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## Beliefs Matter: Cultural Beliefs and the Use of Cervical Cancer–Screening Tests

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In this article we examine the influence of cultural beliefs on behavior or, more specifically, beliefs about cervical cancer risk factors and the use of Pap exams. Individual Latinas' (Hispanic women) holding of beliefs similar to Latinas' generally (cultural consonance) did not significantly influence their use of Pap exams. Rather, structural factors such as medical insurance, age, marital status, education, and language acculturation explained Latinas' use of this medical service. However, when Latinas held beliefs similar to those of Anglo women, then they were significantly more likely to have had a Pap exam within the past two years. Latinas whose beliefs were closer to those of physicians were significantly less likely to have had the exam recently. Arriving at these findings involved both ethnographic interviews and survey research. That these beliefs proved to be significant influences on behavior suggests not only the important ways that beliefs matter but that ethnographic methods for examining those beliefs also matter. [*Latinas and cervical cancer, Pap exams, culture and behavior, ethnography and survey research*]

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**I**t is taken for granted in anthropology, and cultural studies for that matter, that humans learn the meanings, maps, knowledge, and discourses more or less shared by a people and thus become "cultural subjects," "which equips them with cultural 'know-how' enabling them to function as culturally competent subjects" (Hall 1997:22). Rather than deny this basic observation, the objective here is to show that acquiring cultural know-how and functioning as culturally competent subjects are complicated by competing cultural models. The ostensible reason for raising this problem is that in a previous analysis we found that Latinas (or Hispanic women), especially immigrants, held beliefs about the relative importance of risk factors for cervical cancer that diverged much more from those of physicians than those held by Anglo women

(Chavez et al. 1995). We were left wondering to what extent these patterns of beliefs were associated with behavior, specifically the use of Pap exams, a screening test for cervical cancer. In other words, to what degree do cultural beliefs matter in the use of medical services?

We found that beliefs matter, but the story is complex. For Latina immigrants, arriving in the United States requires a negotiation of the cultural knowledge about disease and prevention they arrived with, the predominant popular cultural knowledge, and knowledge promoted by physicians. These competing and overlapping models also promote specific behaviors, such as the need to access preventive medical services. It is often assumed that acquiring knowledge similar to physicians' knowledge about health promotion and disease prevention will increase the well-

being of any population. Our findings, however, suggest that Latinas whose cultural beliefs were closer to those of Anglo women were significantly more likely to have had a Pap exam within the past two years, while those whose beliefs were closer to those of physicians were significantly less likely to have had the exam recently. Given this observation, our objectives here are twofold: (1) to describe how we arrived at these findings, a process that involved both ethnographic interviews and survey research, and (2) to provide an explanation for why these findings "make sense."

A number of issues of wider concern frame this research. The first concerns an overemphasis on the role of culture—the cultural explanation—for understanding politically sensitive issues such as the utilization of medical services. During the 1950s and 1960s, cultural beliefs (such as fatalism, lack of future orientation, ingrained cultural values) were used in a simple and naive way to explain behavior, an approach that has become criticized, and rightly so, as "blaming the victims" for their disadvantaged social status. We do not wish to reiterate the critiques here (see, for example, Rosaldo 1989). Suffice it to say that since the 1960s, the pendulum shifted to more structural explanations for the use of medical services, such as the availability of services, poverty, medical insurance, work contingencies, lack of child care, and other factors associated with the political economy of health care (Chavez 1986; Chavez and Torres 1994; Doyal 1995; Morsey 1996; Young and Garro 1982).<sup>1</sup> Language and other communication-related barriers were also engulfed in this structural framework.

We argue that although structural factors may account for much, even most, of the underuse of medical services by some less powerful members of a society, they do not account for all the variation in behavior that humans exhibit.<sup>2</sup> Fortunately, statistical techniques allow for the relative impact of a number of variables on a dependent variable, such as the use of medical services. We recommend careful assessment of the relative contribution of cultural and structural factors on the use of medical services, which should also tell us something about the relationship between culture and behavior more generally.

Another issue is that anthropologists have focused more on the cultural models side of the culture–practice relationship than on the behavioral side. For example, tremendous strides have been made in systematizing the study of cultural models, primarily through consensus analysis (Boster 1986; Garro 1986, 1988; McMullin et al. 1996; Romney et al. 1986; Romney et al. 1987; Weller 1987; Weller and Romney 1984, 1988; Weller et al. 1993). The examination of the specific ways in which adhering to a cultural model influences actual behavior, however, has received less attention. An important exception has been Dressler's work on the influence of culture on blood pressure.

In a series of important publications (Dressler 1996, 1999; Dressler and Bindon 2000; Dressler et al. 1998), Dressler has developed the concept of cultural consonance. Cultural consonance assesses the degree of correspondence between an individual's beliefs or behaviors and the cultural ideal (Dressler 1996:7). Each individual's correlation to the agreed-on cultural ideal is a measure of his or her cultural consonance. Individuals vary from high levels of cultural consonance to low levels. Importantly, Dressler next uses multiple regression analysis to examine the predictive strength of cultural consonance for blood pressure in relation to the predictive strength of other measures, such as occupation, education, and income.

A problem that arises when examining the influence of cultural beliefs on health-seeking behavior concerns sample size and sampling methods. Consensus analysis was designed for use by anthropologists and is superb for analyzing levels of agreement among relatively small samples. To tease out the influence of cultural beliefs on behavior, especially relative to other variables such as income, education, and medical insurance, typically requires large samples and the use of random sampling. In an effort to bridge the culture model–practice divide, the research presented here describes the logic and methods we used to apply what we learned through ethnographic interviews about Latinas', Anglo women's, and physicians' cultural beliefs to the collection of data in two large surveys also carried out in Orange County.

A number of questions emerge from this discussion that frame the analysis presented here. Are Latinas whose beliefs reflect Latina beliefs generally (consonance) about cervical cancer risk factors less likely to use Pap exams than Latinas who do not adhere to such beliefs? Such a finding might suggest that Latina beliefs are a negative influence on the use of medical services, thus supporting a cultural explanation. Or are structural variables more powerful predictors of the use of Pap exams?

A second issue concerns culture change. Latinas interact with the larger society, and their beliefs about cancer risks are influenced in a number of ways. In our earlier work (Chavez et al. 1995), Anglo women and physicians had cultural models of cancer risk factors that differed not only from Latinas', especially immigrants', but also from each other. One way to examine change is to investigate what happens when Latinas' beliefs correspond to Anglo women's beliefs or, as an alternative, physicians' beliefs about cervical cancer risk factors. More specifically, our interest is to compare the predictive strength of Latinas' consonance to Anglo women's beliefs for the use of Pap exams with the predictive strength of other socioeconomic variables. We conduct a similar examination for Latinas' consonance with physicians' beliefs and the use of Pap exams. For Latinas, this is particularly important in that the question examines the effect of changing beliefs as Latinas

learn about cancer risk factors in the U.S. context. Are the beliefs they learn simply a reflection of a hegemonic biomedical model? Or are there various models "out there" influencing beliefs about cancer, which in turn may influence the use of cancer-screening tests?

