Pap Smear and Mammogram Screening in Mexican-American Women: The Effects of Acculturation

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Pap Smear and Mammogram Screening in Mexican-American Women: The Effects of Acculturation

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ABSTRACT

Objectives. For Mexican Americans, acculturation is a multidimensional process of adopting attitudes, values, and behavior from the non-Hispanic White culture. This study examines the effects of different dimensions of acculturation on the cancer screening behavior of Mexican-American women.

Methods. Subjects were 450 randomly selected Mexican-American women age 40 years and older living in El Paso, Texas. Personal interviews solicited information on age, income, education, health insurance, Pap smear and mammogram use, and acculturation. Acculturation was measured with five scales that assessed English proficiency, English use, value placed on culture, traditional family attitudes, and social interaction.

Results. The 2-year prevalence of Pap smear and mammogram screening increased with each gain in acculturation on English proficiency and use. These associations disappeared when adjusted for age, income, insurance, and education. After adjusting for sociodemographic factors and other acculturation dimensions, a strong traditional Mexican attitude toward family was positively related to mammography use.

Conclusions. Taking advantage of the positive influence of Hispanic familism on cancer screening behavior may increase the effectiveness of cancer control interventions in Mexican Americans. (*Am J Public Health.* 1994;84:742–746)

Introduction

Participation in breast and cervical cancer screening programs among Hispanic women must be improved. Of the three major ethnic and race groups in the United States (Non-Hispanic Whites, Blacks, and Hispanics), Hispanic women are the least likely to utilize Pap smears and mammograms.[1–3] The 1987 National Health Survey showed that Hispanic women age 18 years and older were twice as likely as Black women and three times as likely as White women to have never had a Pap smear.[1] Among women age 40 years and older, fewer Hispanic women (16%) than Black women (18%) or non-Hispanic White women (24%) have had a mammogram in the prior 3 years. Of the three major US Hispanic subgroups (Cuban, Puerto Rican, Mexican American), Mexican Americans are the least likely to use preventive health services in general.[4] Most studies among the Mexican-American population show that the lower rates of cancer screening are primarily associated with lower education levels, lack of health insurance coverage, and lower income levels.[2–5] Apart from these socioeconomic factors, others suggest that acculturation and assimilation levels of Mexican-American women are barriers to more frequent use of cancer screening tests (e.g., Pap smears and mammograms).[2,4]

Published studies examining factors other than socioeconomic factors have shown that high acculturation on English language use is associated with greater recency of Pap smear screening or mammography.[2,4,6] Only two of these studies have examined acculturation dimensions other than language: In a study of 603 Hispanic women age 55 years or older living in public housing projects in Los Angeles, in which four dimensions of acculturation (language preference, country of birth, contact with homeland, and attitude about children's friends) were examined, only language was associated with Pap smear and mammogram screening.[6] In a large-scale study based on the 1982–1984 Hispanic Health and Nutrition Examination Survey, acculturation measures were limited to language use (the only predictor of screening), ethnic identification, and generation status.[4] These studies confirm the importance of language but provide little information on the effect of cultural attitudes and values on the cancer screening behavior of Mexican-American women.

Acculturation—a process in which individuals whose primary learning has been in one culture (Mexican American) adopt attitudes, values, and behaviors from another culture (non-Hispanic White)—has many more dimensions than language use. English language use measures in some way functional integration into the non-Hispanic White society (i.e., assimilation), but it does not necessarily measure new attitudes or values. Country of origin or generational status of an individual by its unchanging nature fails to fully measure the continuous process of acculturation and assimilation. Depending on region of the country, neighborhood, and immigrant experience, a first-generation Hispanic American may be more acculturated and assimilated than a second- or third-generation Hispanic American.[7]

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The development of effective interventions for Mexican-American women requires understanding the effect of different dimensions of assimilation and acculturation on cancer screening behavior. The present study examines the influence of acculturation and assimilation on the cancer screening behavior of Mexican-American women living in a large Southwestern border community. In addition to structural assimilation, which includes both language use and social interaction with members of mainstream society, the effect on screening behavior of the two separate acculturation dimensions of cultural values and family attitudes was examined in light of other socioeconomic barriers.

Methods

The sample included 450 Mexican-American women age 40 years and older living in 16 census tracts along the United States-Mexico border in El Paso County. In 1990 the population within these 16 census tracts was at least 90% Hispanic and had a median income at or below the federal poverty threshold. All households in the study census tracts were identified by using the Polk city directory and the *1990 Census Tract City of El Paso Street Code Reference Manual.* A listing of street addresses by tract was used to randomly select 1300 households as a sampling frame to screen for Mexican-American women age 40 years and older. From this sampling frame with household enumeration, 549 households were identified as having at least one eligible woman for inclusion in the survey. Only one eligible woman from each household was interviewed. The decision rule for selecting from two or more eligible women was to interview the woman who had the most recent birthday because this information was on the enumeration form and was easy to determine. Of these households, 20 women were not available for an interview, 76 refused to give an interview, and 3 women gave incomplete interviews. Four hundred fifty women completed personal interviews for a response rate of 82.0%.

