

# Acculturation as a Predictor of the Onset of Sexual Intercourse Among Hispanic and White Teens

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**Objective:** To investigate ethnic differences in onset of sexual intercourse among Hispanic/Mexican-American and white adolescents based on acculturation.

**Design/Methods:** Preprogram survey data from 7270 Hispanic or white teens in 7th to 12th grade involved in the Arizona Abstinence-Only Education Program were used to predict the probability of onset of sexual intercourse based on age, sex, family structure, program location, religiosity, free school lunch, grades, rural residence, acculturation, and ethnicity. Specific attention was given to the influence of acculturation among Hispanic teens. The primary language spoken by the respondents (English, Spanish, or both) was used as a proxy measure for acculturation.

**Results:** Hispanic youth were at a greater risk for experiencing onset of intercourse than white youth, while controlling for all other predictors (odds ratio [OR], 1.40 [95%

confidence interval (CI), 1.21-1.63]). This risk was amplified for highly acculturated Hispanic teens (OR, 1.69 [95% CI, 1.43-1.99]). However, less acculturated Hispanic youth were actually less likely to have experienced first intercourse than white youth (OR, 0.59 [95% CI, 0.42-0.82]), English-speaking Hispanic youth (OR, 0.35 [95% CI, 0.25-0.49]); or bilingual Hispanic youth (OR, 0.45 [95% CI, 0.31-0.64]).

**Conclusions:** Low acculturation emerges as a significant protective factor while controlling for other social and cultural factors, in spite of the increased risk of initiating sexual intercourse for Hispanic teens overall. Hispanic Spanish speakers were least likely to have initiated intercourse, while Hispanic English speakers were the most likely.

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**D**IFFERENCES AMONG ETHNIC/RACIAL groups in sexual behavior, sexually transmitted diseases, and pregnancy have been documented in the literature.<sup>1-3</sup> Ethnicity and race interest researchers because they are believed to imply cultural distinctions that may affect behavioral decision making. Researchers have begun to simultaneously estimate the predictive contribution of other social factors such as income or family structure but

Hispanic ethnicity is complex and includes many cultures and characteristics. In the 2000 census, 12.5% of the US population were considered Hispanic but could identify as Mexican, Puerto Rican, Cuban, or other Spanish/Hispanic/Latino, such as Dominican or Salvadoran.<sup>6</sup> A designation of Hispanic ethnicity does not differentiate an individual based on country of origin, immigration status, level of acculturation, or language use. With increasing levels of Hispanic populations (57.9% increase since 1990) and documented health outcome disparities, understanding the variability within Hispanic ethnic groups is growing more important in the United States.<sup>7</sup>

The different Hispanic adolescent groups may vary markedly in risk for sexuality-related outcomes. For example, in 1999, among 15- to 19-year-old Latinas, Mexican Americans had the highest birth rates (001.5/1000), followed by Puerto Ricans (79.7/1000), and Cubans (29.9/1000).<sup>8</sup> Additionally, differences in sexuality outcomes within the Hispanic population have been found based on country

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continue to find that social factors do not fully account for the differences between racial or ethnic groups.<sup>4</sup> A focus on between-group differences among racial or ethnic groups has minimized the heterogeneity of outcomes within racial/ethnic groups. The current study provides a focus on the variability within Hispanic adolescents in the onset of sexual intercourse.

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of birth<sup>9,10</sup> and a multiple-item measure of acculturation.<sup>11</sup> In each study, less acculturated Hispanic teens reported later onset of intercourse.

English language acquisition alone has not been established in the literature as a proxy for acculturation in predicting sexual intercourse onset but functions well as a measure in acculturation studies among Hispanic individuals who have a Mexican American background.<sup>12-14</sup> A single item of general language use loads similarly to other measures of language use (eg, at home, at school) in factor loadings.<sup>15</sup> Studies of other health behaviors have often used single-item measures of acculturation including language of survey administration,<sup>16</sup> language used with parents,<sup>17</sup> and country of birth.<sup>9,10</sup>

Language use provides a more reasonable measure of acculturation for this study than country of birth because the within-group variability in language use based on country of birth may be more substantial than the variability between those groups. By the teenage years, foreignborn youth may be fluent English speakers and thus display a risk-behavior pattern more similar to persons born in the United States.