### Research Setting

Orange County is the third most populous county in California, with the 1990 population estimated at 2,410,556 (U.S. Bureau of the Census 1991). It covers an area of 786 square miles, is largely urban, and contains 33 cities and numerous unincorporated communities. Approximately 23 percent of Orange County's population is Latino. Most Latinos are of Mexican heritage (84.1 percent). Latino immigrants from other nations in Latin America, particularly Central America, also live in the county. Latinos are found in greater concentrations in the northern half of the county, which includes Santa Ana, where two out of three residents were Latino in 1990 (U.S. Bureau of the Census 1991). The southern half of the county has been an area of rapid growth in new middle-class, upper-middle-class, and exclusive residential communities. Latino immigrants often work in south county communities but find less expensive housing in the many working-class communities in the northern part of the county.

### Phase One: The Search for Cultural Beliefs about Cervical Cancer Risk Factors

In 1991, we conducted ethnographic interviews on attitudes, beliefs, and behaviors related to cervical cancer. We interviewed 27 Chicanas (U.S.-born women of Mexican descent), 39 Mexican immigrant women (born in Mexico), 28 Salvadoran immigrant women (born in El Salvador), 27 Anglo women, and 30 physicians (18 men and 12 women) in northern Orange County, California. Interviews were conducted in respondents' homes or, in the case of physicians, at their places of work.<sup>3</sup> All questions were translated, back-translated, and pretested to insure that they were understood by the study populations. Interviews were a combination of open-ended questions and systematic data collection (Bernard 1988; Weller and Romney 1988). Although we have presented the methods and findings of the ethnographic interviews elsewhere (Chavez et al. 1995; Martinez et al. 1997; McMullin et al. 1996), a brief summary of the results is necessary to explain how we moved from the ethnographic findings on cultural beliefs to an examination of the influence of cultural beliefs on behavior.

### Freelisting

Our approach combined open-ended questions with the systematic data collection techniques of "freelisting" and ranking (Weller and Romney 1988). Open-ended ques-

tions and freelisting helped to elicit qualitative data from which we developed thematic categories of perceived risk factors. In the freelisting task, we asked respondents to list everything that could cause or increase the chance of getting cervical cancer and then to discuss the reasons for the listings. We found that this language did not presuppose an understanding of the academic concept of "risk" on the part of the lay informants and clearly implied "risk" to the physician informants. This method does not impose a set of beliefs on the interviewees. Also, by employing this style of questioning, we did not establish a set of risk factors a priori. The interviewees themselves provided the risk factors; they came out of the interviewees' own ways of thinking about cervical cancer. These items, therefore, might vary according to the groups studied.

To determine which beliefs were most common, we reviewed all listed risk factors for an initial set of respondents (approximately one-third of each of the five groups), determined the risk factors mentioned most frequently by each group, and then reviewed these factors to ascertain the number of separate risk factors listed. This last step was necessary because more than one group listed some of the same risk factors. It also allowed us to sift out the more idiosyncratic beliefs, such as those listed by only one person. This process yielded 24 different risk factors for cervical cancer.

### Ranking

To ascertain the relative importance of the risk factors for each individual, we printed each risk factor on an index card and asked the respondents to rank order them from most important to least important for increasing a woman's chances of getting cervical cancer. For the initial group of respondents from whom we established the list of risk factors for ranking, we accomplished the ranking task during a second interview. For the remainder of the respondents, the interviewers included the ranking task during the first and only interview. This rank ordering procedure allowed us to determine the extent of agreement among the interviewees concerning the relative importance of the risk factors.<sup>4</sup> We could also examine variations within individual groups as well as determine differences between groups in the study.

### Ethnographic Findings

Based on the analysis of the ranked 24 risk factors for cervical cancer (Table 1), we found that when analyzed all together, Latino immigrants, U.S.-born Chicanas, Anglo women, and physicians did not agree (consensus) on a single cultural model.<sup>5</sup> Latino immigrants—Mexicans and Salvadorans—generally had low levels of agreement with physicians, especially when their rankings were compared with those of U.S.-born Latinas and Anglo women.<sup>6</sup> Most

**Table 1.** Order of cervical cancer–risk factor rankings for all groups in ethnographic interviews.

Item	Mexicans	Salvadorans	Chicanas	Anglos	Physicians
Lack of medical attention	1	11	3	6	5
Tumors	2	3	1	2	9
Abortions	3	1	6	11	16
Many lovers/sexual partners	4	7	9	4	2
Vaginal infections, sexually transmitted	5	2	4	3	1
Blows, hits to vaginal area	6	8	14	22	22
Husband/boyfriend infected	7	4	5	5	4
Birth control pills	8	12	8	7	13
Rough sex	9	10	19	20	20
Lack of care after giving birth	10	9	7	15	19
Vaginal contraceptives (sponges, foam, diaphragms, IUD)	11	6	10	9	14
Having sex during menstruation	12	5	18	23	21
Not following a proper diet 40 days after giving birth	13	14	21	21	23
Starting sexual relations at a young age	14	15	17	12	3
Heredity, family history	15	21	2	1	7
Poverty	16	24	23	19	10
Lack of hygiene	17	13	12	13	12
Ignoring the body's needs	18	17	11	10	17
Not following proper diet during menstruation	19	19	24	24	24
Illegal drugs	20	18	16	16	15
Smoking cigarettes	21	16	15	8	6
Tampons	22	22	13	14	18
Sexual relations	23	23	20	17	8
Having many children	24	20	22	18	11

Source: Chavez et al. 1995.

of the risk factors that Latina immigrants gave high rankings to (abortions, lack of medical attention, physical trauma to the vaginal area and rough sex, birth control pills, lack of care after giving birth, sex during menstruation, and not following a proper diet after giving birth) physicians ranked lower or as unimportant factors. Conversely, some of risk factors that physicians believed were important (starting sexual relations at a young age, smoking cigarettes, sexual relations, having many children, and poverty) Latina immigrants ranked lower or as less important. Interestingly, both Latina immigrants and physicians ranked relatively high—although Latina immigrants ranked them consistently lower than physicians—other sex-based risk factors: many lovers/sexual partners, vaginal infections that are sexually transmitted, and a husband/boyfriend who is infected and gives the woman a disease.

Physicians exhibited a high level of agreement among themselves. In the freelist task, almost all the physicians (90 percent) mentioned exposure to sexually transmitted diseases as a risk factor for cervical cancer, citing human papilloma viruses (HPVs) specifically (Chavez et al. 1995). They based their perceptions on recent epidemiological research that indicates that certain “high-risk” types of HPV may cause cervical cancer while “low-risk” types do not (Cannistra and Niloff 1996). Most of the physicians (93 percent) also cited multiple sexual partners, and a majority (63 percent) mentioned sexual activity at an early

age. As one physician noted: “Human papilloma virus is the big thing now. Multiple sexual partners, and that’s a kind of generic overall that just increases the risk by increasing your exposure to sexually transmitted diseases” (quoted in Martinez et al. 1997:346).

