Are Health-care Relationships Important for Mammography Adherence in Latinas?

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BACKGROUND: Latinas are the fastest growing racial ethnic group in the United States and have an incidence of breast cancer that is rising three times faster than that of non-Latino white women, yet their mammography use is lower than that of non-Latino women.

OBJECTIVES: We explored factors that predict satisfaction with health-care relationships and examined the effect of satisfaction with health-care relationships on mammography adherence in Latinas.

DESIGN AND SETTING: We conducted a cross-sectional survey of 166 Latinas who were ≥ 40 years old. Women were recruited from Latino-serving clinics and a Latino health radio program.

MEASUREMENTS: Mammography adherence was based on self-reported receipt of a mammogram within the past 2 years. The main independent variable was overall satisfaction with one's health-care relationship. Other variables included: self report of patient-provider communication, level of trust in providers, primary language, country of origin, discrimination experiences, and perceptions of racism.

RESULTS: Forty-three percent of women reported very high satisfaction in their health-care relationships. Women with high trust in providers and those who did not experience discrimination were more satisfied with their health-care relationships compared to women with lower trust and who experienced discrimination ($p < .01$). Satisfaction with the health-care relationship was, in turn, significantly associated with mammography adherence (OR: 3.34, 95% CI: 1.47–7.58), controlling for other factors.

CONCLUSIONS: Understanding the factors that impact Latinas' mammography adherence may inform intervention strategies. Efforts to improve Latina's satisfaction with physicians by building trust may lead to increased use of necessary mammography.

KEY WORDS: Latinas; immigrants; mammograms; satisfaction; adherence.

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INTRODUCTION

The incidence of breast cancer in Hispanic/Latina immigrants (hereafter Latinas) is rising three times faster than in non-Latina white women.^{1–3} However, mammography screening rates among Latinas are declining.^{4–10} This trend may be due to a number of factors including increases in rates of being uninsured, access to health-care,^{11–16} not enough Spanish-speaking providers to meet demands, perceptions of provider bias, and/or a lack of sufficient culturally competent services.^{12,15,17–22} Though approximately 86% of adult Latinos report having contact with a primary care physician,^{23,24} Latinas report lower satisfaction with their care than do non-Latina whites.²⁵ Data from non-cancer studies suggest that low-income Latinas also report more difficulty communicating with providers and have lower receipt of medical risk information and health advice from physicians than higher-income Latinas and non-Latina women.^{26–29}

Satisfaction with the mammography experience has been shown to influence mammography use in non-Latina groups.^{30–34} In non-Latina groups, studies have indicated that the 'art of care' (e.g., communication and trust) in the patient-practitioner relationship is the most important health service factor affecting satisfaction and cancer control behaviors.^{11,35–40} Little information is available regarding how satisfaction with health-care relationships may impact Latinas' mammography use.

Since many Latino immigrants are isolated from the medical system, difficulties in accessing culturally congruent health care are likely to affect satisfaction and use of indicated services.^{18,41–43} Our aims were to: (1) explore factors associated with Latinas' satisfaction with their health-care relationships and (2) examine the impact of satisfaction with one's health-care relationship on mammography use.

METHODS

This cross-sectional IRB-approved study was conducted by the Latin American Cancer Research Coalition (LACRC), a community network program funded by the National Cancer

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Institute.²³ The LACRC is an academic-community clinic partnership focused on the cancer control needs of urban Latinas from Central and South America and is located in Washington, DC.^{23,44–47} LACRC clinics are community-based, non-federally funded, and serve mostly Latino patients at no or low cost. The clinics are staffed predominately by bilingual administrative and medical staff.^{23,45}

Women were recruited from three LACRC primary care clinics using a consecutive sampling protocol (n=99) and from a Latino radio program (n=69). Women age 40 years or older with no prior history of breast cancer were eligible. At the clinics, staff screened women for eligibility prior to their scheduled appointment and approached eligible women for consent at their next appointment. For radio recruitment, the program host of “Cuidando su Salud” (Taking Care of Your Health), a daily radio show, discussed the project and reviewed eligibility criteria. Interested women called research offices where bilingual staff verified their eligibility, obtained consent, and scheduled a computer-assisted interview.

A total of 103 eligible women were approached from the clinic and 96% participated. All callers from the radio program agreed to participate; however, two were excluded due to ineligibility. All participants received a \$15 grocery store voucher for participation after the study interview was completed.