After determining whether the respondent preferred to be interviewed in Spanish or English, bilingual interviewers used a standard instrument to ask women their age, annual household income, education, health insurance coverage, Pap smear and mammogram screening practices, and questions related to structural assimilation and acculturation. Acculturation was measured by using previously published scales developed by Hazuda et al.[8] that assessed the following dimensions of assimilation and acculturation: adult proficiency in English, adult pattern of English vs Spanish language usage, value placed on preserving Mexican cultural origin, attitude toward traditional family structure and sex-role organization, and adult interaction with members of mainstream society. The scales have demonstrated construct validity, are applicable to Mexican-American populations, and provide measures of acculturation that are independent of each other.[8]

TABLE 1—Percentage Distribution of Mexican-American Women Age 40+ Years, by Acculturation Level, El Paso, Texas, 1991

		Acculturation Level			
	No.	Low 1	2	3	High 4
English proficiency	447	44.3	14.3	17.0	24.4
English vs Spanish usage	444	64.6	16.4	15.5	3.4
Value placed on cultural origin	442	27.6	35.3	26.0	11.1
Attitude toward traditional family	444	21.6	40.3	37.4	0.7
Interaction with mainstream society	444	56.1	30.4	12.6	0.9

Women were assigned a summary score on each dimension by adding response scores for items under each acculturation scale. Within each dimension, women were grouped into four levels rank-ordered from least to most acculturated based on previously defined cut points from the San Antonio Heart Study.[9] The use of these cut points, rigorously determined from a large population sample of Hispanics and non-Hispanic Whites, provides a standard method of measuring acculturation across different populations (e.g., El Paso and San Antonio). Location in the higher-numbered levels represented acculturation toward non-Hispanic White culture. For example, women in the highest level for proficiency in English were highly proficient in understanding, speaking, and writing English. Women in the highest level for English vs Spanish language pattern used mostly English when interacting with family, friends, neighbors, and coworkers, and they watched, listened to, and read English media. For value placed on preserving Mexican cultural origin, women in the highest level thought it was not important for children to know the history of Mexico, follow Mexican customs, or celebrate Mexican holidays. For attitude toward traditional family structure and sex-role organization, women in the highest level thought it was not important that family members know their family tree, have close ties to extended family, remember deceased family members, have married children live close to parents, or concede authority to father or brothers. For women in the highest level of interaction with members of mainstream society, the majority of their close friends, neighbors, and coworkers were non-Hispanic Whites.

Cancer screening history was ascertained from responses to the following questions: (1) Have you ever had a Pap smear (mammogram)? (2) When did you have your most recent Pap smear (mammogram)? Women were categorized according to whether or not they reported a Pap smear or mammogram in the previous 2 years. Pap smears or mammograms performed because of a health problem were considered diagnostic exams and were excluded. Thus, the outcome of interest was the use of screening Pap smears or screening mammograms as routine prevention services in the absence of symptoms.

Chi-square tests, including tests for trends, were performed to assess differences in prevalence of Pap smear and mammogram screening across various levels of sociodemographic factors and acculturation dimensions. With use of multiple logistic regression, odds ratios of having a screening Pap smear or screening mammogram within the previous 2 years were computed for each gain in acculturation level. Test-based 95% confidence intervals were computed with the software EGRET.[10] Univariate odds ratios and their 95% confidence intervals were computed for each acculturation dimension. Odds ratios and confidence intervals then were adjusted for relevant sociodemographic factors: age (10-year intervals), education (less than 7th grade, less than high school, high school graduate), income (don't know, <100% federal pov-

TABLE 2—Prevalence of Screening among Mexican-American Women Age 40+ Years, by Demographic Characteristics, El Paso, Texas, 1991

	Pap Smear within 2 y (n = 420),[a] %	Mammogram within 2 y (n = 416),[a] %
Age, y	*	
40–49	61.9	16.8
50–59	44.8	23.4
60–69	43.3	23.3
70+	28.1	22.2
Education	*	
<7th grade	40.9	17.8
<high school	51.8	25.3
High school graduate	59.2	27.0
Income	*	*
Don't know	38.1	21.4
<100% poverty level	46.2	18.7
<200% poverty level	51.6	27.3
>200% poverty level	85.0	50.0
Employment		
Employed	49.3	23.9
Work inside home	46.1	20.6
Health insurance	*	*
None	50.8	14.1
Medicare/Medicaid	33.3	21.4
Private	54.3	34.0
Marital status		
Married	49.6	22.9
Not married	41.0	18.5

[a]Totals may vary due to missing data.
*$P < .05$.