As a result of the seeming certainty of sexual risks, and the risk posed by sexually transmitted diseases, the pervasive assumption among physician interviewees was that cervical cancer itself is a sexually transmitted disease. As one physician put it, “The major risk is the number of sexual partners. Cervical cancer is a sexually transmitted disease” (quoted in Martinez et al. 1997:346). Physicians’ rankings reflect this emphasis on sexual behaviors as risk factors for cervical cancer because of the perceived connection between sexual behavior and the transmission of HPVs, what they believed is the underlying causative agent for cervical cancer. Physicians gave their highest three rankings to vaginal infections, many lovers/sexual partners, and beginning sex at an early age, respectively.

Chicanas ranked highly a combination of factors, some of the same factors ranked by Mexican immigrants (lack of medical attention, vaginal infections that are sexually transmitted, husband/boyfriend who is infected) and some of the factors ranked highly by Anglo women (most notably, heredity or family history). Although Anglo women and physicians agreed on some important risk factors, this was not always the case. Anglo women’s highly ranked

risk factors included heredity, birth control pills, and ignoring the body's needs, factors that physicians ranked lower. Anglo women ranked lower than physicians risk factors such as many lovers/sexual partners, vaginal infections that are sexually transmitted, starting sexual relations at a young age, poverty, sexual relations, and having many children.

Our analysis of the freelisting, rankings, and open-ended responses has led us to suggest that Latinas' beliefs about risk factors for cervical cancer may be classified along two axes and that the differences among Latinas, Anglos, and physicians are primarily driven by immigration. By this we mean that immigration is a broad factor that is associated with a number of characteristics that distinguish immigrant and nonimmigrant Latinas, such as levels of education and income (we include these as separate variables in the analysis below). Latinas, especially immigrants, believe that physical stress and trauma to a body can eventually cause cancer,<sup>7</sup> thus their high rankings of abortions, blows or being hit in the vaginal area, and rough sex, as the following quote from a 45-year-old Salvadoran immigrant suggests:

What I believe is that the delicate nature of the woman inside is also a cause. I heard a story in El Salvador about a woman who . . . when she went for her exam they told her she had cancer. People said it was because her husband . . . was not careful when he had [sexual] relations with her. He was very brusque with her, and he scratched her a lot. And so it grew worse and she died.

In addition, Latinas, especially immigrants, place a negative value on nonnormative behavior, which includes behavior that may be viewed as morally questionable (Martinez et al. 1997). By engaging in such behaviors, women (and husbands) increase the risk of acquiring an illness such as cancer, as indicated by this quote from a 33-year-old Mexican immigrant:

When men have relations with other women and come and do it with their wives, they are going to cause them to have a disease. Men give their wives diseases, but they do not analyze what they do, and unfortunately in this country we are in there is more prostitution. There are women who do it for nothing more than to pay the rent, that's all. But now even when the man does not fool around, now also the woman goes out with men other than her husband, and they get infected, and then they have children.

This attention to what for them is nonnormative and morally questionable behavior serves as a cultural context for understanding Latina immigrants' rankings of cervical cancer risk factors (Martinez et al. 1997). They ranked high many lovers/sexual partners, vaginal infections that are sexually transmitted, birth control pills, husbands/boyfriends who are infected with disease, lack of care after giving birth, sex during menstruation, and not following a proper diet after giving birth.

Abortion is a risk factor that is morally questionable for these women and results in physical trauma to the body. For example, a 52-year-old Mexican woman commented:

Maybe it [cervical cancer] is because they stop the baby from coming, and they yank it out using herbs, like women who do it with teas, and there remains like a sore or wound. Just think about how a germ can get in there. Because sometimes it's one's own fault to be practically rotting because of a stupidity like that. It's preferable to have baby and not yank it out because a sore remains there. Afterwards, if she makes love too soon and her partner is not clean in that area, a bunch of dirty junk is going into her wound. [quoted in Martinez et al. 1997:354]

Her explanation of the possible risk of abortion for cervical cancer is quite complex, combining the physical trauma of "yanking" and creating a sore, and all because of, in her judgment, "stupidity." In addition, engaging in intercourse too soon (before the wound is healed) with a partner who is "not clean" can further aggravate the situation. She, like many of the women we interviewed, combined several themes in her understanding of the risk factors for cervical cancer. This multiple indemnity of abortions may account for its high ranking among Latina immigrants. A lack of medical attention, we found, reflected Latinas' belief that women should seek medical attention and, therefore, that not doing so increases the risk of illness, even cancer. But Latinas also discussed the obstacles to medical care, placing the blame not on the individual but on the structure of health care delivery and their lack of medical insurance, low incomes, need to work, child care problems, and language difficulties.

We also found little evidence for Latinas', especially Latina immigrants', knowledge about HPVs. Such knowledge, based on the epidemiological literature, is central to the biomedical model of cervical cancer risk factors. About one out of five Mexican immigrants, Chicanas, and Anglo women cited infections as a risk factor for cervical cancer, especially when such infections were associated with illicit sexual activity. HPVs were not mentioned among immigrants and rarely among U.S.-born Latinas and the Anglo women. In addition, the logic of the sexual transmission of HPVs is also behind the physicians' high ranking of the risk factor of beginning sexual relations at an early age. Latinas did not rank this sex-related risk factor high, underscoring their emphasis on a logic of nonnormative and morally questionable behavior for understanding cervical cancer risk factors rather than knowledge about HPVs. For this reason, we argue that although Latina immigrants and physicians both ranked many lovers/many sexual partners and vaginal infections that are sexually transmitted relatively high, they did so for different underlying reasons. This is a case of concordance at one level, ranking, but discordance at the level of the underlying logic for the ranking. It suggests the need to carefully examine not just ranking outcomes but also the reasons and understandings for

those rankings, which may be very different for different population groups.

## Phase Two: Applying Ethnographic Findings to Large Surveys

Phase two of the project involved the collection of large data sets in Orange County that would allow us to examine the influence of beliefs on behavior and determine the extent to which our ethnographic findings were represented in the larger population. Trained bilingual women interviewers from the Field Research Corporation in San Francisco conducted our telephone survey from September 1992 to March 1993. Eligible participants were English- or Spanish-speaking women 18 years of age or older who were not institutionalized and who identified themselves as white (Anglo, Caucasian, non-Hispanic white) or Latino (Hispanic or more specific ethnic identifiers such as Mexican or Mexican American). The telephone survey used a cross-sectional sample of random-digit telephone listings to identify eligible subjects, who were then asked a number of preliminary questions to determine eligibility. Both listed and unlisted numbers appeared in the listings, avoiding potential bias due to exclusion of households with unlisted numbers (Survey Sampling, Inc. 1990). Telephone survey findings may not be generalizable to families without telephones. In Orange County, however, approximately 94 percent of Latinos and 99 percent of Anglos have telephones (California State Census Data Center 1995). Another potential limitation of the study was that it would not find hard-to-reach members of the population, the homeless and those engaged in street corner employment and migrant agricultural labor. This may be more of a bias, however, for male rather than female Latinos, who are less likely to be homeless or seek day work by standing on street corners (Chavez 1992).

