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Cultural measures associated with risky sexual behaviors among Latino youth in Southern California: A longitudinal study

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Abstract

Context—Cultural variables have been associated with sexual risk behaviors among Latino youth, but findings across studies are inconsistent.

Methods—We analyzed data from a longitudinal study of Latino youth in Southern California followed from 2005–2012 to test whether cultural variables measured in high school were associated with sexual risk behaviors in emerging adulthood, and whether gender moderated these

associations. We conducted logistic and ordinal regression analyses. Participants were 995 Latino youth.

Results—The cultural value of respect for parents was negatively associated with an earlier age at sexual debut (odds ratio, 0.8) and not using a condom at most recent sexual intercourse (0.8). U.S. cultural practices (a measure of acculturation) was positively associated with being sexually active (1.2), having concurrent sexual partners (1.5), and among males only, with a higher number of sexual partners (1.3). Second- and third- generation immigrant youth had lower odds of not using a condom at most recent sexual intercourse when compared to first-generation youth (0.6 and 0.5, respectively). Among females, a stronger endorsement of Latino cultural practices was associated with lower odds of more sexual partners (0.8). By contrast, among males, a stronger endorsement of Latino cultural practices was associated with higher odds of more sexual partners (1.4).

Conclusions—The cultural measures associated with Latino youth's sexual behaviors differed across outcomes and by gender. Understanding how culture is related to the sexual behaviors of Latino youth may help inform the development of culturally-sensitive sexual health interventions.

Latinos comprise the largest ethnic minority group in the US, and are a relatively youthful population. In 2011, nearly one-third (31.5%) of Latinos were younger than 16, compared with 18.1% of Whites.¹ Projections indicate that, by 2025, Latinos will comprise 28% of all youth between the ages 14 to 24.² These trends indicate that the health and welfare of Latino youth is of considerable national importance. However, Latino youth currently face a number of health and social disparities, including in the area of sexual and reproductive health.

Teen pregnancy rates have dropped across all racial and ethnic groups in the U.S. since 1990 - but this decline has been less pronounced among Latina teens than among other racial and ethnic groups. Between 1990 and 2008, the teen pregnancy rate declined by 34% among Latino teens, compared with a decline of 50% among White teens,³ and, in 2010, the birth rate for Latina teens between the ages of 15 and 19 was twice that of White teenagers.⁴ Disparities also exist for sexually transmitted infections including gonorrhea, chlamydia and syphilis, with higher rates found among Latino youth between the ages of 15 and 24 compared to White youth of the same ages.⁵

Risky sexual behaviors represent an important contributor to these disparities. National data indicate that, although a number of risky sexual behaviors declined among White and Black high school students in the U.S. between 1991 and 2009, similar declines did not occur among Latino students.⁶ Additionally, among sexually active Latino high school students, condom use at last sexual intercourse increased from 1991 to 2007 but declined between 2007 and 2009.⁶

While a significant portion of youth from all racial and ethnic groups are engaging in risky sexual behaviors that may have negative consequences for their health and well-being, Latino youth may be at especially high risk. In addition to structural, social, and environmental factors that contribute to risky sexual behaviors,⁷ scholars have theorized that cultural factors also have an impact.^{8–10} Although scholars continue to debate the definition

of culture, in this paper we conceptualize culture as a set of explicit and implicit guidelines that individuals learn as members of a particular ethnic group.¹¹ Culture influences people's lives in areas such as language, diet and dress, and gender norms.¹¹ Additionally, culture informs "sexual scripts" – guidelines that shape how individuals behave during sexual interactions.^{12,13} Despite the impact of culture on sexual behaviors across racial and ethnic groups, most sexual health programs fail to address how culture affects sexual behaviors. In a recent literature review of sexual health behavior interventions for Latino youth, Cardoza et al. reported that few sexual health programs included components addressing salient cultural values.¹⁴

Prior research examining associations between cultural variables and Latino youths' sexual behaviors has focused on acculturation processes. Acculturation is defined as the process of cultural change that occurs when individuals from dissimilar cultures come into continuous contact with each other,¹⁵ and typically describes the process in which those from immigrant and minority groups interact with – and to varying degrees adapt to, integrate and adopt – the cultural orientations of the dominant group. Acculturation is a complex process involving changes across multiple domains including cultural practices (e.g. language use, media preferences, and social affiliations), values (e.g. belief systems such as collectivism and individualism) and identities (e.g. attachments to particular cultural groups).¹⁶ Despite the complexities of acculturation, most studies measure it with proxy indicators such as language spoken at home, immigrant generation, or nativity.¹⁰ These measures assume that acculturation is a unidimensional process whereby immigrants and their descendants lose their culture of heritage as they adopt practices, values and identities associated with their new host society.¹⁶ Recent theory argues, and empirical studies confirm, that this portrayal of acculturation is not accurate. Immigrants and their descendants commonly retain certain aspects of their cultural heritage as they incorporate certain aspects of the culture of a new society. The most comprehensive and sophisticated measures of acculturation are those that separately examine retention of heritage culture, and adoption of receiving-culture.¹⁶ However, to date, only a few studies in the sexual and reproductive health field have incorporated bidimensional (assessing heritage and receiving cultural orientations separately) measures of acculturation.^{17,18}

