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Differences in Contraceptive Use Across Generations of Migration Among Women of Mexican Origin

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Abstract *Objectives* To explore differences in contraceptive use among women of Mexican origin across generations of migration. *Methods* Logit models were used to assess contraceptive use among 1,830 women of Mexican origin in Cycles 5 (1995) and 6 (2002) of the National Survey of Family Growth (NSFG). Analyses were stratified by age. Initial models controlled for survey year and underlying differences across generations of migration in age and parity; subsequent models added a range of potential mediating variables. Models account for significant interactions between generation of migration and parity. *Results* Among women under age 30 who have not yet had any children, women in their twenties with parity 3 or more, and women 30 or older with parity 1 or 2, those born in the US are much more likely to use contraception than immigrant women. For other levels of parity, there are no significant differences in contraceptive use across generations of migration. Generational differences in marital status, socio-economic status, health insurance coverage, and catholic religiosity did little to mediate the association between generation of migration and contraceptive use. *Conclusions* Among women of Mexican origin, patterns of contraceptive use among first-generation immigrants and women of generation 1.5 are similar to those of women in Mexico, with very low rates of contraceptive use among young women who have not yet had a child. Further research is needed to investigate the extent to which this pattern is due to fertility preferences, contraceptive access, or concerns about side effects and infertility. Patterns of contraceptive use appear to change more slowly with acculturation than many other factors, such as education, income, and work force participation.

Keywords Contraception · Acculturation · Immigration · Mexican · Hispanic

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Introduction

In the United States, 28.3 million people, or 9% of the total population, are of Mexican origin; of these, 39% are immigrants [1]. Given the size of this population and the high levels of immigration, considerable research attention has focused on the process of acculturation among people of Mexican origin—that is, their adaptation to life in the US over time and across generations. Some studies have found that, despite their lower socioeconomic status, first-generation Mexican immigrants have better health outcomes in some areas (e.g., birth outcomes [2–4], nutrition [5], and breastfeeding [6]) than people of Mexican origin born in the US.

To date, little research has explored the relationship between acculturation and contraceptive use. Improving the effective use of contraception is a critical component of efforts to reduce the rate of unintended pregnancy in the United States. Although rates of unintended pregnancy in the US are slightly higher for Hispanic women (54%) than for women overall (49%) [7], one recent study found that rates of unintended pregnancy among Hispanic women are not homogeneous and vary significantly according to generation of migration. Specifically, among women of Mexican origin, the pregnancies of immigrants are much more likely to be intended than the pregnancies of women born in the US [8].

Little is known, however, about the association between acculturation and contraceptive use. Mexican immigrant women may have more difficulty accessing contraceptive services than Mexican-origin women born in the US, because they face higher barriers to health care in general, including lower rates of health insurance coverage, language barriers, and fear of deportation [9–12]. Immigrant women also have been found to confront barriers specific to contraception, including low levels of contraceptive knowledge and negative attitudes toward contraception—in particular, a fear of side effects [13–16].

The fact that women of later generations face fewer barriers to contraceptive use may or may not translate into increased contraceptive use, however. Two studies found that when other factors are controlled, English-speaking (primarily US-born) Hispanic women are actually less likely to use contraception than Spanish-speaking (primarily immigrant) Hispanic women [17, 18], and a third study found that many of the US-born women of Mexican origin in their sample experienced unplanned pregnancies despite knowledge of the availability of contraception [19]. Because these studies used small, localized samples, however, and only one [17] focused specifically on the relationship between acculturation and contraceptive use, it remains unclear how contraceptive use among women of Mexican origin may change with acculturation.

It is also unknown what factors might explain any differences in contraceptive use that occur with acculturation. Mexican-origin women born in the United States differ from Mexican immigrant women in many ways that may affect their contraceptive use. For example, they have higher levels of education, income, and health insurance coverage; they are more likely to participate in the labor force; they are less likely to be married; and they have lower levels of Catholic religiosity [2, 10, 20–22]. Any of these factors could act as mediating variables that would help to account for any differences in contraceptive use across generations of migration.

This study addressed two research questions: (1) What are the differences in contraceptive use across generations of migration among women of Mexican origin in the US?, and (2) To what extent do potential mediating variables help to explain any differences? Answering these questions can help to identify those segments of the population who may be least likely to use contraception, thus allowing for more effective targeting of family planning program efforts. In addition, an enhanced understanding of the ways in which Mexican immigrants' contraceptive practices change across generations may improve our conceptual understanding of the process of acculturation. Given the large numbers of Mexican immigrants to the United States, providing effective health services to them and their children will require an understanding of the process of cultural change, which aspects of culture are likely to change and which are resistant to change, and the factors that influence change.