Sample size goals varied by population. For Anglo women, we sought a minimum of 400 interviews and completed 422. We sought a larger subsample of Latina respondents in order to examine variation within the population. Therefore, we continued random dialing until we had at least 800 interviews ( $n = 803$ ). Our survey randomly selected both households and respondents within households—the woman 18 years or older who had the most recent birthday. The cooperation rate was 78.5 percent (Hubbell et al. 1995).<sup>8</sup> Latina respondents could choose to answer the questions in Spanish or English. We pilot tested the questionnaire, tested its content validity, and translated it from English, to Spanish, to English. The final questionnaire included inquiries about demographic characteristics and medical care access as well as knowledge, attitudes, and practices related to breast and cervical cancer. It also included a previously validated five-point "acculturation" scale (Marin et al. 1987) that measures acculturation primarily on the use of Spanish or English (e.g., read with,

speak with, think with, used as child, and speak with friends).<sup>9</sup> All the Anglo women were born in the United States.

In 1993, we also conducted a mail survey of physicians practicing in Orange County, resulting in 369 respondents. We targeted physicians who specialized in family medicine, internal medicine, and obstetrics/gynecology. After our initial contact, we attempted to improve the response rate by mailing up to three follow-up letters to the physicians. We also included \$5 with the initial letter. Our persistent efforts resulted in a 51 percent response rate.

Tables 2 and 3 compare the respondents for the ethnographic interviews with the survey respondents, beginning with the nonphysicians. About one-third (33.6 percent) of the survey's 803 Latina respondents were born in the United States. Although most U.S.-born Latinas were of Mexican descent, many others traced their heritage to nations other than Mexico. Although most of the Latina immigrants (428 or 80 percent) surveyed were born in Mexico, with some (24) from El Salvador, the survey also included Latina immigrants from other countries. In short, the countywide survey has a more diverse sample of Latinas than that found among our ethnographic interviewees.

Physicians (Table 3) in the ethnographic interviews and broader survey were similar in terms of age, years practicing medicine, and ethnicity. The specialties of the physicians were also found in about the same proportions. There were proportionately fewer female physicians in the survey.

Table 4 provides a summary of the respondents' sociodemographic characteristics. The major difference is between Latina immigrants and both U.S.-born Latinas and Anglo women. Latina immigrants, with a mean age of 33, were younger than both U.S.-born Latinas (mean age 37) and Anglo women (mean age 44). Latina immigrants had received fewer years of education (mean nine years) than U.S.-born Latinas (mean 13 years) and Anglo women (mean 15 years). Latina immigrants had been in Orange County, on average, three-fourths of the time they had

Table 2. Interviewees for ethnographic and survey research.

Interviewees	Ethnographic Interviews ( $n = 151$ )	Surveys ( $n = 1,594$ )
Mexican immigrants	39	428
Salvadoran immigrants	28	24
Other Central American immigrants	0	37
Other Latin American immigrants	0	44
U.S.-born women of Mexican descent (Chicanas)	27	168
Other U.S.-born Latinas	0	102
Anglo women	27	422
Physicians	30	369

Table 3. Characteristics of physicians.

Variables	Ethnographic Interviews (n = 30)	Surveys (n = 369)
Age (mean)	41.9	47.3
Females	12 (40%)	67 (18.2%)
Years practicing medicine (mean)	16.7	14.6
Specialties		
Internal medicine	8 (27%)	98 (27%)
Family practice	10 (33%)	130 (36%)
Obstetrics/Gynecology	12 (40%)	127 (35%)
Other	0	11 (3%)
Not ascertained	0	3
Ethnicity		
Latinos	3 (10%)	15 (4%)
Asians	6 (20%)	70 (19%)
African Americans	1 (3%)	4 (1%)
East Indians	1 (3%)	2 (0.6%)
Iranians/Persians	1 (3%)	1 (0.3%)
Anglos	18 (60%)	261 (71%)
Other	0	14 (4%)
Not ascertained	0	2

been in the United States. Immigrants were also more likely than both U.S.-born Latinas and Anglo women to be married and have at least one child in the household under 18 years of age. The fact that Latina immigrants were young, married, and in the early stages of their reproductive cycles explains why they more often than the other women claimed to be homemakers (*amas de casa*) rather than employed outside the home. The majority of undocumented Latinas lived in households earning less than \$20,000 a year. U.S.-born Latinas generally lived in households earning above \$20,000 a year, with one-fourth living in households earning above \$50,000 a year. About one-half of the Anglo women lived in households earning above \$50,000 a year.

About two-thirds (66.9 percent) of Latinas had private or public medical insurance, but immigrants were much less likely to be insured than U.S.-born Latinas. Almost all Anglo women (91.9 percent) had access to medical insurance. Importantly, Latinas (70.9 percent) were less likely to have had a Pap exam in the two years previous to the interview than were Anglo women, most of whom (90 percent) indicated this high level of preventive care. Latina immigrants were much less likely than U.S. women to have had a Pap exam within this time frame. These patterns suggest that Latinas do, indeed, face obstacles to the use of Pap exams in Orange County that Anglo women do not.

This stage of the research required developing a set of survey questions that built on what we had learned about Latinas', Anglo women's, and physicians' cultural beliefs about cervical cancer risk factors. The problem was that

the surveys' sampling methods (random telephone survey among women in Orange County and a survey mailed to physicians) placed constraints on the number of questions and the question format. The ranking tasks we used to systematically elicit responses from informants in face-to-face interviews could not be used in a large telephone-based survey of women or a questionnaire mailed out to physicians. Survey respondents would not be able to physically rank order 24 cards.

We decided to use paired comparisons of a smaller number of risk factors. The number of items respondents can reasonably be expected to compare, given the time constraints of phone interviews and the possible mental fatigue caused by a large number of such comparisons, is limited. We settled on six risk factors for cervical cancer: "abortions," "heredity or family history of cervical cancer," "starting sexual relations at an early age," "lack of medical attention," "many sexual partners," and "vaginal infections." We then paired each risk factor with each of the other risk factors, for a total of 15 paired comparisons. Interviewees were asked to indicate which of the paired risk factors was, in their perception, more important for causing or increasing a woman's chances of developing cervical cancer. Latinas and Anglo women interviewed by phone were questioned orally, while physicians responded to written questions pairing each of the variables.

We selected these risk factors because each one was among the highest ranked risk factors for one of the different groups of women and physicians in the ethnographic interviews. For example, Mexican and Salvadoran immigrants gave greater emphasis to "abortions" (ranking it 3 and 1, respectively) than the other groups. This risk factor indicates the emphasis that Latina immigrants gave to non-normative and morally questionable behaviors as health risks as well as the notion that physical stress and trauma increase a woman's chances of getting cervical cancer. Mexican immigrants and U.S.-born Latinas (Chicanas) gave greater emphasis to "lack of medical attention" than the other groups (1 and 3, respectively).