TABLE 3—Prevalence (%) of Pap Smear Screening within Past 2 Years among Mexican-American Women Age 40+ Years, by Acculturation Level, El Paso, Texas, 1991

	Acculturation Level			
	Low 1	2	3	High 4
English proficiency*	42.6	45.0	41.9	57.0
English vs Spanish usage*	43.1	46.3	58.5	57.1
Value placed on cultural origin	48.2	51.4	44.4	37.0
Attitude toward traditional family[a]	52.2	44.6	46.1	...
Interaction with mainstream society[a]	45.7	46.5	50.0	...

[a]Test for trend was restricted to levels 1–3 because of sample sizes less than 5.
*Test for trend $P < .05$.

erty level, <200% federal poverty level, >200% federal poverty level), employment (no, yes), and health insurance (none, medicaid/medicare, private). To eliminate confounding among acculturation dimensions, the final model for each dimension of acculturation included as covariates all other acculturation dimensions (levels 1–4) and sociodemographic factors.

Results

Eighty percent of the women in the study were interviewed in Spanish and 61% were born in Mexico. Only 18% of the women had graduated from high school, 84% had incomes below the federal poverty level, and 45% had no health insurance. Seventeen percent had never had a Pap smear and 65% had never had a mammogram. The median age was 57 years. Sixty two percent of the women were married, and only 17% were employed outside the home. As shown in Table 1, the distribution of women in the study along the five dimensions of acculturation varied widely. Based on the percentages of women in the highest acculturation level, women tended to be more acculturated on English proficiency (24.4%) and personal value placed on preserving Mexican cultural origin (11.1%). The El Paso women in the study were far less acculturated on English language use (3.4%) than on English proficiency (24.4%), which is perhaps not surprising in a border community. Fewer than 1% of the women were highly acculturated with regard to attitude toward traditional family structure and sex-role organization and interaction with members of mainstream society.

Table 2 shows differences in prevalence of Pap smear and mammogram screening in the previous 2 years by various sociodemographic characteristics. The percentage of women who had a recent screening Pap smear declined with each 10-year age group ($P < .05$). Mammogram screening levels for all age groups were consistently low. Women with lower education and income levels were screened less often for cervical and breast cancer. Women on Medicare or Medicaid were least likely to be screened by a Pap smear, even compared with women who have no insurance (a group who may have access through public health clinic gynecologic services). That was not true for mammography; women with no health insurance were least likely to be screened.

The prevalence of Pap smear and mammogram screening by acculturation levels is shown in Tables 3 and 4. The prevalence of Pap smear and mammogram screening increased with each successively higher level of acculturation on proficiency in English and English vs Spanish usage. The other three acculturation dimensions failed to have significant linear effects on Pap smear and mammogram screening. On one dimension, attitude toward traditional family structure and sex-role organization, women did not show the expected pattern of increased screening with greater acculturation. Women least acculturated with regard to traditional family ties had slightly higher rates of Pap smear and mammogram screening.

Because each dimension of acculturation was associated with one or more

socioeconomic characteristics, the independent effect of each acculturation dimension after adjusting for sociodemographic factors was assessed by using multiple logistic modeling. Tables 5 and 6 show the unadjusted and adjusted odds ratios (and their 95% confidence intervals) of screening for each level gain in acculturation. The association of English proficiency and English vs Spanish language usage with Pap smear and mammogram screening disappeared or was reduced when adjusted for age, income, insurance, and education. With all acculturation dimensions and sociodemographic factors in the model, only age remained a statistically significant factor and was inversely related to Pap smear screening ($P = .03$). The strongest independent factor affecting mammogram screening was health insurance coverage ($p = .001$). After adjusting for sociodemographic factors and the other acculturation dimensions, a woman's attitude toward traditional family structure had an independent effect on, and was inversely related to, mammogram screening. Women least acculturated with regard to traditional Mexican family attitudes (importance of extended family and male primacy) were more likely to have been screened by a mammogram.

TABLE 4—Prevalence (%) of Mammogram Screening within 2 Years among Mexican-American Women Age 40+ Years, by Acculturation Level, El Paso, Texas, 1991

	Acculturation Level			
	Low 1	2	3	High 4
English proficiency*	17.3	21.1	20.0	30.4
English vs Spanish usage*	17.5	20.0	38.1	33.3
Value placed on culture origin	15.9	21.6	22.5	28.9
Attitude toward traditional family[a]	26.7	20.4	18.7	. . .
Interaction with mainstream society[a]	17.0	28.6	23.5	. . .

[a]Test for trend was restricted to levels 1–3 because of sample sizes less than 5.
*Test for trend $P < .05$.