Methods

Data

Data were from Cycles 5 (1995) and 6 (2002) of the National Survey of Family Growth (NSFG). Both cycles were used to achieve an adequate sample size to stratify all analyses by age. The purpose of the NSFG was to study family formation, including fertility and adoption, contraception, and infertility. Both cycles were based on national probability samples of civilian noninstitutionalized women aged 15–44, oversampling for Black and Hispanic women. The 2002 survey also included a sample of men, but men were not included in the present analyses. For both 1995 and 2002, female respondents were interviewed in person by trained female interviewers in either Spanish or English, according to the respondent's preference. The number of women interviewed was 10,847 in 1995 and 7,643 in 2002. Response rates in 2002 were 80% of women overall, and 83% of Hispanic women.

Analysis for this paper was limited to 1,830 women (924 from 1995 and 905 from 2002) who were either 1) born in Mexico or 2) born in the United States, but self-identified as being Hispanic of Mexican origin. More than half (55%) were born in the United States, and the remaining 45% were born in Mexico (10% of the total sample migrated to the United States as children, before the age of 13, and 35% migrated at age 13 or older). Analyses of contraceptive use were based on monthly calendar data for the 4 years preceding the interview, plus the month of the interview. Forty-nine observations were thus possible for each of the 1,830 women, for a total of 89,670 woman-months; 8,607 months in which the woman was already pregnant at the start of the month were excluded, so the final number of observations in these analyses was 82,063 woman-months.

Measures

Dependent Variable

The dependent variable was contraceptive use in each month during the 4 years previous to the interview. For each month, contraceptive use was coded 1 if a woman used any contraceptive method in the month and 0 if she did not. The variable was created based on women's reports of the start and end dates of periods of contraceptive use.

Independent Variables

The main independent variable of interest was generation of migration. Women who identified as Hispanic of Mexican origin, but were born in the United States, were classified as second or later generation (born in the US). Women who were born in Mexico were categorized as Generation 1.5 if they migrated as children (before age 13) and as first-generation immigrants if they migrated to the United States as adults (at age 13 or older). Age 13 was chosen as the cutoff between Generation 1.5 and first generation because 99% of the women were not yet sexually active before age 13; thus, those who migrated before age 13 began their reproductive lives in the US, whereas most of the women who migrated at age 13 or older began their reproductive lives in Mexico.

Control and mediating variables are presented in Table 1. Health insurance coverage was included as a measure of access to health care. Whether or not respondents were both Catholic and considered religion to be very important in their daily life was included as a measure of religious orientation. Previous analyses have shown that although Catholic affiliation alone may not affect fertility and fertility preferences, a strong degree of Catholic religiosity does [24, 25]. Fundamentalist protestants may also be less likely to use contraception [26], but because the 1995 NSFG did not distinguish between fundamentalist protestants and other protestants, it was not possible to assess this effect.

Analysis

Because the age distribution varies substantially across generations of migration, all analyses were performed separately by age [11–19, 20–29, and 30–44]. Descriptive bivariate analyses were performed to show the unadjusted relationships between all variables and generation of migration for each age group. T-tests and chi-square tests were used to assess the statistical significance of associations for continuous and categorical data respectively.

Multivariate models used logit techniques analogous to discrete-time hazard models as described by Allison [27]. For each month that a woman was known to be "at risk" of contraceptive use (i.e., she was not already pregnant at the start of the month), a separate observational record was created. All woman-months were then pooled into a single sample and the probability of contraceptive use was estimated using logistic regression.

For each age group, two models were estimated. The first model controlled for survey year, age, and parity to assess the differences in contraceptive use while controlling for the underlying differences in age and parity across the generations. The second model added the mediating variables to assess the extent to which they explained any differences in contraceptive use.