Framework. We selected the Adherence Model to guide our inquiry into satisfaction and screening because it synthesizes several complementary theoretical perspectives, namely the Health Belief Model, the Theory of Reasoned Action/Planned Behavior, and the Transtheoretical Model of Change.⁴⁸ This model was specifically designed to evaluate cancer control adherence issues and has proved useful in examining^{48–51} and evaluating mammography behaviors in Latinas.^{49,51} This framework includes interpersonal aspects of care, such as communication and rapport between the provider and patient (“art of care”) and highlights cultural and subjective norms that may explain racial/ethnic disparities in mammography adherence. We adapted the model to include other constructs that were potentially important in mammography adherence among immigrants (e.g., trust).⁴⁸

Measures. Measures were selected based on reliability, prior use in Spanish-speaking and/or Latino populations, representation of the domains in our model, and brevity.^{45,52–53} Measures that did not have existing validated Spanish versions were translated from English to Spanish (forward) and back to English and any discrepancies reconciled by a multi-ethnic team.

Outcome. Mammography adherence was operationally defined as self-reported receipt of a “recent” (within the past 2 years) mammogram.³⁵ Women who never had a mammogram or had a mammogram more than 2 years prior were considered non-adherent.

Independent Variables. “Art of care” factors that were assessed included satisfaction with the health-care relationship, communication with health-care providers, interpersonal trust, and the length of the patient-provider relationship. Items related to the woman’s health-care relationships were adapted from the Primary Care Assessment Survey (PCAS) and

other studies with Latinas. The items previously had been validated in both Spanish and English.^{54,55} The main independent variable was *satisfaction with one’s health-care relationships*. We adapted a validated summary item of satisfaction from the PCAS that asked women to rank their overall satisfaction with their provider on a Likert scale from zero to ten.^{54,55} The distribution was non-normal; thus, we dichotomized the variable at the median comparing women with mid, high, and very high satisfaction to women with low and very low satisfaction. *Communication* with providers was assessed using two questions.⁵⁴ The first question asked the respondents to rate their primary care doctor’s explanations of her health problems or recommended treatment on a four-point scale ranging from “poor” to “excellent.” A second communication question asked, “How often do you leave your doctor’s office with unanswered questions?” The five-point response categories for this question ranged from “always” to “never.” *Patients’ trust in their provider* was assessed by asking, “All things considered, how much do you trust your doctor?” on a scale from zero to ten where zero was “not at all” and ten was “completely.” In final logistic models, this variable was dichotomized to compare women with medium, high, and very high trust to women with low and very low trust. *Length of the patient-provider relationship* was categorized as ≥ 2 years or < 2 years. *Perceived risk* was assessed with one question that we used previously with Latinas, which asked women to report the likelihood that they would get breast cancer (definitely, very likely, somewhat likely, not likely, or unsure).⁵⁶ *Subjective norms and attitudes* included reported experiences of health-care discrimination and perceptions of racism. Both items were previously validated in the African-American population, and to our knowledge, this was their first use among Latinos. *Discrimination* was assessed using a validated instrument adapted from Bird and Bogart.⁵⁷ Participants answered “yes” or “no” to six questions regarding personal experiences of health-care discrimination based on being Latino (e.g., “Have you ever been treated with less respect than other people when getting health care because you are Latino/Hispanic?”). Our alpha (.60) was lower than that reported with African Americans (alpha=.68). Based on the distribution of the variable, a dichotomous variable was created to summarize any discrimination experiences versus none for analyses. Women’s *perception of racism* was assessed using a modified version of the Racism Index (alpha=.87)⁵⁸ that included four questions asking respondents to rate their agreement with statements involving race and the US health-care system (e.g., “The US health-care system treats people of all races equally”). Items had good reliability (alpha=.77) in our sample. Additional independent variables included demographic factors (e.g., age, education, language preference at home, and country of origin) and insurance status.

Statistical Analysis. The primary independent variable of interest in predicting mammography use was satisfaction in one’s health-care relationship. Based on the Adherence Model, we also assessed satisfaction as an intermediate outcome variable to determine which personal, art of care, subjective and cultural norms, and concrete barriers were associated with satisfaction with one’s health-care relationship. Univariate and bivariate analyses (i.e., chi-square and t-tests) were performed prior to multivariate modeling. Separate logistic regression

models were used to assess: (1) factors associated with higher (vs. lower) odds of satisfaction with health-care relationships and (2) the extent to which mammography adherence was influenced by satisfaction, art of care, subjective norms, concrete barriers, health care and demographics. The logistic models employed a stepwise variable entry approach in which we retained the predictors from each tested model and added the next set of predictors to the subsequent models. Odds ratios (ORs) with 95% confidence intervals (CI) were used to determine whether the odds of adherence to "recent" mammogram use (vs. non-adherence) for each study factor were significant. The SAS 9.1 version statistical program was used for all analyses.⁵⁹

Table 1. Percentage of Latina Immigrants With High vs. Low Satisfaction in their Health-care Relationships According to Personal and Health-care Related Factors (N=166)

