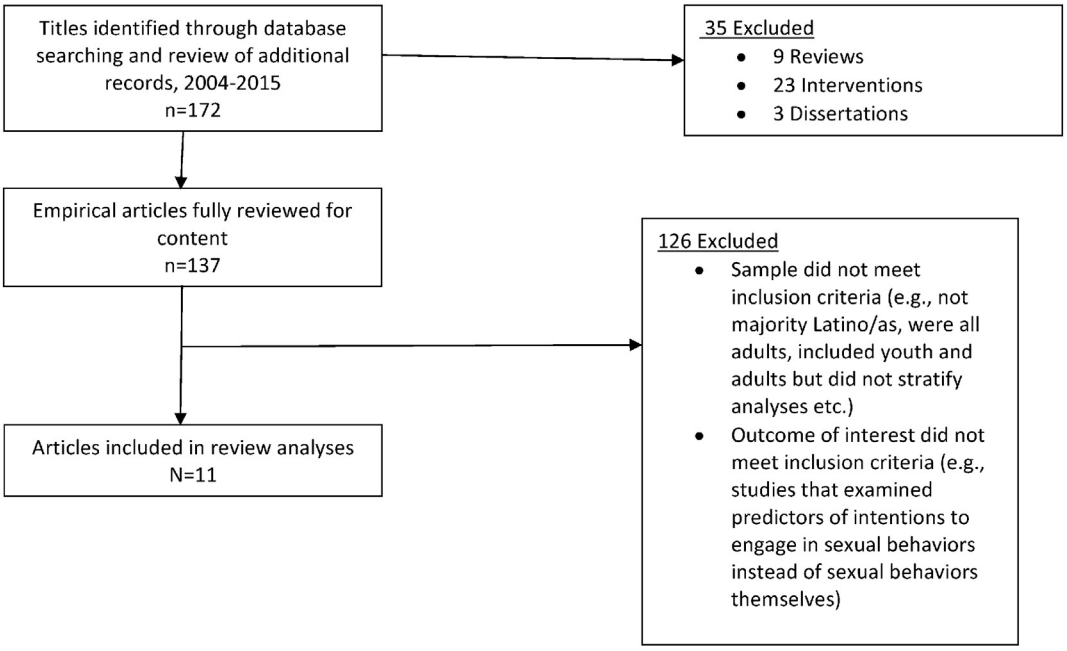

Fig. 1. Selection process for systematic review of the literature.

relationships between religion and sexual health (Lescano et al., 2009; Smith, 2015).

4.3. Acculturation/cultural values

Finally, a majority of the studies, examined some aspect of acculturation/cultural values in relation to sexual health behaviors and outcomes in adolescent Latinas. This work reflected the broader literature on the relationship between acculturation and sexual health for Latino adolescents (with samples including boys and girls) (Afable-Munsuz and Brindis, 2006; Raffaelli and Ontai, 2001), in that these studies had mixed results and did not tell "a clear story" about the association.

Two studies examined the relationship between immigrant generation and sexual initiation with contrasting results. While one of them found that first-generation immigrant girls were more likely to engage in early intercourse compared to second-generation girls the second found that first-generation and 1.5-generation girls were less likely to report sexual intercourse compared to third-generation girls (Bámaca-Colbert et al., 2014; Raffaelli et al., 2012). Although comparability across studies is limited given differences in sample compositions and designs, these contrasting results suggest that the association between generation and sexual initiation may not be linear as suggested by the widely-cited immigrant paradox (i.e., individuals from later immigrant generations will experience worse health outcomes than those from earlier ones (Raffaelli et al., 2012)). Immigrant generation may not be a sufficiently granular measure of acculturation to adequately capture its relationship to sexual initiation.

Nine studies examined the relationship between acculturation and sexual risk behaviors. Two of these (McDonald et al., 2009; Raffaelli et al., 2012), in line with Guarini et al. (2011) seem to suggest that second-generation adolescents may experience higher levels of sexual risk taking. However, it is possible that sexual risk and acculturation may not be linearly related to one another. Rafaelli's work, which found a protective effect for third-generation teens as well as first-generation teens, suggests that this relationship may be more complicated.

A third study adds additional insight to the idea of a potentially curvilinear relationship between acculturation and sexual health/risk behaviors. Lee and Hahm (2010) found that adolescent Latinas who had not been born in the US but spoke English at home had the highest levels of sexual risk (Lee and Hahm, 2010) when compared to foreign-born adolescent Latinas who spoke Spanish at home. Authors suggest that increased levels of acculturative stress among foreign-born youth who speak English at home may help explain this finding (Lee and Hahm, 2010). Future studies should further investigate whether the "stress" of acculturating somehow puts some youth in the middle of the acculturation continuum at risk (Afable-Munsuz and Brindis, 2006).

Finally, two studies examined the relationship between Latino/a cultural values and sexual health suggesting that espousing these Latino/a values is protective (Guilamo-Ramos et al., 2009; Ma et al., 2014). These studies support the widely accepted, but understudied, notion that certain Latino/a values are important with regard to sexual health behaviors (Lescano et al., 2009; Marín, 2003). This has important implications for the development of culturally-affirming intervention programing.