In both sets of models, tests for interaction effects indicated that the effect of generation of migration on contraceptive use varied by parity. To simplify the interpretation of the interaction effect, the average predicted

Table 1 Description of control and mediating variables used in the analysis

Variables	Description	Timeframe
Survey year 1995	Dummy variable coded 1 if the survey year is 1995 and 0 if it is 2002	Fixed
Age	Continuous variable reflecting age in years and months	Time-varying
Parity	Categorical variable with 4 categories: 0 (reference), 1, 2, and 3 or more. Among teens, because only a small proportion had parity 2 or more, the categories of 1, 2, and 3 or more were collapsed into a single category, 1 or more	Time-varying
Sexually active	Dummy variable coded 1 if the respondent was sexually active in a given month and 0 otherwise. Based on reported start and end dates of periods of sexual activity	Time-varying
Any health insurance	Dummy variable coded 1 if respondent had any health insurance during the 12 months preceding the interview and 0 otherwise	Fixed at time of interview
Married	Dummy variable coded 1 if married in a given month and 0 otherwise. Based on reported start and end dates of marriages	Time-varying
Education	Categorical variable with 3 categories: less than high school, high school, and more than high school (reference)	Fixed at time of interview
Level of poverty	Categorical variable with 3 categories: below 100% of the federal poverty level, between 100% and 200%, and above 200% (reference)	Fixed at time of interview
Catholic and very religious	Dummy variable coded 1 if the respondent identified as Catholic and said that religion was very important in her daily life and 0 otherwise	Fixed at time of interview
Ever worked	Dummy variable coded 1 if the respondent had ever worked full time for 6 months or more and 0 otherwise	Fixed at time of interview

probabilities of contraceptive use were calculated for each generation of migration and each level of parity. Because predicted probabilities and their significance vary across observations [28, 29], the differences in the predicted probabilities across generations of migration were reported as being statistically significant if they were significant for more than 50% of the observations.

Stata 8.2 was used for all analyses, adjusting for population weights and clustering. Huber clustered standard errors were used to correct for non-independence within primary sampling units, which also correct for repeated observations on the same women over time.

Results

Descriptive Analysis

Considering all woman-months in which women were not already pregnant at the start of the month, the proportion of woman-months in which women were using a contraceptive method was 21% among teens, 61% among women in their twenties, and 70% among women 30 or older (Table 2). Among women who were sexually active, the proportion using a contraceptive method was 50% among teens, 72% among women in their twenties, and 77% among women 30 or older. There was no significant difference in contraceptive use across generations of migration for any age group.

Sexual activity did not significantly differ across generations of migration, but first generation immigrants differed from women of later generations on all other characteristics. They had higher parity than women of later generations, were more likely to be married, had lower levels of health insurance coverage, lower levels of income and education, and were more likely to be Catholic and very religious. Among women 20 and older, they were also less likely to have ever worked full time for 6 months or more.

Women of generation 1.5 were generally similar to those born in the US. The only significant differences were that, among women in their twenties, women of generation 1.5 had lower levels of education, and among women between 30 or older, women of generation 1.5 had higher parity.

Multivariate Analysis

Coefficients for multivariate models including control variables are presented in Table 3. Because significant interactions were found between parity and generation of migration, differences in contraceptive use across generations of migration are easier to interpret when predicted probabilities are calculated for each level of parity and each generation of migration. These predicted probabilities are presented graphically in Fig. 1.

Controlling for survey year and underlying differences in age and parity, among women in their teens and twenties with parity 0, both first generation immigrant women and women of Generation 1.5 were significantly less likely to use a contraceptive method than comparable women born in the US. As shown in Fig. 1, among teens with 0 parity, the predicted probability of contraceptive use was 16 percentage points higher among women born in the US compared to first generation women (21% vs. 5%), and 9 percentage points higher compared to women of Generation 1.5 (21% vs. 12%). Among women in their twenties, the difference was even greater: 39 percentage points between first generation women and women born in the US (58% vs. 19%), and 30 percentage points between women of Generation 1.5 and women born in the US (58% vs. 28%). Immigrant women in their twenties with parity 3 or more were also significantly more likely to use a contraceptive method than women born in the US: in this group, the predicted probability of contraceptive use was 20 percentage points higher among women born in the US compared to first generation women (95% vs. 75%), and 26 percentage points higher compared to women of Generation 1.5 (95% vs. 69%). At other levels of parity among women under 30, there were no significant differences in contraceptive use across generations of migration.