Research on acculturation and sexual risk behaviors among Latino youth has yielded inconsistent results. Some studies have found higher levels of sexual risk behaviors among Latino youth who exhibit a more pronounced U.S. cultural orientation (i.e. Latino youth who are English-speaking or born in the U.S.),^{19,20} whereas other studies have found no associations between acculturation indices and sexual risk behaviors^{21,22} or have found evidence of lower risk sexual behaviors in youth who are more oriented toward the U.S.²³ These differences in results may be due to differences in the measures of acculturation used or to differences in the samples studied, but another explanation may be that acculturation has differing associations with sexual risk behaviors depending on the specific sexual outcome examined.^{24,25} A recent national study using data from the National Longitudinal Survey of Youth supports this observation. In this study, researchers found that youth who were less acculturated to mainstream U.S. culture (i.e., those who were first generation in the U.S., or who were Spanish-dominant) were more likely to delay sexual intercourse

compared to more acculturated youth, but were less likely to use contraception consistently.²⁵

Gender roles represent another cultural construct theorized to influence sexual behaviors among Latino youth. For females, traditional gender roles are shaped by the value of *marianismo*, which espouses that women's behavior should emulate the Virgin Mary.⁹ According to *marianismo*, women are expected to remain abstinent until marriage, not to be knowledgeable about sex, to be submissive and obedient in relationships, and to be devoted to family.^{9,26} Although *marianismo* may be protective for females by leading to later sexual debut and smaller numbers of sexual partners, it also can lead to increased risks by making it difficult for Latinas to negotiate safe sex with their partners or to communicate their sexual needs.⁹

For males, traditional gender norms are shaped by *machismo*, which defines masculinity in terms of virility, and aggression,⁸ as well as protection of the family, responsibility, and hard work.²⁷ For men, penetrative sex and procreation are seen as reflections of manhood, and men are encouraged to believe they cannot control their sexual impulses, which may make condom use difficult once they have been aroused.⁹ *Machismo* may be associated with risks such as multiple sexual partners and early sexual debut, but may instill protective behaviors, such as condom use, if men feel responsibility to protect their sexual partners.⁹

Although theorized as important, few studies have directly tested associations between gender norms and the sexual behaviors of Latino youth. One study with 670 Latina adolescents recruited from two publicly funded family planning clinics found that a more traditional gender role orientation was associated with older age at sexual debut, but was not associated with lifetime number of sexual partners or past pregnancies.²⁰ The authors argued that traditional gender norms may play a role in adolescents delaying first intercourse, but once women become sexually active, other factors such as acculturation and substance experimentation were more influential on sexual risk-taking.²⁰ By contrast, another study²⁶ found no association between gender roles and condom use intentions or past condom use among Latino/a adolescents, although higher religiosity was associated with past condom use.

Familism is another cultural factor theorized to influence Latino youths' sexual behavior. Familism stresses interdependence among nuclear and extended family members for support, emotional connectedness, familial honor, loyalty, and solidarity.²⁸ Familistic attitudes may encourage youth to practice safer sex behaviors because youth may be part of a network of family members who provide support and hold youth accountable for their behavior.⁹ One study with a random sample of 702 Latino adolescent eighth grade students in New York City found that higher familism scores were associated with reduced sexual risk behaviors, but only among females.²¹ Another study found no association between familism and condom use intentions or past condom use among Latino/a adolescents.²⁶

Respect and fatalism are also values theorized as relevant to Latino youths' sexual behaviors, but empirical research testing associations between these cultural values and sexual behaviors is limited. Respect (or *respeto*, in Spanish) reflects the value of showing

respect and honor to one's parents and other authority figures.⁹ Respect may be associated with safer sex behaviors because youth feel motivated or obligated to enact safer behaviors for the sake of their parents or other authority figures. Fatalism is the belief that events in one's life are a result of factors outside of one's control. Fatalism may be linked with feelings of helplessness and the belief that efforts to protect oneself from HIV or other sexual health risks are in vain.⁹

Although some empirical data supports associations between cultural factors and sexual behaviors of Latino youth, prior research in this area has been somewhat limited and results have been inconsistent. Additionally, most previous studies have relied on cross-sectional designs, which do not permit analysis of causal or directional influences.

In the present study, we build on the range of cultural variables that have been studied in relationship to Latino youths' sexual risk behaviors. We examine whether cultural constructs measured in high school are associated with Latino youths' sexual risk behaviors in emerging adulthood. We also test whether gender moderates these associations.

Our hypotheses were as follows:

1. The cultural values of familism and respect will have protective associations with sexual risk behaviors, while fatalism will be associated with higher sexual risks.
2. Acculturation to U.S. cultural practices will be associated with an earlier age at sexual debut, a higher number of lifetime sexual partners, use of alcohol or drugs before last sex, and concurrent sexual partners. It will also be associated with use of a condom at last sex. Retention of Latino cultural practices will have opposite patterns of associations.
3. First-generation youth will initiate sex at a later age and will have fewer lifetime sexual partners than second- or third- generation youth, but they will be less likely to have used a condom at most recent sexual intercourse.
4. Cultural measures will have different patterns of association with the sexual risk behaviors of females compared to males. Among females, a higher traditional gender role score will be associated with a later age at sexual debut, fewer lifetime sexual partners, and lower condom use at most recent sexual intercourse. Among males, a higher traditional gender role score will be associated with an earlier age at sexual debut, more lifetime sexual partners, and lower condom use at most recent intercourse.