Anglo women and Chicanas emphasized "heredity or family history" (ranking it 1 and 2, respectively) to a greater extent than physicians and Latino immigrants (Mexicans ranked it 15). This indicates the importance of heredity for explaining health and disease in popular U.S. culture.

Physicians emphasized "vaginal infections," "many sexual partners," and "starting sexual relations at an early age" (ranking them 1, 2, and 3, respectively). This ordering reflects the physicians' adherence to an epidemiological model that finds sexual behavior risk factors paramount for cervical cancer, primarily because of the spread of HPVs. Vaginal infections pose a general risk that subsumes a range of possible infection agents, including sexually transmitted diseases (e.g., HPVs). We used the more general "vaginal infections" to avoid having the word *sex* (as

in "sexually transmitted vaginal infections") repeated three times among the six risk factors.

We hypothesized that if we selected risk factors that were salient among the different groups of ethnographic interviewees, then perhaps they would effectively characterize differences in perceptions about risk factors among the broader groups of randomly sampled respondents. It would be especially noteworthy if the 24 risk factors used in the ethnographic interviews could, after analysis, be reduced to only six items. However, by reducing 24 items to 6 items we have maximized the differences between the groups. For example, eliminating 18 risk factors has the potential of removing risk factors that may have been ranked similarly by individuals in the various groups. Moreover, each of the six items should, if successful, be

more important to one group than to others. We would expect, therefore, that intergroup correlations would become more extreme between some of the groups compared with their differences in the ethnographic interviews.

Table 5 shows the average ranking of the six items by various groups in our sample.<sup>10</sup> As expected, physicians gave priority to the sex-based risk factors: many sexual partners, sex at an early age, and vaginal infections. The underlying logic of the physicians' rankings has to do with the sexual transmission of HPVs. The longer women are sexually active, the more likely they will have multiple sexual partners, which, in turn, increases the possibility of infection by HPVs. They gave least priority to abortions, followed by heredity, leaving a lack of medical care as a midranked risk factor.

On the other hand, Latina immigrants gave high rankings to abortions and vaginal infections, followed by lack of medical care. U.S.-born Latinas ranked heredity, lack of medical care, and vaginal infections first, second, and third. Although very similar in their rankings, U.S.-born Latinas generally gave greater priority to abortions than Anglo women did. In contrast to physicians and Latina immigrants, U.S.-born Latinas and Anglo women ranked heredity first, perhaps reflecting the extent to which the genetic factor in cancer has become part of popular culture, and a lack of medical care second, perhaps reflecting the importance of prevention in popular culture. All the interviewees, except physicians, ranked starting sexual relations at an early age last, indicating that they perceived little or no connection between the onset of or length of time one engages in sexual activity and cervical cancer. In other words, the physicians' model of cervical cancer risk factors, with its emphasis on sexual behavior as the primary vehicle for the transmission of HPV, was not shared by the other women in the study.

This last point is underscored by the correlation coefficients of the rankings. Physicians' rankings stand in stark contrast to the rankings of Latinas and Anglo women. Latina immigrants and physicians had a negative correlation ( $-.49$ ) in their rankings of the cervical cancer risk factors, while the correlations for Latina immigrants and Anglo women ( $.03$ ) and U.S.-born Latinas ( $.20$ ) were positive. U.S.-born Latinas and Anglo women were highly correlated ( $.92$ ) in their rankings. Physicians and U.S.-born Latinas also had negative correlations ( $-.60$ ), as did physicians and Anglo women ( $-.31$ ), though less so. These findings suggest that we have found a key area of difference between physicians and nonphysician women. The high value physicians gave to multiple sexual partners and having sex at an early age as risk factors was not shared by other women in the study. In addition, the nonphysician women, in general, ranked heredity higher than the physicians. This variation in the perceived importance of specific risk factors contributes to the negative correlations in their respective rankings.

**Table 4.** Sociodemographic characteristics of survey respondents (percentages).

	Latina Immigrants ( <i>n</i> = 533)	U.S.-Born Latinas ( <i>n</i> = 270)	Anglo Women ( <i>n</i> = 422)
Age			
18-30	49.9	40.9	20.0
31-45	39.2	36.1	42.4
46-81	10.9	23.0	37.6
Years of schooling			
<8	39.8	5.6	1.0
9-12	34.7	40.3	24.3
>12	25.5	54.1	74.8
Years in the United States			
≤5	27.6	N/A	N/A
6-10	21.1		
11-15	22.6		
>15	28.6		
Years in Orange County			
≤5	40.0	20.4	18.3
6-10	21.8	11.9	12.9
11-15	19.2	9.7	12.4
>15	19.0	58.0	56.4
Married	74.5	63.1	62.8
Child under age 18 in household	80.0	60.8	45.8
Homemaker only	33.6	16.4	17.6
Employed full-time	36.3	53.4	50.5
Employed part-time	12.4	11.9	12.1
Other work status	17.7	18.3	19.8
Income			
< \$20,000	70.0	21.2	14.7
\$20,000-49,999	25.1	52.4	39.3
> \$50,000	4.9	26.4	46.0
Medical insurance	56.9	86.6	91.9
Pap exam two years ago or less	62.6	87.4	90.0

**Table 5.** Mean rankings of six cervical cancer risk factors from survey results.

Risk Factor	Central Americans	Mexicans	All Latino Immigrants	U.S.-Born Latinas of Mexican Descent (Chicanas)	All U.S.-Born Latinas	All Latinas	Anglos	Physicians
Abortions	1	1	1	4	4	2	5	6
Lack of medical care	2	4	3	2	2	3	2	4
Vaginal infections	3	2	2	3	3	1	3	3
Many sexual partners	4	3	4	5	5	5	4	1
Heredity	5	5	5	1	1	4	1	5
Sex at an early age	6	6	6	6	6	6	6	2

### Do Beliefs Matter?

Do these differences in beliefs about cervical cancer risk factors matter? More specifically, does it matter if individual Latinas rank cervical cancer risk factors similarly (consonance) to the average or ideal ranking of those risk factors by Latinas generally? Does it matter if Latinas are closer to Anglo women's or to physicians' beliefs about the risk factors for cervical cancer? Latinas whose rankings are similar to the physicians' rankings would rank high the sex-based risk factors, whereas Latinas whose rankings are more similar to Anglo women's rankings would rank high heredity as a risk factor for cervical cancer. Does it make a difference to perceive, on the one hand, the chances of acquiring cervical cancer as increasing with one's own sexual behavior or to perceive, on the other hand, one's chances as increasing as a result of heredity, a factor over which one has virtually no control (and thus no personal blame)?

To examine these questions, we undertook logistic regression analyses. Table 6 lists the variables and their values used in the analyses. The dependent variable in the logistic regressions is the use of Pap exams. Latinas who had never had a Pap test or had not had one for more than two years before the interview are classified as low users. Latinas who had a Pap exam within the two years prior to the interview are classified as high users.