Among women age 30 or older, in contrast, significant differences in contraceptive use across generations of migration were seen not among women with parity 0 or parity 3 or more, but among those with parity 1 and parity 2. Among those with parity 1, the predicted probability of contraceptive use was 28 percentage points higher among women born in the US than it was among first-generation immigrants (65% vs. 36%). Among those with parity 2, the predicted probability of contraceptive use was higher among women born in the US than it was among either first-generation immigrants or women of Generation 1.5: 14 percentage points higher than among first-generation immigrants (81% vs. 67%) and 13 percentage points higher than among women of Generation 1.5 (81% vs. 68%).

When mediating variables were added to the models (Table 4), sexual activity had a strong positive association with contraceptive use for all three age groups. Among women in their twenties and those 30 or older, the only other mediating variable significantly (and negatively) associated with contraceptive use was poverty, and among teens, the only other mediating variables significantly (and negatively) associated with contraceptive use were Catholic religiosity and ever having worked full time. Health insurance coverage, marital status and education had no significant effect for any of the age groups.

Despite the significance of some of the mediating variables, most of the generational differences in the predicted probabilities of contraceptive use changed little

Table 2 Sample characteristics, women of Mexican origin, by age and generation of migration

Variables	Age 11–19				Age 20–29				Age 30–44			
	First Generation (n = 1,941 woman-months)	Generation 1.5 (n = 2,709 woman-months)	Born in US (n = 14,344 woman-months)	Total (n = 18,994 woman-months)	First Generation (n = 10,748 woman-months)	Generation 1.5 (n = 3,468 woman-months)	Born in US (n = 17,136 woman-months)	Total (n = 31,352 woman-months)	First Generation (n = 13,765 woman-months)	Generation 1.5 (n = 2,135 woman-months)	Born in US (n = 15,817 woman-months)	Total (n = 31,717 woman-months)
Dependent variable												
Contraceptive use (%)	19.5	16.3	21.9	**20.9**	59.6	55.6	63.5	**60.8**	67.5	71.0	72.3	**69.9**
Contraceptive use among those sexually active (%)	40.4	44.5	52.4	**49.8**	69.7	67.8	74.7[b]	**72.0**	79.1	83.9	79.1	**76.7**
Control variables												
Mean age (years)	17.7	16.3[a]	16.2[b]	**16.4**	25.7	24.7[a]	24.9[b]	**25.2**	36.4	36.1	36.0	**36.2**
Parity (%)												
0	74.6	87.2[a]	88.6[b]	**86.8**	21.6	38.0[a]	37.4[b]	**31.4**	6.2	15.6	14.3[b]	**10.5**
1	20.7	9.6[a]	9.0[b]	**10.4**	25.4	21.4	22.5	**23.5**	10.6	4.3[a]	16.4[b,c]	**12.9**
2	1.7	2.8	2.2	**2.2**	28.4	24.6	21.7	**24.6**	28.7	28.1	30.7	**29.6**
3 or more	2.9	0.4	0.3	**0.6**	24.5	16.0	18.4	**20.5**	54.5	52.1	38.7[b]	**47.0**
Mediating variables												
Sexually active (%)	42.4	36.0	36.3	**36.9**	79.8	79.1	79.8	**79.3**	83.9	83.0	80.6	**82.3**
Any health insurance (%)	49.3	73.6[a]	70.4[b]	**68.5**	59.4	65.3	71.0[b]	**65.9**	62.9	75.3[a]	69.1	**66.6**
Married (%)	20.4	10.1	4.1[b]	**6.8**	55.6	52.0	42.7[b]	**48.7**	69.0	69.5	59.3	**64.5**
Education (%)												
<HS	74.1	62.1	57.7	**60.1**	63.6	39.3[a]	23.4[b,c]	**40.7**	60.0	35.5[a]	19.5[b]	**39.7**
HS	9.8	25.7[a]	26.3[b]	**24.3**	24.3	30.3	35.3[b]	**30.5**	23.6	31.9	38.2[b]	**30.9**
>HS	16.1	12.1	16.1	**15.5**	12.0	30.3[a]	41.3[b]	**28.8**	16.4	32.6[a]	42.3[b]	**29.5**
Level of poverty (%)												
<100%	54.7	38.4	32.8[b]	**36.1**	57.9	30.2[a]	30.7[b]	**41.2**	43.9	27.9[a]	21.7[b]	**32.6**
100–200%	38.8	34.8	24.7	**27.7**	28.9	28.4	29.0	**28.9**	35.3	26.4	20.3[b]	**27.7**
>200%	6.5	26.8[a]	42.5[b]	**36.2**	13.2	41.4[a]	40.3[b]	**30.0**	20.8	45.8[a]	58.0[b]	**22.1**
Catholic and very religious (%)	57.0	34.1[a]	29.7[b]	**33.4**	52.8	38.2[a]	30.4[b]	**39.9**	50.3	47.1	40.6[b]	**45.6**
Ever worked full time (%)	39.2	22.9	25.7	**26.8**	56.0	78.3[a]	78.2[b]	**69.7**	73.0	89.8[a]	87.3[b]	**80.7**