## METHODS

Arizona's Title V Abstinence-Only Education Program was a 5-year, \$3.5 million per year program that was delivered across the state with the goal of reducing adolescent pregnancy and sexually transmitted diseases. Arizona's program encompassed 17 different program administrators and was delivered to participants ranging in age from elementary school to adulthood in more than 650 different locations across the 5 years. Although the program was administered to preteens (grades 4-6) and to parents and other adults, the focus of this current study was on adolescents in grades 7 to 12.

Approval from the Arizona Department of Health Services Human Subjects Review Board stipulated active parental consent and subject assent prior to taking the program or the survey (7 schools of 123 were allowed to use passive parental consent with approval from the local school district). All agencies administering the program were required to administer the survey. Individuals could opt out of the survey. According to attendance records, 5.6% of students in the program did not participate in the study because of lack of parental consent or student refusal. Procedures were in place to maintain confidentiality. Program staff who were trained in survey administration and participant confidentiality procedures administered all surveys. Staff read a scripted paragraph aloud to students in the class that described the purpose of the survey and procedures used to protect the confidentiality of their responses.

The surveys were available in both English and Spanish, with Spanish surveys being offered to all students as part of the survey administration protocol and procedures. The survey was translated by a professional translator into Spanish, and back-translated by a separate professional translator for use with a Southwest population. Of those students who reported speaking both English and Spanish, 5% (n=45) took a Spanish survey; of those who reported speaking primarily Spanish, 31% (n=156) took a Spanish survey. No one reported speaking predominantly English and elected to take the survey in Spanish. Because most schools in Arizona offer education only or mostly in English, some people who reported speaking mostly Spanish may have chosen surveys in English because of a preference for reading and writing in English. Data from the third

program year (January-December 2000) were included in the current study.

The sample selected for these analyses included 7270 youth who took the Teen Survey pretest from the Arizona Abstinence-Only Evaluation; were in grades 7 to 12; were between the ages of 12 and 18 years; received the program through their school, in an after-school program, or in detention centers; were Hispanic or white; and were not married.

All measures were self-reported. Ethnicity was assessed from the question, "Select the one group that best describes you: Caucasian (white), Hispanic/Mexican American, mixed ethnicity." Participants who reported a mixed ethnic background were asked which groups they belonged to in an open-ended format. Those who indicated Hispanic or Mexican and white were coded into the "Hispanic" category for analyses.

We measured acculturation with primary language spoken using the question, "What language do you speak most often?" Answer options were English, Spanish, English and Spanish equally, and another language with a fill-in-the-blank option. To confirm the reliability of our measure, we cross-referenced 3 items: reported preferred language, language of survey, and self-reported ethnicity. All persons electing to take the survey in Spanish reported speaking Spanish at least sometimes and being of Hispanic ethnicity. No one reported speaking Spanish and being white.

Age (in days), sex, family structure (presence of 2 adults), program location (school, after school, detention), religiosity, rural residence, free school lunch, grades (A and B vs C and D), and acculturation were used as independent variables in the analysis. Religiosity was measured with a mean score of 3 standardized items assessing the importance of religion, frequency of church attendance, and endorsement of religion as a reason to be abstinent (t=72).

Self-reported experience of sexual intercourse was the dependent variable. Sex was measured with 1 item, "Have you ever had sex (sexual intercourse, made love)?" with response choices of yes or no. This question did not explicitly or implicitly include or exclude same sex, and participants might have interpreted it to include oral, vaginal, and anal sex. However, another item immediately before this item asked specifically about "fooling around"

below the waist, which could mean the item used for this study was more likely to be interpreted as vaginal or anal intercourse.