Methods

Participants

Our data source was Project RED (Reteniendo y Entendiendo Diversidad para Salud), a longitudinal study of acculturation patterns and substance use among Latino adolescents in Southern California.²⁹ Participants were recruited in 2005 from seven predominantly Latino public high schools in the Los Angeles area, when they were in the 9th grade. Schools were approached and invited to participate if 70% or more of the student body identified as

Hispanic/Latino, as indicated by data from the California Board of Education. School principals and/or district superintendents provided approval for the study. All study procedures were also approved by the University of Southern California's Institutional Review Board.

Students at the participating schools in the 9th grade were eligible to participate if they provided parental consent and student assent. A total of 3,218 ninth-grade students were invited to participate. Of these, 2,420 (75%) provided both parental consent and student assent, and 2,222 (92%) completed the 9th grade survey. Of these participants, 1,963 (88%) self-identified as Hispanic or Latino, or reported a Latin American country of own or familial origin.

Participants completed follow-up surveys in the 10th and 11th grades in 2006 and 2007. Between the 9th and 10th grade survey, students from one of the participating schools were transferred to a new school, and this school was incorporated into the sample. All students in the 10th grade class at this school were invited to participate in the study, resulting in a sample size of 2,731, including 2,400 Latino/Hispanic participants. From November 2010 to December 2012, the study team attempted to reestablish contact with Latino participants who had participated in the earlier waves to participate in an emerging adulthood survey. Multiple methods were used to find participants including through mailed letters, phone calls, emails, social media, and family or friends listed as contacts. These tracking procedures resulted in valid contact information for 2,151 participants, and of these, 1,388 completed the emerging adulthood survey.

In high school, the protocol was for trained research assistants to visit students' classrooms. They explained the study purpose and distributed parental consent forms. They returned at a later date to collect the signed parental consent forms and to obtain students' assent. After this, surveys were self-administered. They were available in both English and Spanish. Intensive tracking was done to try to locate participants who were absent, had transferred schools, or had dropped out of school between waves. Data collectors called missing participants multiple times during the evenings and administered surveys by phone. For the emerging adulthood survey, participants had the option to complete the survey by phone or over the internet. All participants received compensation for participating in the surveys (a gift worth approximately \$5 for each high school survey and \$20 for the emerging adulthood survey). Participants were also compensated \$3 for updating contact information between waves.

In our analysis, we use data from Latino participants who completed surveys in 10th grade and in emerging adulthood (n=1276). We selected data from the 10th grade survey rather than the 9th grade survey because the number of participants at this wave was higher due to the inclusion of the new school. Participants had to have complete data for the study outcomes and covariates. In total, 995 participants had complete data and were included in our analysis.

Measures

Sexual behaviors were measured as part of the emerging adulthood survey. Questions were adapted from the Youth Risk Behavior Survey.³⁰ Sexual initiation and age at sexual debut were determined based on responses to the question: “How old were you when you first had sexual intercourse?” Response options ranged from “11 or younger” to “20 years or more,” or respondents could select “I have never had sexual intercourse.” Any respondent who reported never having sexual intercourse was coded as not having initiated sex. Participants with missing responses who answered other questions on sexual behaviors indicating they had had sexual intercourse were recoded as having had intercourse ($n=20$). Age at sexual debut was recoded as a six-category ordinal measure from “14 or younger” to “19 or older”.

Condom use at last sexual intercourse was based on responses to the question: “The last time you had sexual intercourse, did you or your partner use a condom?” Use of alcohol or drugs at the time of last intercourse was based on response to the question “Did you drink alcohol or use drugs before you had sexual intercourse the last time?” Participants’ lifetime number of sexual partners was measured using a question which asked “During your life, with how many people have you had sexual intercourse?” Responses were coded from “1 sexual partner” to “6 or more partners.” Concurrent sexual partners was measured based on response to the question: “Do you have more than one current sexual partner?”

Cultural variables and covariates were measured on the 10th grade survey. Acculturation was measured using a 13-item bidimensional scale, adapted from the Revised Acculturation Rating Scale for Mexican-Americans (ARSMA-II).^{29,31} The two subscales measured U.S. cultural and Latino cultural practices. Scale items asked about language use, media preferences, and social affiliations (e.g. “I enjoy Spanish language TV,” and “My friends are of Anglo or White origin.”) Items were rated on a five-point Likert scale, ranging from 1 (Not at all) to 5 (Almost always/extremely often). Reliability coefficients in the present study for the U.S. cultural practices subscale and Latino cultural practices subscale were $\alpha=.73$ and $\alpha=.91$, respectively.

Four cultural values were measured: familism, respect for parents, traditional gender roles, and fatalism. Familism was measured using a 4-item scale (e.g. “If anyone in my family needed help, we would all be there to help.”), with response options from 1 (definitely no) to 4 (definitely yes). Scale reliability was $\alpha=.77$. Respect for parents was measured using a 4-item scale (e.g. “I want to be a good person so that people know that my parents raised me right.”), with response options from 1 (definitely no) to 4 (definitely yes). Scale reliability was $\alpha=.87$. Traditional gender roles were measured using a 7-item scale (e.g. “Parents should maintain stricter control over their daughters than their sons”), with response options from 1 (strongly disagree) to 4 (strongly agree). Scale reliability was $\alpha=.80$. Fatalism was measured with a 4-item scale, (e.g. “I don’t plan ahead because most things in life are a matter of luck”) with response options from 1 (definitely no) to 4 (definitely yes). Scale reliability was $\alpha=.77$. All items were adapted from cultural values scales used in previous studies.^{28,32,33}

Immigrant generation was measured using questions which asked youth about their birth place and the birth place of their parents. Youth who reported being born outside of the U.S.

were classified as first-generation. Those born in the U.S. and who reported that one or both parents were born outside of the U.S. were classified as second generation. Those who reported that they and their parents were all born in the U.S. were classified as third generation or higher. We did not include the 1.5 generation as a separate category because nearly all (93%) of the 1st generation participants could be considered to be 1.5 generation because they immigrated to the U.S. at age 10 or younger. For participants with missing data, we used data reported at the 9th grade survey, if available.