4.4. Methodological strengths and weaknesses of studies

The studies in this review were not without methodological flaws. For example, a majority of the studies drew their samples from Add Health data and other school-based datasets (Bámaca-Colbert et al., 2014; Guilamo-Ramos et al., 2009; Lee and Hahm, 2010; McDonald et al., 2009; Raffaelli et al., 2012; Schwartz et al., 2012; Smith, 2015; Villarruel et al., 2007). Although this work provides important insight to school populations and allows for random sampling, these results are not generalizable to youth who are not and school and likely at higher risk for negative sexual health outcomes. Additionally, mixing Latino/a youth from different geographic areas, countries of origin etc. in the sample is problematic for generalizability in Latino/a studies. Several studies mitigated this issue by utilizing more homogeneous community and venue-based samples (Gilliam et al., 2011; Ma et al., 2014; Rocca et al., 2010); stratifying their analyses; or examining only 1 subgroup (eg. Puerto Ricans) (Bámaca-Colbert et al., 2014; Gilliam et al., 2011; Schwartz et al., 2012).

Additionally, a common measurement issue across studies were oversimplified measures of acculturation and religiosity that reduced these complicated and multi-dimensional constructs to several proxy items (e.g., language of preference or church attendance) (Gilliam et al., 2011; Lee and Hahm, 2010; McDonald et al., 2009; Raffaelli et al., 2012; Villarruel et al., 2007). It is likely that study results are mixed, in part, due to these measurements. On the other hand, some

studies utilized well-constructed, scale-based, validated measures of acculturation and religiosity (Bámaca-Colbert et al., 2014; Guilamo-Ramos et al., 2009; Ma et al., 2014; Schwartz et al., 2012; Smith, 2015). One particularly excellent example of measurement development, overall, was Gilliam's survey development process, which was founded on formative qualitative interviews with the population of study (Gilliam et al., 2011).

Finally, given the sensitive nature of the subject matters examined in sexual health research and that all of the studies used some form of self-report, it is important to consider that social desirability could be a challenge to validity.

4.5. Future research considerations

Overall, several important conclusions can be gleaned from these studies. Despite empirical evidence that the correlates and predictors of sexual health operate differently for boys and girls, only 11 studies were found that examined these separately. More research focused on adolescent Latinas is needed to fully understand and address the sexual health disparities that disproportionately affect them.

Second, only a handful of studies utilized a theoretical framework to guide their research (Bámaca-Colbert et al., 2014; Raffaelli et al., 2012; Smith, 2015; Villarruel et al., 2007) and only one used a theory of behavior change (Villarruel et al., 2007). A guiding theory is important in hypothesizing and testing potential connections between determinants of sexual health and sex behaviors or outcomes. Future studies should ensure the use of theory in guiding their research. This and more nuanced, evidence-based measures will facilitate comparability across study findings.

Third, many of the studies had an underlying deficit-focus. Very few mentioned sexual health promotion, instead focusing on "sexual risk". Sexual initiation is a normative part of adolescent development (Tolman and McClelland, 2011). The focus of research and intervention programming should be on preventing early sexual initiation (which has been shown to predict negative sexual health outcomes) and promoting healthy sexual relationships. Future research should also emphasize youth assets and protective factors as some (e.g., community involvement and future aspirations) have been linked to positive sexual health outcomes (Vesely et al., 2004).

Fourth, although previous research with mixed-gender samples suggests a significant association between community-level variables and sexual health (Browning et al., 2004; Cubbin et al., 2005; Upchurch et al., 2001), none of the studies reviewed included these variables. Future research should examine these to better understand how community-level context can impact sexual health.

Fifth, although this literature is useful describing the associations between correlates and predictors of sexual health behaviors and outcomes, it largely leaves the question of the intermediate mechanisms unanswered (Raffaelli et al., 2012). Theory-guided work that can explore the processes by which correlates and predictors of sexual health result in sexual health behaviors and outcomes is important (Raffaelli et al., 2012).

Sixth, this research is heavily focused on the effect of acculturation on sexual health of adolescent Latinas. However, despite the existence of several acculturation theories (Afable-Munsuz and Brindis, 2006), this work was largely undertaken a-theoretically. An underlying theory that describes how researchers believe acculturation is related to sexual health behaviors would be useful in describing these relationships. Additionally, few studies attempted to capture the construct in a multidimensional manner reducing it to language preference or immigrant generation. Understanding the relationship between acculturation and sexual health, will require more nuanced measures (Deardorff et al., 2010). Finally, an emphasis on cultural values more proximal to sexual health (e.g., importance of virginity, sexual silence) is warranted (Davila, 2005; Deardorff et al., 2010; Guilamo-Ramos et al., 2009).

5. Limitations & conclusion

This study had several limitations. Firstly, given the emphasis on adolescent Latinas these results are not generalizable to other groups of adolescents. Secondly, given the heterogeneity across studies, direct comparison and the use of more sophisticated review techniques (e.g., meta-analysis) were not possible. Despite these limitations, this study presents a significant contribution to the literature by summarizing the state of the science on adolescent Latinas and sexual health, an understudied group disproportionately affected by sexual health disparities. Additionally, the study demonstrates the need for: (1) Research about underlying processes and mechanisms driving the relationships between identified correlates and predictors of sexual health and (2) Strengths-based theoretical models to guide research and intervention development in this field.

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Authors' contributions

MMA and IS conceived this paper and MMA drafted the article. Both authors revised it for content and approved the final version. MMA is the guarantor of this work.

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