The analysis was conducted in 2 steps. Frequencies for all variables in the model were tabulated by self-reported ethnicity (**Table 1**). Multivariate logistic regressions were used to assess the relative predictive value of the independent variables on the probability of having had sex (**Table 2**). The multivariate analyses allowed us to examine the unique predictive contribution of ethnicity and language while controlling for other predictors that may be contributing to or masking the relationship between ethnicity, language, and onset of sexual intercourse.

The final analytic sample included 7270 adolescents; 43.8% were Hispanic, 54.6% were female, 51.8% had an urban residence, 56.8% regularly attended church, 84.6% were in school programs, and 9.9% had never had sexual intercourse. Seventy-nine percent were primarily English speakers, 13.8% spoke English and Spanish equally, and 7.2% spoke mostly Spanish.

### REPRESENTATIVENESS AND GENERALIZABILITY

The Arizona Abstinence-Only Education Program had the potential for selection bias on several levels, including

**Table 1. Characteristics for Whole Sample by Acculturation\***

	White (W)	Hispanic, English-Speaking (E)	Hispanic, Bilingual (B)	Hispanic, Spanish-Speaking (S)	Post Hoc Comparisons
Sample size (N=7270)	4083	1660	1004	523	
Mean age, y	15.01	14.82	14.63	14.59	W>E>B,S
Girls	54.4	53.1	59.5	52.0	B>W,E,S
Family structure, 2 or more adults	76.9	69.8	77.1	81.8	E<W,B,S
Location type					
School	85.3	81.3	83.3	92.5	S>W,E,B; W>E
After school	7.4	9.7	8.1	3.6	
Detention/residential	7.3	9.0	8.7	3.8	
Mean religiosity (standardized)	-0.04	0.06	0.12	0.14	W<E,B,S
Free school lunch	11.7	30.8	61.3	77.2	W<E<B<S
Grades in school >=B	72.6	59.6	59.2	54.7	W>E,B,S
Mostly As	33.2	21.5	20.5	11.5	
Mostly Bs	39.4	38.1	38.6	43.2	
Mostly Cs	21.2	28.3	28.9	31.7	
Mostly Ds	5.1	8.9	10.0	11.1	
Mostly Fs	1.2	3.2	2.0	2.5	
Rural residence	55	35	39	58	W,S>B,E
Had sex	24.4	30.7	24.4	13.6	E>B,W>S

\*Values are expressed as percentages unless otherwise indicated.

refusals from schools, classrooms, parents, and youth. To mitigate this potential effect, we compared databases available from the Arizona Department of Education for 80 matched schools in our sample on total enrollment, ethnicity, and sex for each grade sampled, and free school lunch. Our sample represents a 5% to 6% bias in overrepresentation of Hispanic youth, a 7% to 8% bias in overrepresentation of girls, and a 12% bias in underrepresentation of students receiving the free school lunch program.

To reduce bias, we conducted analyses to better examine variation within Hispanic youth and across sexes. Girls' relatively higher academic achievement was an important modifier of sex differences in onset of intercourse and thus was retained in the multivariate analyses to eliminate the potential bias of overrepresentation of girls in the sample. We also retained free school lunch status in our multivariate model, despite the fact that it was not a significant bivariate predictor, to be certain that any correlation it may have with other independent variables was controlled.

### ETHNICITY AND ACCULTURATION

Overall, Hispanic youth were at a greater risk for experiencing onset of intercourse than white youth, while controlling for all other predictors (odds ratio [OR], 1.40 [95% confidence interval (CI), 1.21-1.63]). However, when acculturation was considered, less acculturated Hispanic youth were 40% less likely to have experienced first intercourse than white youth (OR, 0.59 [95% CI, 0.42-0.82]), 65% less likely than English-speaking Hispanic youth (OR, 0.35 [95% CI, 0.25-0.49]), and 55% less likely than bilingual Hispanic youth (OR, 0.45 [95% CI, 0.31-0.64]). Hispanic English speakers were 70% more likely (OR, 1.69 [95% CI, 1.43-1.99]) to have had intercourse than white youth.