In model 1 (see Table 7), we examined individual Latinas' correlation (consonance) to an ideal, or average, Latina ranking of the six risk factors for cervical cancer. Individual Latinas ranged from  $-.89$  to  $1.0$  in their correlations to an ideal Latina ranking of vaginal infections, abortions, lack of medical care, heredity, many sexual partners, and sex at an early age (in this descending order). We recoded this variable, and all the other interval- and ordinal-level variables, into a dichotomous variable, with the value "0" equaling correlations below the median and the value "1" for median correlations or higher.<sup>11</sup> In other words, Latinas in the 1 range had greater consonance with the average or ideal Latina ranking of the six risk factors.

Model 2 (see Table 8) examines Latinas' correlation to an ideal, or average, physician ranking of the six risk factors for cervical cancer. Latinas' correlations with the physicians' rankings ranged from  $-1.0$  to  $.940$ , with a median of  $-.269$ . Latinas whose rankings were more similar to the average physician rankings prioritized the sexual behavior risk factors and downplayed heredity and abortions as risk factors. We use individual Latinas' correlations to the physicians' ideal ranking to test the taken-for-granted hypothesis that ranking risk factors similar to physicians positively influences Latinas' use of Pap exams (a premise of most medical interventions).

Model 3 (see Table 8) examines Latinas' correlation to an ideal, or average, Anglo women's ranking of the six risk factors. Latinas' correlations to Anglo women's rankings ranged from  $-.89$  to  $1.0$ , with a median of  $.371$ . Latinas who had high correlations with Anglo women's beliefs ranked high heredity, lack of medical care, and vaginal infections, in that order, and ranked low many sexual partners, abortions, and sex at an early age, also in that order.

We examined the effect of these independent variables in separate logistic analyses in which all the other dependent and independent variables remained the same. The other independent variables include medical insurance (public or private), years of schooling, age, income, and an acculturation index that has been used with Latino populations that is primarily a language use index (Marin et al. 1987). The high correlation between the variable foreign-born Latinas/U.S.-born Latinas and the acculturation variable (.88) did not allow us to include both of the variables in the same logistic analysis. We chose to use the acculturation index (a five-point scale) because it captures a greater range of variation than the dichotomous foreign-born/U.S.-born variable and because other research on the use of medical services includes such acculturation variables (Solis et al. 1990). The acculturation variable used here consists of five questions, primarily about language use. Many low-income, uninsured, undereducated, less acculturated (correlated with the foreign-born) people face significant obstacles accessing medical services in the

United States (the political economy of health care model). Including these variables allowed us to examine their influence on the use of Pap exams and to test for the independent effect of cultural beliefs on behavior.

We also included marital status as an independent variable. Marital status may have an independent influence on Pap exam use for at least two reasons. First, in the ethnographic interviews, Latinas often mentioned that they received their first Pap exams when they went to doctors during pregnancy. However, this effect is also partially

**Table 6.** Frequencies and values of variables used in logistic regression for Latinas (*n* = 803).

Variables	Values	%	Median	(Standard Deviation)
Pap exam				
Never or last exam less than two years ago	0	29.1		
Last exam two years ago or less	1	70.9		
Individual Latinas' correlations with mean Latina ranking			.43	(.370)
Below median	0	47.9		
Median or higher	1	52.1		
Individual Latinas' correlations with physician's mean ranking			-.269	(.417)
Below median	0	49.9		
Median or higher	1	50.1		
Individual Latinas' correlations with Anglo women's mean ranking			.371	(.492)
Below median	0	49.8		
Median or higher	1	50.2		
Medical insurance, public or private				
Without insurance	0	33.1		
With insurance	1	66.9		
Age			31	(11.9)
Below median	0	46.9		
Median or higher	1	53.1		
Years of schooling			12	(4.5)
Below median	0	43.4		
Median or higher	1	56.6		
Marital status				
Not married	0	29.3		
Married	1	70.7		
Income, Latinas			\$15,000–19,999	
Less than \$20,000	0	52.9		
\$20,000 or more	1	47.1		
Language/assimilation index—five-point scale <sup>a</sup>			1.8	(1.5)
Below median	0	49.3		
Median or higher	1	50.7		

<sup>a</sup>Marin et al. 1987.

captured in the nativity variable, for the immigrants were younger than the U.S.-born Latinas and Anglo women and were more likely to have at least one child under 18 years of age in the household and to be focused on household activities rather than employed. For Latinas, therefore, acquiring a Pap exam often occurs when seeking other forms of medical care, especially prenatal care, rather than as primary preventive care for cervical cancer. This differs from the case of Anglo women, for whom preventive care is a much more central feature of their health-seeking model.

In addition, the literature on Latinos emphasizes the role of family and gender relations, which is another source of cultural beliefs. Latina immigrants often bring with them a set of general cultural beliefs about gender relations, patriarchy, sexuality, and morality (Dorrington 1995; Hondagneu-Sotelo 1994; Martinez et al. 1997; Paz 1961; Peña 1991). Latina immigrants may adhere to these beliefs to varying degrees; for example, there are probably differences that are related to class background and local cultural milieus (Del Castillo 1993; Melhuus and Stølen 1996; Zambrana 1995; Zavella 1987). With such qualifications in mind, Hondagneu-Sotelo (1994) has observed that Latino immigrants' traditional gender ideals define both masculine and feminine behavior. The ideology of machismo characterizes men as independent, sexually assertive, and informally polygamous (Gutmann 1996; Peña 1991; Zinn 1995). The ideology for women prescribes dependence, subordination, selfless devotion to family and children, and sexual chastity. Although undergoing change, traditional notions of patriarchy and family honor have traditionally hinged on unmarried women's virginity and on married women's fidelity to their husbands (Hondagneu-Sotelo 1994; Horowitz 1983; LeVine 1993).

Marital status, therefore, may be an important influence on the use of Pap exams—but for reasons similar to our understanding of Latinas' beliefs about risk factors. Married women, whose sexual activities fall within normative behavior, may be more inclined to have Pap exams than unmarried women. The cultural beliefs around gender also provide some insight into the relative importance that Latina immigrants, in the ethnographic interviews, gave to the role of the male spouse/partner in bringing home disease (infections).