TABLE 5—Odds Ratios (95% Confidence Intervals) of Having a Screening Pap Smear for Each Level Gain in Acculturation

	Univariate	Adjusted for Sociodemographic Factors[a]	Adjusted for Sociodemographic[a] and other Acculturation Factors
English proficiency	1.17 (1.00, 1.37)	0.98 (0.79, 1.22)	0.93 (0.70, 1.25)
English vs Spanish usage	1.29 (1.03, 1.61)	1.05 (0.78, 1.41)	1.10 (0.74, 1.65)
Value placed on cultural origin	0.87 (0.71, 1.06)	0.89 (0.72, 1.10)	0.95 (0.76, 1.19)
Attitude toward traditional family	0.90 (0.70, 1.17)	0.81 (0.61, 1.07)	0.81 (0.61, 1.09)
Interaction with mainstream society	1.08 (0.82, 1.41)	1.06 (0.79, 1.43)	1.05 (0.76, 1.45)

[a]Sociodemographic factors were age, education, income, and health insurance.

TABLE 6—Odds Ratios (95% Confidence Intervals) of Having a Screening Mammogram for Each Level Gain in Acculturation

	Univariate	Adjusted for Sociodemographic Factors[a]	Adjusted for Sociodemographic[a] and other Acculturation Factors
English proficiency	1.25 (1.04, 1.51)	1.07 (0.83, 1.39)	0.93 (0.65, 1.32)
English vs Spanish usage	1.53 (1.19, 1.96)	1.32 (0.94, 1.86)	1.28 (0.80, 2.05)
Value placed on cultural origin	1.25 (0.98, 1.60)	1.21 (0.94, 1.57)	1.26 (0.96, 1.66)
Attitude toward traditional family	0.80 (0.58, 1.10)	0.75 (0.54, 1.06)	0.69 (0.48, 0.99)
Interaction with mainstream society	1.37 (0.99, 1.89)	1.20 (0.85, 1.69)	1.14 (0.78, 1.68)

[a]Sociodemographic factors were age, education, income, and health insurance.

Discussion

Although the importance of assimilation in explaining the underutilization of Pap smears and mammograms in Mexican-American women is generally acknowledged, no study has demonstrated an independent effect of Mexican cultural attitudes or values on cancer screening behavior. This study confirms the often-observed finding that language use is an important factor in identifying groups of Hispanic women in need of cancer screening services.[2,4,6,11] In this study the effects of English language proficiency and use disappeared when adjusted for income, education, and health insurance coverage, suggesting a strong correlation with these sociodemographic factors. Therefore, language preference, proficiency, and use measure access to services and are proxies more of socioeconomic status than of cultural attitudes and values.

An important finding of this study is the independent positive effect of Mexican family attitudes and values on mammogram screening. The few studies of Hispanic women and screening behavior have not evaluated cultural values or family attitudes.[2,4,6,11] In a study of elderly Hispanic women living in Los Angeles, recency of mammogram was more frequent in those who had high homeland contact compared with those who had low homeland contact after adjusting for education and age.[6] An interpretation that those women with more homeland contact had stronger family ties provides

more evidence for the positive effect of family on screening. Why Mexican-American women with stronger traditional family attitudes would avail themselves of mammogram screening more frequently may be explained by the support provided by extended family ties either through emotional well-being or shared economic resources. Pap smear screening was not as strongly associated with family attitudes as mammography was. That may be due to the more prevalent use of Pap smears compared with the relative newness of the mammogram in this population.

The same positive effect of family on mammogram screening might also be evident in non-Hispanic women if family attitudes were measured. However, the acculturation scale of family attitudes used in this study was chosen because of its ability to discriminate non-Hispanic White attitudes from Mexican-American attitudes.[8] Family and familism are core characteristics of Hispanic culture.[12] Individuals can acculturate and assimilate remarkably well on language proficiency and use, come to value US traditions more than Mexican traditions, and still retain strong family ties and a high level of perceived family support.[8,12]

The significant effect of family attitudes was demonstrated in a border population not as highly acculturated as the population in San Antonio, Texas, where the acculturation scale was developed.[8] Mexican-American women living in El Paso may not be representative of other US Hispanic populations; in El Paso the Hispanic culture is as dominant as the non-Hispanic culture. It is important to investigate whether this familial effect is observed in Hispanic populations with greater variation on this dimension.

Hispanics are the fastest-growing population in the United States, and Mexican Americans are by far the largest ethnic group. Studies to improve cancer screening in this population consistently equate cultural differences with barriers to screening. This study identifies the positive influence on mammogram screening behavior of one important cultural attribute. Designing effective cancer control interventions for Mexican-American women not only requires taking advantage of the role of family in this group but also should encourage retainment of these cultural values. Future studies should examine this association in other Hispanic populations and, more importantly, examine how the role of familism can be used to change health behavior. □

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