The covariates included in our primary analyses were some of the variables that have previously been associated with Latino youth sexual risk behaviors: gender, age, and socioeconomic status.³⁴ The socioeconomic status measures included a measure of household crowding, which was calculated as the total number of persons living in the respondent's home divided by the total number of rooms in the home (excluding the bathroom and the kitchen).³⁵ More than one person per room is classified as overcrowded.³⁵ Parents' education level was the maximum education the participant reported for his/her mother or father. If either parent's education was missing, the non-missing parent's education was used. A dummy indicator was created for respondents who were missing data or who did not know their parents' education.

Statistical Analysis

We conducted descriptive statistics on all variables (means for continuous measures and proportions for categorical measures). Next, we examined unadjusted associations between each cultural measure and the outcome variables by estimating bivariate regression models. For dichotomous outcomes (i.e. ever had sexual intercourse, condom use at last sexual intercourse, alcohol or drug use at last sexual intercourse, concurrent sexual partners), we estimated bivariate logistic regression models. For ordinal outcomes (i.e. age at sexual debut and lifetime number of partners), we estimated bivariate ordinal regression models. Age at sexual debut was reverse coded so the model outcome was an earlier age at sexual debut. Next, we determined adjusted associations between the cultural measures and the outcomes by estimating multivariable logistic and ordinal regression models. In these models, we controlled for age, gender, and the two SES measures. We entered all cultural scales as Z-scores. To test whether the assumption of proportional odds held in the ordinal logistic regression models, we performed the Brant test. A non-significant Brant test statistic indicates that the proportional odds assumption is not violated.³⁶ To determine whether gender interacted with any of the cultural variables, we created product terms between gender and each cultural variable and entered all of these variables as the last step to our final multivariable models. Where we found evidence of a statistically significant interaction, we estimated gender-stratified models. Finally, we conducted descriptive analysis to clarify whether age at sexual debut occurred before or after the timepoint when the cultural variables were measured. All statistical analyses were conducted using Stata version 11.2.

Results

Attrition Analysis

Of the Latino youth who participated in the 10th grade survey (n=2,400), 53% (n=1,276) also participated in the emerging adulthood survey. Compared to participants who were followed from 10th grade to emerging adulthood, those lost to attrition were significantly more likely to be males (54% vs. 41%, chi-square=37.46, p<.001), first-generation in the U.S. (17% vs. 13%, chi-square=6.33, p<.05), and to not know their parent's education level (22% vs. 16%, chi-square=13.64, p<.001). Those lost to attrition were less likely than those who were followed to be second-generation in the U.S. (71% vs. 76%, chi-square=4.19, p<.05) and to report a parental education level of some college or higher (22% vs. 28%, chi-square=10.38, p<.01). There were no differences between those lost to attrition and those who were followed by age or household crowding.

Social and demographic characteristics of respondents

The majority of participants (86%) were aged 15 in 10th grade (Table 1). Fifty-nine percent were females. Over three-fourths (76%) were second-generation immigrants, 12% were first-generation, and 13% were third or later generation. Among first-generation youth, 71% had immigrated to the U.S. at age 5 or younger, and 93% at age 10 or younger. Seventy-seven percent of the participants identified as "Mexican" or "Mexican-American," 6% identified as "Central American," and 2% as "South American." An additional 16% identified as "Hispanic" or "Latino" only. The household crowding index indicated that, on average, there were 1.77 persons per room in the participant's homes. Sixteen percent reported that their parents had completed eight or fewer years of education, 21% reported that their parents had some high school education, 19% that their parents had graduated high school, 31% that their parents had some college or higher, and 14% had missing data on parental education.

At the time of the emerging adulthood survey, participants' mean age was 19.8 years (SD=0.61). The vast majority (84%) reported having initiated sex at the emerging adulthood timepoint (Table 2). Among sexually active participants, 13% reported an age at sexual debut of 14 or younger, whereas 29% reported an age of sexual debut of 18 or older. Eighteen percent reported six or more sexual partners in their lifetime. Forty-three percent indicated they had not used a condom the last time they had sexual intercourse and 13% reported drinking alcohol or using drugs before their last sex. Ten percent of sexually active participants reported more than one current sexual partner. There were gender differences for all of the sexual behaviors studied, with males reporting riskier sexual behaviors on all outcomes except condom use at last intercourse (Table 2). For example, 30% of males reported six or more lifetime sexual partners, compared with only 8% of females. Thirty-five percent of males reported not using a condom at last intercourse compared with 48% of females.