Source: 1995 and 2002 National Survey of Family Growth

Notes: Means and percentages are weighted, n's are unweighted. First Generation = women born in Mexico who migrated to the US at age 13 or older; Generation 1.5 = women born in Mexico who migrated to the US before age 13 years; Born in the US = women who identify as Hispanic of Mexican origin who were born in the US

[a] Generation 1.5 is significantly different from first generation ($P < .05$)

[b] Born in US is significantly different from first generation ($P < .05$)

[c] Born in US is significantly different from Generation 1.5 ($P < .05$)

Table 3 Coefficients from logistic regression analyses assessing the associations between selected characteristics and the likelihood that women of Mexican origin used contraception, model with controls only (robust standard errors)

	Ages 11–19 (n = 18,994 woman-months)	Ages 20–29 (n = 31,352 woman-months)	Ages 30–44 (n = 31,717 woman-months)
Generation of migration			
First generation (reference)	–	–	–
Generation 1.5	0.946* (0.441)	0.503 (0.465)	0.377 (1.040)
Born in US	1.697** (0.338)	1.799** (0.362)	0.022 (0.666)
Study year 1995	0.108 (0.217)	0.443** (0.136)	−0.181 (0.167)
Age	0.459** (0.041)	0.034 (0.028)	−0.017 (0.024)
Parity			
0 (reference)	–	–	–
1[a]	2.505** (0.436)	2.101** (0.444)	−0.227 (0.697)
2	–	2.502** (0.369)	1.030* (0.507)
3 or higher	–	2.601** (0.367)	1.505** (0.556)
Parity interactions			
Generation 1.5 × Parity 1[a]	−0.416 (0.722)	−0.577 (0.660)	0.628 (1.355)
Generation 1.5 × Parity 2	–	0.129 (0.727)	−0.300 (1.201)
Generation 1.5 × Parity 3 or higher	–	−0.668 (0.512)	−0.244 (1.113)
Born in US × Parity 1[a]	−1.427** (0.496)	−1.746** (0.569)	1.158 (0.795)
Born in US × Parity 2	–	−2.041** (0.473)	0.744 (0.609)
Born in US × Parity 3 or higher	–	−2.099** (0.439)	0.158 (0.673)

Source: 1995 and 2002 National Survey of Family Growth

Notes: Estimates account for complex survey design. First Generation = women born in Mexico who migrated to the US at age 13 or older; Generation 1.5 = women born in Mexico who migrated to the US before age 13 years; Born in the US = women who identify as Hispanic of Mexican origin who were born in the US

[a] "1 or higher" for women ages 11–19

* $p < .05$; ** $P < .01$

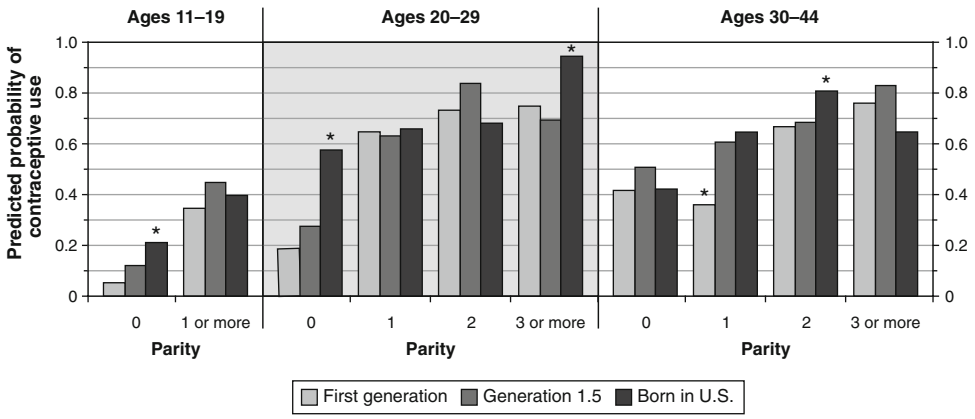

Fig. 1 Predicted probability of contraceptive use among women of Mexican origin, by parity and generation of migration, models with controls. *Source*: 1995 and 2002 National Survey of Family Growth. *Note*: Models control for survey year, age and parity