**Table 2. Results of Bivariate and Multivariate Logistic Regressions**

Dependent Variable:	Bivariate Odds Ratio	Multivariate Odds Ratio
Ever Had Sex		
Predictors*		
Age	2.17 (2.08-2.28)†	2.14 (2.03-2.25)†
Sex	1.24 (1.18-1.38)†	0.88 (0.77-1.01)
Family structure	0.35 (0.33-0.42)†	0.66 (0.56-0.76)†
Location type, school		
After school	1.10 (0.89-1.35)	1.22 (0.92-1.61)
Detention/probation	14.57 (11.77-18.03)†	9.24 (7.16-11.92)†
Religiosity	0.46 (0.43-0.50)†	0.47 (0.43-0.52)†
Free school lunch	0.75 (0.67-0.85)†	0.95 (0.80-1.14)
Rural residence	0.74 (0.67-0.82)†	1.11 (0.96-1.28)
Grades	0.35 (0.32-0.39)†	0.48 (0.42-0.55)†
Ethnicity/language		
Hispanic, English-speaking	1.37 (1.21-1.55)†	1.69 (1.43-1.99)†
Hispanic, bilingual	1.00 (0.85-1.17)	1.31 (1.05-1.64)
Hispanic, Spanish-speaking	0.49 (0.37-0.63)†	0.59 (0.42-0.82)†

\*Reference group for predictors: age (continuous) = younger; sex = female; family structure = single adult; location type = school; religiosity (continuous) = less religious; free school lunch = no free school lunch; rural residence = urban residence; grades = Cs and below; and ethnicity/language = white/English. †P<.001.

Although Spanish-speaking Hispanic youth differ from English-speaking Hispanic youth on most of the variables in our model (younger, fewer in detention, more religious, more receiving free school lunch, higher grades, more 2-parent homes, and more rural residences), the multivariate analysis allows us to consider the effect of ethnicity and language beyond the impact of those other predictors. We find that acculturation has a unique contribution to the onset of intercourse beyond those other factors.

## VARIATION WITHIN HISPANIC YOUTH

To better understand the complex relationships between ethnicity, language, and sexual behavior, additional analyses were run with only the Hispanic subgroup. Differences in acculturation retained their significance in predicting onset of intercourse even in this limited sample.

Hispanic English speakers (OR, 2.48 [95% CI, 1.743-5.3];  $P < .001$ ) and bilingual Hispanic youth (OR, 2.10 [95% CI, 1.45-3.04];  $P < .001$ ) were more likely to have had sex than Spanish-speaking Hispanic youth.

The pattern of other social and cultural factors predicting first intercourse remained similar within the Hispanic group with the following exceptions, where a non-significant factor in the larger group was significant for Hispanic youth. Hispanic boys were more likely to have initiated intercourse than girls, even while the other variables were controlled (OR, 1.27 [95% CI, 1.03-1.57];  $P < .05$ ). Hispanic students receiving free school lunch were less likely to have initiated intercourse, while all else was controlled (OR, 0.73 [95% CI, 0.57-0.92];  $P < .01$ ), and Hispanic students from after-school programs were more likely to initiate intercourse (OR, 1.51 [95% CI, 1.052-0.7];  $P < .05$ ).

## VARIANCE EXPLAINED

The combined model predicting onset of sexual intercourse using age, sex, family structure, program location, religiosity, free school lunch, grades, language, and ethnicity accounted for 44.9% of the variance in sexual behavior, with an estimated 0.9% attributable uniquely to acculturation. The variables accounting for the largest proportion of unique variance were age (15.3%), location type (5.1%), and religiosity (4.5%). Older youth were more likely to have had intercourse, youth in detention facilities were more likely to have had intercourse, and more religious youth were less likely to have had intercourse, while controlling for the other predictors.