Among participants who indicated ever having sex (n=836) when asked at the emerging adulthood timepoint, 68% reported an age at sexual debut that was older than their age at the 10th grade survey when the cultural variables were measured, 30% reported an age of sexual

debut that was the same or younger than their age at the 10th grade survey, and 2% were missing data on age at sexual debut. An additional 159 participants (16% of the sample overall) had not initiated sexual activity at the emerging adulthood timepoint.

Bivariate results

In the bivariate analyses, all of the cultural measures, with the exception of fatalism, were associated with one or more outcomes (Table 3). A higher score on Latino cultural practices was associated with lower odds of alcohol or drug use before last sex (OR=0.7), and lower odds of reporting more lifetime sexual partners (OR=0.8). A higher score on U.S. cultural practices was associated with higher odds of reporting more lifetime sexual partners (OR=1.2) and concurrent sexual partners (OR=1.4). A higher traditional gender roles score was associated with ever having sexual intercourse (OR=1.3), an earlier age at sexual debut (OR=1.2), more lifetime sexual partners (OR=1.4), and concurrent sexual partners (OR=1.6). Respect for parents was inversely associated with odds of an earlier age at sexual debut (OR=0.8), and reporting more sexual partners (OR=0.8). Familism was inversely associated with odds of reporting more sexual partners (OR=0.8). Finally, second- and third-generation or higher youth had lower odds of not using a condom at their last sexual intercourse when compared to first-generation youth (OR=0.6 and OR=0.5, respectively). Third-generation or higher youth had higher odds of reporting more lifetime sexual partners (OR=2.5) and using alcohol or drugs before last sex (OR=2.5) when compared to first-generation youth.

Multivariate results

In multivariable analysis, participants who scored higher on U.S. cultural practices had higher odds of ever having sexual intercourse (AOR=1.2) (Table 4). A higher traditional gender roles score was also positively associated with ever having sexual intercourse (AOR=1.3).

Among sexually active participants, those with higher scores on respect for parents had lower odds of reporting an earlier age at sexual debut (AOR 0.8), and not using a condom at their last sexual intercourse (AOR=0.8). Immigrant generation was also associated with condom use at last sexual intercourse. Second- and third-or-higher generation youth had lower odds of not using a condom at last sexual intercourse compared to first-generation youth (AOR=0.6; and AOR=0.5, respectively). Finally, higher U.S. cultural practices was associated with higher odds of reporting concurrent sexual partners (AOR=1.5).

For five outcome measures (i.e. whether participants ever had sex, age at sexual debut, condom use at last sex, use of alcohol or drugs before last sex, and concurrent sexual partners) we found no evidence of statistical interaction between gender and the cultural measures, indicating that the cultural measures had the same associations for females versus males. However, for lifetime number of sexual partners, we did find a significant gender interaction with some cultural measures. Table 5 reports the results of gender-stratified models for this outcome. Latino cultural practices were associated with the number of lifetime sexual partners reported by both male and female respondents, but the associations were in opposite directions. Among females, a stronger endorsement of Latino cultural

practices was associated with lower odds of reporting more sexual partners (AOR=0.8), whereas among males, a stronger endorsement of Latino cultural practices was associated with higher odds of reporting more sexual partners (AOR=1.4). Among males only, higher U.S. cultural practices was associated with higher odds of reporting more lifetime sex partners (AOR=1.3). Among females only, those who were third-generation or later had higher odds of reporting more sexual partners compared to first-generation youth (AOR=2.6).

Discussion

In the present study, we examined associations between several cultural measures and Latino youths' sexual risk behaviors using longitudinal data. Previous studies that have examined associations between cultural variables and the sexual risk behaviors of Latino youth have examined relatively few measures of culture, typically measuring acculturation only, and have often used unidimensional or proxy measures for acculturation. We found that distinct cultural variables were significantly associated with Latino youths' sexual risk behaviors. Two cultural values (i.e. traditional gender roles and respect for parents), Latino and U.S. cultural practices, and immigrant generation were all significantly associated with at least one of the sexual outcomes, but the factors that were significant depended on the specific sexual outcome in question. For example, the value of respect was the only cultural measure associated with age at sexual debut. U.S. cultural practices was the only cultural measure associated with having concurrent sexual partnerships. These findings suggest that cultural measures have varying relationships with sexual behaviors. Qualitative research may help to shed light on why specific cultural measures are associated with particular sexual outcomes and not others.

We found some evidence that the same cultural measure could, paradoxically, have associations with both sexual risk behaviors and protective behaviors. For example, among females, third-or-later generation youth had higher odds of reporting a higher number of lifetime sex partners compared to first-generation youth, but among both genders, second and third-or-later generation youth had higher odds of reporting condom use at their last sexual intercourse. Other scholars have reported similar discrepant findings.²⁵ These results underscore the importance of not overgeneralizing about cultural variables which may have associations with both risk behaviors and protective behaviors, depending on the context and outcome in question.⁹

Similar to other studies,^{19,20} we found that acculturation to U.S. cultural practices was positively associated with several sexual risk behaviors. However, this was not the case across all sexual behaviors. Stronger U.S. cultural practices were not associated with an earlier age at sexual debut, with unprotected sex at most recent intercourse, or with alcohol or drug use before last sex. Additionally, both U.S. cultural practices and Latino cultural practices were significantly associated with number of lifetime sexual partners. This result indicates the importance of measuring acculturation using bidimensional vs. unidimensional measures. Other studies that have used bidimensional measures of acculturation have found that both U.S. cultural practices and Latino cultural practices are associated with sexual risk behaviors.^{17,18}