or not at all when the mediating variables were added to the models (not shown). For example, the generational differences among women in their twenties with parity 0 were reduced only slightly: the difference between first generation immigrants and women born in the US was reduced by about 25%, and the difference between women of generation 1.5 and women born in the US was reduced by about 17%. To determine which of the mediating variables affected the generational differences in contraceptive use, each mediator that had a statistically significant association with contraceptive use in the models was individually stepped in and out of the models, and any changes in the association between generation of migration and contraceptive use were observed. The only variable found to account for nearly all the mediating effects was poverty.

Table 4 Coefficients from logistic regression analyses assessing the associations between selected characteristics and the likelihood that women of Mexican origin used contraception, model with controls and mediators (robust standard errors)

	Ages 11–19 (n = 18,994 woman-months)	Ages 20–29 (n = 31,352 woman-months)	Ages 30–44 (n = 31,717 woman-months)
Generation of migration			
First generation (reference)	–	–	–
Generation 1.5	0.696 (0.486)	0.230 (0.488)	0.281 (0.876)
Born in US	1.533** (0.340)	1.508** (0.387)	−0.051 (0.596)
Study year 1995	−0.693** (0.220)	0.288 (0.145)	−0.212 (0.178)
Age	0.358** (0.053)	0.001 (0.028)	−0.012 (0.026)
Parity			
0 (reference)	–	–	–
1[a]	2.023** (0.434)	1.870** (0.445)	−0.363 (0.631)
2	–	2.167** (0.438)	0.933 (0.567)
3 or higher	–	2.435** (0.400)	1.467** (0.535)
Parity interactions			
Generation 1.5 × Parity 1[a]	−0.300 (0.813)	−0.948 (0.627)	0.079 (1.257)
Generation 1.5 × Parity 2	–	0.356 (0.686)	−0.462 (1.028)
Generation 1.5 × Parity 3 or higher	–	−0.378 (0.652)	−0.260 (0.940)
Born in US × Parity 1[a]	−1.433** (0.487)	−1.739** (0.590)	0.955 (0.727)
Born in US × Parity 2	–	−1.764** (0.542)	0.599 (0.594)
Born in US × Parity 3 or higher	–	−2.000** (0.511)	0.180 (0.599)
Sexually active	3.002** (0.212)	2.198** (0.190)	1.343** (0.230)
Any health insurance	−0.097 (0.182)	0.177 (0.141)	−0.137 (0.173)
Married	−0.167 (0.346)	0.061 (0.168)	0.227 (0.182)
Education			
<High school	−0.565 (0.285)	−0.314 (0.197)	−0.291 (0.212)
High school	−0.218 (0.264)	−0.005 (0.215)	−0.225 (0.194)
>High school (reference)	–	–	–
Level of poverty			
<100%	−0.307 (0.247)	−0.463* (0.187)	−0.556* (0.239)
100–200%	−0.471 (0.247)	−0.281 (0.186)	−0.236 (0.240)
>200% (reference)	–	–	–
Catholic and very religious	−0.598* (0.250)	−0.005 (0.154)	0.113 (0.205)
Ever worked full time	−0.606* (0.234)	0.155 (0.144)	0.257 (0.252)

Source: 1995 and 2002 National Survey of Family Growth

Notes: Estimates account for complex survey design. First Generation = women born in Mexico who migrated to the US at age 13 or older; Generation 1.5 = women born in Mexico who migrated to the US before age 13 years; Born in the US = women who identify as Hispanic of Mexican origin who were born in the US

[a] "1 or higher" for women ages 11–19

* $P < .05$; ** $P < .01$

Discussion

The objective of this study was to explore the ways in which contraceptive use among women of Mexican origin in the US changes with acculturation. The results show that the association between acculturation and contraceptive use varies by age and parity.

The finding that immigrant women under age 30 with no children are less likely to use contraception reflects the pronounced differences in patterns of contraceptive use between Mexico and the US. Among sexually active women overall, the proportion of women using a contraceptive method in Mexico (69%) [30] is only slightly lower than the proportion in the US (76%) [31]; among sexually

active women who were childless, however, contraceptive prevalence is much lower in Mexico (24%) than in the US (87%). Thus, the patterns of contraceptive use among immigrant women in this study are similar to that of women in Mexico, whereas the pattern of contraceptive use among women of Mexican origin born in the US is more similar to that of the US population overall.