### The Influence of Beliefs on Behavior

The results presented in Table 7 indicate that Latinas with a median or higher correlation (consonance) with the Latinas' ideal ranking of the six risk factors for cervical cancer are about 36 percent more likely to have had a Pap exam in the two years prior to the interview than Latinas whose rankings were below the median correlation. Although being closer to ideal Latina beliefs does show a positive influence on health-seeking behavior, the finding

**Table 7.** Logistic regression for Latinas' use of Pap exams as the dependent variable.

	Model 1		
	Beta	Standard Error	Odds Ratio
Latinas' individual correlation with average Latina rankings			
Median or above	.31	.23	1.36
Age, median or above	.45*	.23	1.57
Medical insurance	.96***	.24	2.61
Income, median or above	-.09	.29	.91
Schooling, median or above	.64*	.27	1.89
Married	.81**	.25	2.24
Language/acclulturation—five-point scale			
Median or higher	.83**	.31	2.30

Summary statistics for Model 1: model chi-square = 73.340 ( $p < .0001$ ), degrees of freedom = 7, classification table = 79.16%, Goodness of Fit 531.061,  $n = 523$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

is not statistically significant ( $p = 0.18$ ). Instead, socioeconomic variables predict Latinas' use of Pap exams in this analysis. Having medical insurance is the strongest predictor of Pap exam use. Latinas with medical insurance are, according to the odds ratio, more than 2.5 times as likely to have had a Pap exam recently than the uninsured. Latinas

with greater English language acculturation are 2.3 times as likely to have had Pap exams than Latinas who are more monolingual. Married Latinas are more than twice as likely to have had a Pap exam as nonmarried Latinas. More educated Latinas are 89 percent more likely to have had a Pap exam than less educated Latinas, and, finally, Latinas 31 years old or older are about 57 percent more likely to have had a Pap exam than younger Latinas.

Model 2 (Table 8) finds that Latinas' whose beliefs are similar to physicians' beliefs are significantly less likely to have had a Pap exam within the last two years. These beliefs are not the only predictors of Pap exam use, nor are they the strongest predictors; but, importantly, they are significant even when accounting for the influence of the socioeconomic variables. Just as in model 1, medical insurance, being married, language acculturation, education, and age are significant predictors of Pap exam use. Notice, however, that the odds ratios are slightly lower than in Table 7, as a result of the beliefs variable also having predictive strength. Latinas who are closer to the physicians' ideal ranking of cervical cancer risk factors are about 60 percent as likely to have had a Pap exam recently than Latinas whose rankings were less similar to the physicians' rankings.

In model 3 (Table 8), Latinas with beliefs about risk factors similar to Anglo women's are 67 percent more likely to have had a Pap exam recently than Latinas expressing less consonance. This influence is statistically significant and occurs with the same control variables in the analysis. Once again, medical insurance, being married, language

**Table 8.** Logistic regression for Latinas' use of Pap exams as the dependent variable.

	Model 2			Model 3		
	Beta	Standard Error	Odds Ratio	Beta	Standard Error	Odds Ratio
Individual Latinas' correlation with ideal physicians' ranking						
At or above median ranking	-.52*	.23	.60			
Individual Latinas' correlation with Anglo women's ideal ranking						
At or above median ranking				.51*	.25	1.67
Age, median or above	.50*	.23	1.65	.41	.23	1.50
Medical insurance	.94***	.24	2.57	.94***	.24	2.56
Income, median or above	-.12	.29	.89	-.13	.29	.87
Schooling, median or above	.59*	.27	1.80	.60*	.26	1.82
Married	.82**	.25	2.28	.79**	.25	2.20
Language/acclulturation—five-point scale						
Median or higher	.82**	.31	2.26	.66*	.30	1.94

Summary statistics for Model 2: model chi-square = 76.369 ( $p < .0001$ ), degree of freedom = 7, classification table = 78.50%, Goodness of Fit 534.609,  $n = 521$ .

Summary statistics for Model 3: model chi-square = 74.778 ( $p < .001$ ), degree of freedom = 7, classification table = 77.86%, Goodness of Fit 533.309,  $n = 524$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

acculturation, and education are also predictors of Pap exam use. Age, in this analysis, is no longer statistically significant.<sup>12</sup>

### Cultural Beliefs and Behavior

The findings reported here underscore the importance of not viewing structural and cultural explanations as competing or mutually exclusive. As the multivariate analysis suggests, both structural and cultural variables contribute to an understanding of behavior. Structural factors such as medical insurance, education, and acculturation (increasing familiarity with English) are significant influences on Latinas' use of Pap exams. Clearly, the disadvantaged position of Latinas, especially immigrants, in U.S. society defines, to a large degree, their access to medical services, a finding consistent with the political economy of health care and critical medical anthropology perspectives. The finding that individual Latinas' consonance with ideal Latina beliefs did not lead to less use of Pap exams undermines the argument that Latina cultural beliefs in themselves are an obstacle to the use of medical services. In this sense, the cultural explanation for why Latinas may not use preventive medical services is not supported.

On the other hand, beliefs cannot be so easily discounted as unimportant for understanding Latinas' use of medical care. Latina beliefs that reflect change to alternative models of the relative importance of some risk factors over others did predict health-seeking behavior. We see this as complementary to an overall understanding of the use of Pap exams and the use of medical services in general. Latinas who believe, as physicians do, that sex-related behaviors are the most important risk factors for cervical cancer are less likely to seek Pap exams than Latinas who disagree with such beliefs. Latinas who downplay sex-related risk factors, as Anglo women do, are more likely to seek Pap exams than other Latinas. This occurs even when the structural factors are held constant.

We believe that these findings must be viewed from the perspective of the analysis of Latinas' cultural beliefs about cervical cancer risk factors that we have developed based on ethnographic interviews (Chavez et al. 1995; Martinez et al. 1997). We argue that Latinas who gave high rankings to vaginal infections and multiple sexual partners did so for reasons having to do with cultural beliefs about normative and nonnormative behavior, including beliefs about morality and virtue. Multiple sexual partners are associated with risky behavior, behavior that is "bad" or immoral. Women who engage in such practices run the risk of acquiring dangerous vaginal infections. Vaginal infections could also result because spouses/partners engage in illicit sexual activities and bring disease home. Such nonnormative behaviors are risky behaviors and, in the Latina immigrants' belief system, increase a woman's chances of acquiring cervical cancer. Associating, even unconsciously,

Pap exams and cervical cancer with nonnormative and morally questionable behavior may not motivate some Latinas, especially immigrants, to proactively seek out Pap exams. On the other hand, downplaying sex-related risk factors and elevating heredity, for which no one is to "blame," and a lack of medical care, as Anglo women do, do not raise the specter of nonnormative, morally questionable behavior. That married women are more likely than nonmarried women to seek Pap exams could also be explained, at least partially, by this interpretation. Some unmarried women may not seek Pap exams because they are not expected to be engaged in sexual activity outside of marriage; seeking a Pap exam is an implicit admission of sexual activity, thus raising issues of guilt and shame.<sup>13</sup> Married Latinas, who are demographically young, are also more likely to have young children, with prenatal care visits providing an opportunity for physicians to provide a Pap exam.

It is possible that Latinas who are closer to physicians' rankings also adhere to the physicians' causal model of cervical cancer, which focuses on the sexual transmission of HPVs. Just as in the ethnographic interviews, we found little evidence for such an interpretation. For example, physicians based their high rankings of starting sexual relations at an early age on the epidemiological connection between HPV and cervical cancer. Neither Latinas nor Anglo women made this connection, as evidenced by their consistently ranking it the lowest of all the risk factors. Although acquiring "infections" is perceived as an important risk factor, specific knowledge about HPVs appears to be lacking.<sup>14</sup> We offer these interpretations of Latinas' beliefs and the underlying logic for those beliefs as a guide for future research on the use of Pap exams by Latinas and other women in the United States and in other national contexts.