Our findings also point to the importance of using direct scales to measure acculturation rather than proxy measures. We included both immigrant generation (a commonly used proxy measure for acculturation) and direct acculturation scales in our models and found these measures had different associations with the outcomes. It is possible that immigrant generation may represent other non-cultural variables, for example, access to resources or information, social networks, relationship characteristics, or structural barriers. Other research has found immigrant generation does not appear to provide an index of acculturation, especially when some families remain in ethnic enclaves for several generations before moving to more diverse neighborhoods.³⁷

We also found that some cultural measures had different associations with the sexual behaviors of male versus female youth, as has been reported previously.²¹ One of the most striking findings was that Latino cultural practices had opposite associations with the number of lifetime sexual partners for females versus males. Among females, a stronger endorsement of Latino cultural practices was associated with lower odds of reporting more lifetime sex partners, whereas among males, a stronger endorsement of Latino cultural practices was associated with higher odds of reporting more lifetime sex partners. This suggests that the retention of Latino culture may be supportive of some protective sexual behavior among females, while at the same time it may be associated with some risk behaviors among males. This finding may reflect double standards for sexual behavior for females versus males, which have been found in previous studies with Latino youth,⁸ and are common across many world cultures.

Among males only, stronger endorsement of U.S. cultural practices was associated with reporting more lifetime sexual partners. Among male youth, both U.S. and Latino cultural streams may be supportive of males having multiple sexual partners. Both Latino and mainstream U.S. cultures may provide men with the message that engaging in sex with multiple partners is normative.

Among females only, those who were third-generation in the U.S. or higher had higher odds of reporting more sexual partners when compared to first-generation youth. This finding indicates that while sexual behaviors appear to change across immigrant generations among females, this is not the case among males. This finding may reflect changes in attitudes surrounding teen sexuality across immigrant generations,³⁸ which may be more pronounced among females, who tend to have more conservative attitudes to begin with.³⁸ However, this finding may also reflect differences in marriage patterns. First-generation Latino youth are more likely to be married than later generation Latino youth,³⁸ which may contribute to their having fewer sexual partners, and this may be particularly true for females who delay sex longer.

Study strengths and limitations

Strengths of our study include the use of a longitudinal data set. We measured the cultural variables when participants were in 10th grade, and sexual behaviors when participants were emerging adults. Our study also examined multiple cultural variables that had not been analyzed together, and we used a bidimensional acculturation scale, whereas most previous research on acculturation has relied on proxy measures or unidimensional scales.¹⁰

Limitations of our research include the use of self-report measures of sexual behaviors, which may be subject to social desirability biases. Additionally, we did not collect data on participants' use of methods of contraception. We also do not have information about relationship factors, which are associated with sexual behaviors and condom use.³⁹ Another limitation of our study pertains to the generalizability of the findings. Our sample included Latino youth in Los Angeles recruited from public high schools. Given the characteristics of the Latino population in the region, our sample included predominantly U.S.-born Mexican American youth. The majority of first-generation immigrants had immigrated as infants or young children, suggesting that they may be more similar to second-generation immigrant youth than to individuals who immigrated in later childhood or during adolescence. We do not know how the present findings might have differed had the study been conducted with Latino youth from other geographic regions in the U.S., those who were from largely non-Mexican backgrounds, or recent immigrants. Additionally, 47% of the sample was lost to follow-up in emerging adulthood, and we do not know the extent to which the present results might apply to those participants who were lost to follow-up who were disproportionately male, first-generation in the U.S. and had lower parental education. Finally, although we measured sexual behaviors on the emerging adulthood survey, it is possible that some participants may have initiated sexual activity prior to the 10th grade timepoint when the cultural variables were measured. Our analysis of the timing of events indicated that for the vast majority of study participants the cultural variables were measured before sexual activity occurred. Additionally, because many measures asked about the most recent sexual encounter, even among those who initiated sexual activity before the 10th grade survey, these outcomes likely occurred afterwards.

Recommendations

Relatively few culturally informed sexual health programs have been developed for Latino youth.^{14,40} Our findings point to several cultural variables that may be useful to target in future sexual health interventions. Importantly, these factors should be evaluated in intervention studies to determine whether they can be manipulated, and whether they are causally related to sexual behaviors. Because respect for parents was protective for several sexual risk behaviors studied, incorporating messages and program activities around this cultural value may be productive. The finding that having stronger U.S. cultural practices was associated with several sexual risk behaviors suggests that helping Latino youth to find healthy models of acculturation to mainstream U.S. culture may be beneficial. One promising strategy may be to help youth to adopt a bicultural identity.⁴¹ Bicultural youth have comfort and proficiency in both their heritage culture and the dominant culture,⁴² and so can draw on coping strategies, values and behaviors from each cultural stream utilizing the most adaptive strategies from each culture. Because first-generation youth were less likely than later generation youth to use a condom at most recent intercourse, targeting this group in condom promotion efforts may be beneficial. Finally, our results suggest that individuals designing sexual health programs for Latino youth may need to be sensitive to gender differences when incorporating cultural factors. Cultural factors that are protective for one gender may not be protective for the other, and it may be necessary to frame messages around culture differently for males versus females.