There are several possible explanations why Mexican immigrant women may be less likely to use contraception before they have had any children. One is that they may not be connected to the healthcare system until they have a child, which would limit their access to contraception. Other potential explanations are that they simply want to start having children as soon as possible, or that they are afraid that they may end up being infertile if they use contraception prior to having a child. A recent ethnographic study of the fertility and contraceptive practices of women born in Mexico supports both of the latter two explanations [15]. Older women in that study reported that it had never even occurred to them to delay childbearing after marriage, but some of the younger women were more ambivalent. They reported that they wanted to wait a few years before having children so that they would first have some time to focus on their relationships with their husbands; at the same time, however, fears of contraceptive side effects and the possibility of infertility made them reluctant to use contraception before having at least one child. Unfortunately, the data in the NSFG do not allow for a more detailed exploration of these alternative explanations.

In addition to childless women under age 30, the present study found that contraceptive use was also significantly higher among women born in the US than among first-generation immigrants for two additional groups: women in their twenties who have had 3 or more children, and women age 30 or older who have had one or (to a lesser extent) two children. These patterns may reflect the strong preference among many immigrant women to have several children. In 1995, the average ideal family size among Mexican immigrant women in the US was 3.3 children—half a child higher than the 2.8 children desired by Mexican-origin women born in the US (according to the author's analysis of the 1995 NSFG data; ideal family size is not available in the 2002 NSFG). Qualitative research related to Mexican immigrant women's childbearing preferences has shown that they generally have a strong desire to have several children—both so that the children can enjoy the companionship of siblings and so that they learn to share and not to be selfish [15, 32].

The reason for the differences in the patterns of contraceptive use between women in their twenties and those 30 or older is not entirely clear. At parity 1 and 2, it may be that women in their twenties are likely to use contraception to space births, regardless of generation of migration; in contrast, because women age 30 or older are nearing the end of their reproductive years, immigrant women in this age group with just one or two children may be less likely to use contraception if they want to have at least two or three children. At parity 3 or more, immigrant women in their twenties may be less likely to use contraception than women born in the US because they are more likely to want more than 3 children. The fact that there is no significant difference in contraceptive use among women with parity 3 or more among women 30 or older may be attributable to the fact that the immigrant women in this group on average already had more children than those born in the US: among first-generation immigrants, the proportion of those 30 or older with parity 3 or more who had 5 or more children was 22%, compared to just 13% among those born in the US.

In order to better understand the process of acculturation, this study explored the extent to which any changes in contraceptive use were mediated by changes in sexual activity, health insurance coverage, education, marital status, income, work, and Catholic religiosity. There were no differences in sexual activity across generations of migration, but all of the other mediating variables differed significantly across generations. First-generation women had much lower socioeconomic status, were less likely to have health insurance or to have worked full time outside the home (except for teens), and were more likely to be married and to have high levels of Catholic religiosity than women of later generations. Women of Generation 1.5 were similar to women born in the US on nearly all counts, except for somewhat lower levels of education.

Surprisingly, however, few of the mediating variables had any significant association with contraceptive use. Sexual activity was strongly associated with contraceptive use for all age groups, but because there were no significant differences in sexual activity across generations of migration, it did not explain any of the differences in contraceptive use. Among women in their twenties and those 30 or older, the only other mediating variable that had a statistically significant association with contraceptive use was poverty, and at some levels of parity, poverty was found to mediate in part the association between generation of migration and contraceptive use—that is, the increased use of contraception among later generations was partially explained by their reduced levels of poverty. Poverty may have been negatively associated with contraceptive use for any of a variety of reasons. For example, women who were poor may have had more limited access to family planning services, they may have had less motivation to plan their pregnancies, or they may have had lower levels of contraceptive self-efficacy [33–35].

Among women in their teens, Catholic religiosity and having ever worked full time for 6 months or more were

the only mediating variables significantly associated with contraceptive use. However, neither variable appeared to mediate the effect of generation of migration on contraceptive use. The official opposition of the Catholic Church to the use of contraceptive methods could explain the negative association between Catholic religiosity and contraceptive use, but it is interesting to note that the effect of Catholic religiosity was significant only among teens. A previous study of Hispanic women found no association between religiosity and contraceptive use [17], but that study did not focus on teens. It is possible that teens are more strongly influenced by the Church's prohibition of contraception than older women. Alternatively, it may be that the Church's dictate that women remain virgins until they are married [36–38] makes sexually active teens with a high level of Catholic religiosity feel more conflicted about their sexual activity than teens who are less religious, and therefore less able to prepare themselves by using a contraceptive method.