These findings have implications for interpreting the acculturation variable, which is constructed mainly from questions about language use. It does not answer the question, Acculturation to what beliefs? More acculturated, and U.S.-born, Latinas appear to be closer to the beliefs (rankings) of Anglo women about cervical cancer risk factors than they are to physicians' rankings.<sup>15</sup> Thus, while the acculturation variable may predict behavior, it provides only marginal insight into specific beliefs about cancer risk factors and even less about the influence of these beliefs on behavior. Substituting an acculturation variable for a more comprehensive understanding of beliefs is not, in our opinion, supported by these findings (i.e., the ranking correlation variables are significant predictors of Pap exam use independent of the acculturation variable). Developing an understanding of specific cancer-related beliefs provides important, and significant, information about behavior, that is, the use of a cancer-screening test.

We end on a note about the strength of ethnographic research. We began our research with ethnographic

interviews of a relatively small number of women in a restricted geographic area of Orange County, California. Through surveys, we applied what we learned about beliefs to a much larger population that was dispersed throughout the county. We began with Mexican and Salvadoran immigrants, but the larger survey included immigrants from a number of Latin American countries. We also began with U.S.-born women of Mexican descent (Chicanas), but the survey included a diverse group of U.S.-born Latinas. We also greatly expanded on the number of physician respondents. The consistency in beliefs about cervical cancer risk factors across the various samples suggests the generalizability of ethnographic findings on beliefs to much larger populations. Moreover, our initial interpretations of Latinas' beliefs were supported by the findings of the larger survey. Latina immigrants embed beliefs about cervical cancer within a larger context of social relationships and normative behavior. That these beliefs proved to be significant influences on behavior suggests not only the important ways that beliefs matter but that ethnographic methods for examining those beliefs also matter.

### Notes

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1. See also Calle et al. 1993, Hayward et al. 1988, Hubbell et al. 1991, Institute of Medicine 1999, and Robert Wood Johnson Foundation 1987.

2. Critical medical anthropologists have also sought a balance between cultural and structural factors in understanding access to medical services (Lock and Scheper-Hughes 1996; Singer et al. 1992). For more on cultural factors in cancer research, see American Cancer Society 1985, Balshem 1991, Erwin et al. 1992, Erwin et al. 1999, Hunt 1998, Loehrer 1993, Loehrer et al. 1991, Michielutte and Diesker 1982, Patterson 1987, Perez-Stable et al. 1992, and Posner and Vessey 1988. A more general dialectical anthropology also seeks to integrate the study of structure, cultural processes, and human agency (Basch et al. 1994; Comaroff and Comaroff 1991; Roseberry 1989).

3. Given the sensitive nature of the topic, specially trained female researchers interviewed female respondents. Interviews ranged between about two and four hours and were conducted in Spanish or English, depending on the respondent's preference. All interviews were transcribed verbatim in the language in which the interviews were conducted.

4. The analysis of ranked items builds on recent research in cultural consensus analysis, which is concerned with determining the extent to which a group of people shares "cultural knowledge" within a specific domain of culture (e.g., plant

identification, kinship, and diseases) (Boster 1986; Garro 1986, 1988; Weller and Romney 1988; Weller et al. 1993). When interviewees achieve a specific level of agreement on the elements within a cultural domain, they are said to have an agreed-on "cultural model" (Romney et al. 1986; Romney et al. 1987; Weller and Romney 1988).

5. The mean competency for cervical cancer rankings with all groups included was .45, s.d. = .26, ratio = 2.4 to 1, with negative competency values.

6. The correlation coefficients for the rankings were Mexicans and Salvadorans, .83; Mexicans and physicians, .19; Salvadorans and physicians, .08; Mexicans and Anglos, .42; Salvadorans and Anglos, .32; Mexicans and U.S.-born Chicanas, .66; Salvadorans and Chicanas, .56; Chicanas and Anglos, .85; Chicanas and physicians, .44; and Anglos and physicians, .75.

7. Some Anglo women also discussed trauma as a risk factor, and other research (Wardlow and Curry 1996) has also found such beliefs among African American women.

8. The cooperation rate, defined as the number of completed interviews divided by the sum of the completed interviews and refusals by eligible women, was 1,225/(1,225 + 336) or 78.5 percent.

9. For a discussion of methods and a summary of general findings, see Chavez et al. 1997a, 1997b; Hubbell et al. 1997; and Mishra et al. 1998.

10. Average agreement scores for each of the eight groups were calculated by using the square root of the average Pearson correlation coefficient for each respondent with all other respondents within each group (Weller 1987). They were Central Americans, .19; Mexicans, .46; all Latino immigrants, .45; Chicanas, .62; all U.S.-born Latinas, .61; all Latinas, .41; Anglos, .62; and physicians, .66.

11. We also undertook the logistic regression analyses presented here using the ordinal- and interval-level variables rather than the recoded dichotomized variables, and the findings did not differ significantly. The same variables were significant. We report the findings on the dichotomized variables because it is easier to interpret the odds ratio statistic.

12. The high levels of insurance coverage and Pap exam compliance among Anglo women, that is, the lack of variation on these variables, do not lend themselves to multivariate analysis. For heuristic purposes, however, we did similar logistic analyses for Anglo women's beliefs. We found that being more similar or more different (consonance) to an average or ideal Anglo ranking did not significantly predict the use of Pap exams. What did predict such behavior among Anglo women were income and age. Age had a negative influence on the use of Pap exams, which may be related to the Anglo women's median age of 41, with many no longer of childbearing age. Although Pap exams are still important preventive exams for postmenopausal women, these findings suggest that older Anglo women are less likely to have such exams. Medical insurance was not statistically significant, which may be because of the lack of variation on this variable; most Anglo women have medical insurance of some type. We also found that ranking the six risk factors closer to an ideal physician ranking does not significantly predict Anglo women's use of Pap exams. Income and age continued to be strong predictors.

13. For examples of Latina immigrants stating that they did not need a Pap exam because they were not engaged in sexual activities, see Martinez et al. 1997.

14. Additional evidence about a lack of knowledge concerning HPVs surfaced when, in 1998, we again conducted ethnographic interviews with 20 Mexican immigrant women in northern Orange County (for a discussion of the general findings, see Hubbell et al. n.d.) who were all low users of Pap exams, for this was the group that most interested us. Among the questions we asked were "Have you ever heard of human papilloma virus?" and "Some people have told us that cancer of the cervix is caused by the human papilloma virus. Do you think that's true?" Of the 20 Mexican immigrant women, only one had heard of HPVs, at a clinic she had visited a few days before the interview. As to whether she believed that HPVs cause cervical cancer, she replied, "I don't know that." All of the other women said that they did not think HPVs caused cervical cancer or that they did not know.

15. The acculturation variable has a .48 correlation to Latinas' correlations with Anglo women's rankings but a -.14 correlation to Latinas' correlations with physicians' rankings.

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