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Table 1

Characteristics of participants, 10th grade survey (N=995)

Age (years)	%
14	7.0
15	85.6
16	7.2
17 or older	0.2
Sex	
Male	41.5
Female	58.5
Parent's highest education	
8th grade or less	15.9
Some high school	21.4
High school graduate	18.5
Some college or higher	30.7
Don't know/Missing	13.6
Mean Household crowding index (range 0.4 to 7) (SD) ^a	1.77 (0.83)
Immigrant generation	
1st generation	11.5
2nd generation	75.9
3rd or higher generation	12.7
Mean Latino cultural practices (range 1 to 5) (SD)	3.2 (1.01)
Mean U.S. cultural practices (range 1 to 5) (SD)	4.0 (0.56)
Mean Traditional gender roles (range 1 to 4) (SD)	2.0 (0.64)
Mean Familism (range 1 to 4) (SD)	3.4 (0.57)
Mean Respect for parents (range 1 to 4) (SD)	3.7 (0.50)
Mean Fatalism (range 1 to 4) (SD)	2.8 (0.74)

^a Index of number of persons per room in participant's home (excluding kitchen and bathroom).

Table 2

Sexual risk behaviors by gender, Emerging Adulthood Survey

	Total (n=995) %	Males (n=413) %	Females (n=582) %
Ever had sexual intercourse ^{**}			
Yes	84.0	88.1	81.1
No	16.0	11.9	18.9
Age at first sexual intercourse ^{a,**}			
14 or younger	12.8	16.8	9.8
15	16.3	17.4	15.4
16	20.5	23.1	18.4
17	21.4	19.5	22.8
18	18.5	15.0	21.2
19 or older	10.6	8.1	12.6
Lifetime number of sexual partners ^{a,***}			
1	29.2	15.6	39.8
2-3	33.4	29.1	36.7
4-5	19.8	25.2	15.6
6 or more	17.6	30.0	7.9
Used a condom/partner used a condom at last sexual intercourse ^{a,**}			
Yes	57.5	64.6	52.1
No	42.5	35.4	47.9
Drank alcohol or used drugs before last sexual intercourse ^{a,***}			
Yes	12.5	18.0	8.1
No	87.6	82.0	91.9
Reports having more than one current sexual partner ^{a,***}			
Yes	10.0	18.3	3.5
No	90.0	81.7	96.5

^{**}
p<.01;

^{***}
p<.001

^a Limited to sexually active respondents who answered all questions on sexual risk behaviors (n=763).

Table 3
Bivariate associations between cultural measures in 10th-grade and sexual risk behaviors in emerging adulthood

	Ever had sexual intercourse (n=995)	Earlier age at sexual debut (n=763) ^d	Self/partner did not use condom at last sex (n=763) ^d	Used alcohol or drugs before last sex (n=763) ^d	More than one current sexual partner (n=763) ^d	Higher number of sexual partners (n=763) ^d
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
<i>Cultural measures^b</i>						
Latino cultural practices	0.88 (0.73–1.06)	0.92 (0.80–1.06)	1.01 (0.86–1.18)	0.73 (0.57–0.92)	1.04 (0.80–1.35)	0.80 (0.69–0.92)
U.S. cultural practices	1.17 (0.98–1.39)	0.94 (0.82–1.07)	0.87 (0.75–1.02)	0.94 (0.75–1.17)	1.44 (1.08–1.93)	1.20 (1.04–1.37)
Traditional gender roles	1.34 (1.11–1.61)	1.19 (1.05–1.35)	0.96 (0.83–1.11)	1.23 (1.00–1.52)	1.58 (1.26–1.98)	1.36 (1.20–1.55)
Respect for parents	0.86 (0.70–1.06)	0.76 (0.67–0.87)	0.86 (0.74–1.00)	0.89 (0.72–1.11)	0.88 (0.70–1.10)	0.79 (0.69–0.91)
Familism	0.95 (0.79–1.15)	0.89 (0.78–1.02)	0.98 (0.85–1.14)	1.00 (0.80–1.25)	0.87 (0.69–1.09)	0.83 (0.73–0.95)
Fatalism	1.00 (0.85–1.18)	0.96 (0.85–1.09)	0.95 (0.82–1.09)	1.02 (0.83–1.26)	0.89 (0.70–1.12)	0.91 (0.80–1.03)
Immigrant generation						
First generation (ref)	1.00	1.00	1.00	1.00	1.00	1.00
Second generation	0.91 (0.53–1.56)	1.10 (0.74–1.63)	0.61 (0.39–0.94)	1.20 (0.58–2.51)	1.02 (0.49–2.14)	1.35 (0.90–2.01)
Third generation or higher	1.78 (0.82–3.88)	1.26 (0.76–2.08)	0.54 (0.31–0.96)	2.45 (1.06–5.67)	1.14 (0.45–2.89)	2.49 (1.49–4.14)
OR=Odds Ratio						

^a Limited to sexually active respondents who answered all questions on sexual risk behaviors.

^b All cultural scales were entered into the models as Z-scores.