The finding that teens who have ever worked full time for 6 months or more were less likely to use contraception was somewhat surprising, because working has been found to increase Hispanic immigrant women's autonomy [37, 39], and increased autonomy tends in turn to increase contraceptive use. For teens, however, it may be that having worked full time is simply a marker for a stage of life—compared to those who have not worked full time, those who have worked full time are more likely to have finished their education and to be ready to start a family. Despite the finding that teens born in the US were both less likely to be Catholic and very religious and less likely to have worked than first-generation immigrants, these variables did not appear to mediate the association between generation of migration and contraceptive use.

Interestingly, although women of Generation 1.5 were more similar to women born in the US than they were to first-generation immigrants in nearly all of their characteristics, their patterns of contraceptive use more closely resembled those of first-generation immigrants. This finding reinforces the point that changes in contraceptive use across generations of migration have little to do with changes in the mediating variables. Thus, the underlying, unmeasured factors that lead women who immigrated as adults to not use contraception until after they have had a first child appear to be a cultural trait retained by women of generation 1.5, despite the dramatic changes they experience in other respects.

This study is subject to several limitations. First, because women are being asked to recall periods of sexual activity and contraceptive use for the past 4 years, these measures are subject to recall bias. Second, the sample of Mexican immigrant women may not be representative of the entire population of Mexican immigrant women: Because recent and undocumented immigrants are more difficult to locate, these segments of the population are likely to be underrepresented in the sample. As a result, the differences in contraceptive use across generations of migration may be underestimated. Third, in order to obtain an adequate sample size to conduct the analyses for this study, it was necessary to pool data from two different cycles of the NSFG (1995 and 2002). Because sample design and measures across the two cycles are comparable, there are no statistical concerns related to the pooling of the two cycles. The primary limitation associated with the pooling of the data is that, because seven years elapsed between the two cycles, there may have been changes in the composition of the population or in patterns of contraceptive use during that period. Analyses in the present study represent an average across the two cycles, and may fail to detect changes occurring after 1995.

A final limitation of this study was that the relatively small sample size for women of generation 1.5 limited the power of the analysis and means that some important differences between generation 1.5 and other generations may not have been detected. An important strength of the study, however, was that women who migrated as adults (first-generation immigrants) were considered separately from those who migrated as children (Generation 1.5). Women of Generation 1.5 were more similar to women born in the US on nearly all characteristics than they were to first-generation immigrants, so combining Generation 1.5 with first-generation immigrants in a general "foreign-born" category would tend to obscure any differences between first-generation immigrants and those born in the US. An additional strength of this study is that it was the first to examine differences in contraceptive use across generations of migration using a nationally representative sample.

In conclusion, patterns of contraceptive use appear to change very little between first-generation Mexican immigrants and women of Generation 1.5, but to change markedly between generation 1.5 and women of Mexican-origin women born in the US. In particular, immigrant women under the age of 30 are less likely to use contraception before they have had any children, those in their twenties are less likely to use contraception if they have 3 or more children, and those over 30 are less likely to use contraception if they have only one or two children. Although further research would be needed to investigate in-depth the ways in which fertility preferences, contraceptive access, and attitudes toward contraception shift with acculturation, these patterns suggest that immigrant women are on average less likely to want to delay a first birth, and less likely to want to limit their childbearing to three children or fewer. The low rates of contraceptive use among nulliparous immigrant women may also point to a risk for pregnancies that are unintended, or at least sub-

intended, if their contraceptive non-use is due at least in part to concerns about the side effects of contraception and possible infertility. Health care providers should be aware of this concern among nulliparous immigrant women and seek to address it.

In terms of our understanding of the process of acculturation, this study suggests that contraceptive use is a behavior that changes dramatically across generations of migration, although it is slower to change than many other characteristics and behaviors (e.g., income, education, marriage, labor force participation). Decreasing levels of poverty among later generations explain only a small portion of that change, and changes in the other factors investigated did not explain the differences at all. Further research is needed to investigate the underlying factors that contribute to the differences in contraceptive use.

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