## COMMENT

In this study, we found differential probability of onset of intercourse based on acculturation. In our sample, speaking mostly Spanish predicted substantially reduced likelihood of intercourse while controlling for other social-demographic characteristics, even though being Hispanic generally predicted increased likelihood (compared with white teens). Characteristics such as religiosity, age, and presence in a detention center carried a large proportion of the variance, with age surfacing as the single strongest predictor of onset of intercourse. However, the predictive role of those other variables did not mitigate the important finding of decreased probability of sex for less acculturated persons.

We used Youth Risk Behavior Survey measures, which are known to have good reliability and validity with this age group,<sup>18,19</sup> and a sample that was reasonably representative of 7th to 12th graders in Arizona. Based on these cross-sectional data, we can say that in this population

the probability of onset of intercourse most likely varies based on acculturation.

This study expands on the current literature in several important ways. First, because the sample is large and fairly representative, it is easier to extend these findings to the defined population, thus initiating a body of knowledge about acculturation that informs us beyond the constraints imposed by sampling error. Second, by using current language as a proxy for acculturation, rather than years in the United States or country of birth, we learn something about the variability among Hispanic adolescents at the time that sexual intercourse begins. This variability among individuals in the same group allows us to consider why 2 adolescents with otherwise similar backgrounds may vary in onset of intercourse. Finally, this study adds to the body of knowledge about other predictors of intercourse, such as age as the single strongest predictor of onset, and further evidence of a documented link between religion and onset of intercourse.<sup>20</sup>

## LIMITATIONS

Most of the individuals who spoke primarily Spanish (82%) took the survey in English rather than Spanish. Educational services in Arizona are provided primarily in English, thus creating a potential preference among Spanish speakers to read and write in English. To ensure that this pattern was not a source of survey bias, we compared missing responses across preferred language and survey language groupings. Among Spanish speakers, there were no differences in missing responses for age, sex, religiosity, usual grades, or ethnicity based on survey language and more missing responses for number of adults in the home and free school lunch. There was not a significant trend for Spanish speakers taking the English survey to skip more questions. Among bilingual Hispanic teens, there were no cases where participants taking the English version had more missing data, also indicating no trend toward bias related to the language of the survey.

We elected to use a single overall measure of language use as a proxy for acculturation. While this measure allows us to have 3 levels of variation within the Hispanic group and is supported in the literature,<sup>15,16</sup> a continuous measure of language might provide a better representation of the variability among Hispanic teens.

Finally, this survey did not distinguish Hispanic teens who might be of non-Mexican origin, creating the possibility that these findings may not hold for Puerto Rican or Cuban samples. Data from the 2000 census indicate that among those who identify as Hispanic in Arizona, 82% self-identify as being of Mexican descent, 1.6% identify as being of Puerto Rican or Cuban descent, and 15.8% identify as other Hispanic or Latino. Based on the Arizona census data, it is reasonable to presume that about 98% of the current sample are not of Cuban or Puerto Rican descent but are rather of Mexican or Central or South American descent. Rates of sexual activity in Mexican youth are comparable with those among Spanish speakers in our sample. Findings from this study should not be applied to Puerto Rican or Cuban samples without further research to support such a generalization.

## IMPLICATIONS

This study highlights an important reality for pediatricians and public health personnel. Although an individual or group may appear to be at increased risk based on ethnic group membership, level of acculturation may serve to mitigate those risk factors. Physicians should not presume that adolescents are sexually active simply because they belong to an ethnic group that has an earlier average age of onset.

In terms of program development and evaluation, public health professionals should understand that language differences might be indicative of broader cultural differences, even within an ethnic group. Simply translating sexuality education materials does not create culturally sensitive programs. Today, there is a lack of culturally sensitive sexuality education materials appropriate to the Spanish-speaking adolescents in the southwestern United States. Additional research on Hispanic Spanish speakers with the aim of program development is critical to promote healthy sexual development in this population.

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