Table 4

Multivariable associations between cultural factors and socio-demographics in 10th-grade and sexual risk behaviors in emerging adulthood

	Ever had sexual intercourse (n=995)	Earlier age at sexual debut (n=763) ^{a,b}	Self/partner did not use condom at last sex (n=763) ^a	Used alcohol or drugs before last sex (n=763) ^a	More than one current sexual partner (n=763) ^a
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
<i>Cultural measures^c</i>					
Latino cultural practices	0.98 (0.79–1.22)	0.99 (0.85–1.16)	0.97 (0.81–1.16)	0.84 (0.64–1.11)	1.26 (0.92–1.72)
U.S. cultural practices	1.21 (1.00–1.46)	0.95 (0.82–1.09)	0.89 (0.76–1.05)	0.88 (0.69–1.12)	1.51 (1.10–2.07)
Traditional gender roles	1.29 (1.05–1.59)	1.12 (0.96–1.29)	1.13 (0.95–1.34)	1.02 (0.80–1.30)	1.25 (0.96–1.64)
Respect for parents	0.86 (0.68–1.09)	0.78 (0.68–0.91)	0.82 (0.68–0.98)	0.93 (0.73–1.20)	0.98 (0.74–1.29)
Familism	1.00 (0.81–1.24)	1.01 (0.87–1.17)	1.08 (0.90–1.28)	1.07 (0.82–1.39)	0.87 (0.65–1.16)
Fatalism	1.03 (0.86–1.22)	0.98 (0.86–1.12)	0.92 (0.79–1.07)	1.08 (0.86–1.35)	0.96 (0.74–1.24)
<i>Immigrant generation</i>					
First generation (ref)	1.00	1.00	1.00	1.00	1.00
Second generation	0.94 (0.54–1.64)	1.11 (0.74–1.67)	0.59 (0.37–0.93)	1.21 (0.57–2.58)	0.91 (0.41–2.01)
Third generation or higher	1.71 (0.73–3.98)	1.25 (0.71–2.19)	0.48 (0.25–0.91)	2.09 (0.80–5.46)	1.06 (0.36–3.14)
<i>Socio-demographics</i>					
Age	1.47 (0.92–2.34)	0.70 (0.50–0.96)	1.14 (0.77–1.68)	1.10 (0.63–1.92)	0.98 (0.53–1.83)
<i>Sex</i>					
Female	0.71 (0.47–1.06)	0.67 (0.50–0.90)	2.02 (1.43–2.87)	0.42 (0.25–0.70)	0.19 (0.10–0.36)
Male (ref)	1.00	1.00	1.00	1.00	1.00
Household crowding index	1.03 (0.83–1.28)	1.17 (0.99–1.38)	1.02 (0.84–1.23)	0.96 (0.71–1.29)	1.00 (0.72–1.40)
<i>Parent's highest education</i>					
8th grade or less (ref)	1.00	1.00	1.00	1.00	1.00
Some high school	1.31 (0.74–2.33)	1.31 (0.86–2.01)	1.37 (0.84–2.24)	1.21 (0.56–2.65)	0.57 (0.20–1.61)
High school graduate	1.09 (0.60–1.97)	1.44 (0.92–2.24)	1.37 (0.82–2.30)	1.79 (0.83–3.82)	1.41 (0.57–3.46)
Some college or higher	1.01 (0.59–1.73)	1.54 (1.01–2.33)	1.52 (0.94–2.45)	0.87 (0.40–1.90)	1.76 (0.75–4.17)
Don't know/Missing	0.79 (0.43–1.44)	1.52 (0.93–2.49)	1.16 (0.65–2.06)	0.83 (0.32–2.10)	1.28 (0.47–3.49)

AOR=Adjusted Odds Ratio

^aLimited to sexually active respondents who answered all questions on sexual risk behaviors.

^bAge at sexual debut was modeled as an ordinal outcome from 14 or less to 19 or older. The model predicted a younger versus older age at sexual debut.

^c All cultural scales were entered into the models as Z-scores.

Table 5

Gender-stratified models showing factors associated with a higher number of lifetime sexual partners in emerging adulthood^{a,b}

	Females (n=430)	Males (n=333)
	AOR (95% CI)	AOR (95% CI)
<i>Cultural measures^c</i>		
Latino cultural practices	0.77 (0.62–0.96)	1.36 (1.04–1.79)
U.S. cultural practices	1.11 (0.92–1.35)	1.28 (1.01–1.63)
Traditional gender roles	1.02 (0.80–1.29)	1.16 (0.95–1.42)
Respect for parents	0.79 (0.63–1.01)	0.94 (0.76–1.16)
Familism	0.93 (0.76–1.14)	0.83 (0.66–1.06)
Fatalism	0.89 (0.74–1.06)	1.12 (0.92–1.36)
Immigrant generation		
First generation (ref)	1.00	1.00
Second generation	1.26 (0.70–2.26)	1.20 (0.64–2.25)
Third generation or higher	2.58 (1.17–5.69)	1.95 (0.80–4.72)
<i>Socio-demographics</i>		
Age	0.80 (0.49–1.32)	1.04 (0.63–1.72)
Household crowding index	1.19 (0.95–1.50)	0.88 (0.67–1.14)
Parent's highest education		
8th grade or less (ref)	1.00	1.00
Some high school	0.87 (0.49–1.55)	1.06 (0.52–2.14)
High school graduate	1.39 (0.75–2.57)	1.26 (0.64–2.50)
Some college or higher	1.42 (0.82–2.46)	1.26 (0.65–2.43)
Don't know/Missing	0.80 (0.39–1.65)	1.21 (0.58–2.51)

AOR=Adjusted Odds Ratio

^a Lifetime number of sexual partners was modeled as an ordinal outcome from 1 to 6 or more partners. The model predicted a higher

^b Limited to sexually active respondents who answered all questions on sexual risk behaviors.

^c All cultural scales were entered into the model as Z-scores.