Satisfaction with health care*				
	Total N	Low satisfaction* %	High satisfaction* %	P - value
Age (m=51.60; SD 8.9)				
40–44	38	52.63	47.37	.08
45–49	41	43.90	56.10	
50 and over	87	32.18	67.82	
Education (highest completed)				
High school diploma or less	87	33.33	66.67	.08
Some college or more	79	46.84	53.16	
Region of birth				
Central America	51	31.37	68.63	.17
North America (Mexico)	19	31.58	68.42	
South America	96	45.83	54.17	
Language				
Monolingual (Spanish only)	124	39.52	60.48	.95
Other (English and Spanish)	41	39.02	60.98	
Marital status				
Married/living as married	95	46.32	53.68	.05
Single (divorced, widowed)	71	30.99	69.01	
Insurance				
Yes	71	38.03	61.97	.82
No	93	39.78	60.22	
Perceived health-care racism				
Agree — strongly agree	86	51.16	48.84	<.001
Disagree — strongly disagree	79	27.85	72.15	
Experienced discrimination				
Yes	68	57.35	42.65	<.001
No	97	26.80	73.20	
Overall trust in providers				
High trust	88	27.27	72.73	<.001
Low trust	74	56.76	43.24	
Doctor's explanation of health problems or treatment				
Poor — fair	35	62.86	37.14	<.001
Good — excellent	130	33.08	66.92	
How often you leave with unanswered questions				
Always — some of the time	55	58.18	41.82	<.001
Never — almost never	108	30.56	69.44	
Length of medical relationship				
<2 years	59	47.46	52.54	.13
≥2 years	107	35.51	64.49	

*On a scale of 0–10 (high satisfaction: ≥5; low satisfaction: <5)
When column frequencies do not add up to 166, it is because of missing values for which we felt imputation would be inappropriate

Table 2. Adjusted Odds of Reporting High Satisfaction With one's Health-care Relationship based on Demographic and Health-care Related Factors (N=166)

Final model	Estimated coefficient	OR	95% CI
Age: 45–49 (vs. 40–44 years old)	0.01	1.01	0.37–2.72
50+ (vs. 40–44 years old)	0.72	2.05	0.88–4.78
Experienced discrimination: no (vs. yes)	0.98	2.66*	1.29–5.49
Trust in providers: low (vs. high)	–1.08	2.95*	1.45–5.89

Note. Non-significant covariates and predictors were not retained during model testing except in controlling for age. The final model had a $\chi^2=44.61$, $df=5$, and was significant at $P<.0001$, indicating a goodness fit to the data

* $P<.01$

RESULTS

All study participants (n=166) were born outside of the US, and 75% spoke only Spanish. Their ages ranged from 40 to 75 years (M=51.2), more than half (57%) were married, and 48% reported having some years of college education. Fifty-seven percent of the sample population was uninsured.

Processes of Care and Satisfaction

Most (79%) of the women reported good communication with their provider, and 65% reported never leaving the office with unanswered questions. Forty-one percent of the women reported at least one discrimination experience while seeking health care (Table 1). Table 1 presents the bivariate associations between satisfaction in health-care relationships and model predictors. The "art of care" variables that were significantly associated with satisfaction included trust in one's provider and communication ($p<.001$). Women with higher interpersonal trust reported higher satisfaction with their health-care relationships. Cultural subjective norms significantly associated with satisfaction were perceived racism and discrimination ($p<.001$). Women who reported higher perceptions of racism and discrimination experiences were less likely to be satisfied with their provider relationships.

In the multivariate model, women who had not experienced discrimination in health care were 2.66 times (95% CI: 1.29–5.49) more likely to report satisfaction with their health-care relationships ($p<.01$) after considering other factors (see Table 2). Women with higher trust in their provider were 2.95 times more likely to report being satisfied with health-care relationships compared to women with lower trust in their providers, controlling for covariates (95% CI: 1.45–5.89). These findings suggest that both interpersonal factors and experiences external to the specific patient-provider relationship (e.g., health-care discrimination) were associated with a woman's satisfaction with her health-care relationships.

Mammography Adherence

Most women (89%) had at least one mammogram, and 73% reported having had a recent mammogram. Age ($p<.05$), education ($p<.05$), and insurance ($p<.001$) were associated

Table 3. Percentage of Latina Immigrants Who were Adherent to Recent Mammography vs. non-adherent According to Personal and Health-care Related Factors (N=168)

	Total	Adherence to recent mammography	Non-adherence to recent mammography	P-value
	N	%	%	
Age (m=51.60; SD 8.9)				
40–44	39	59.4	40.6	.03
45–49	42	70.7	29.3	
50+	87	82.8	17.2	
Education (highest completed)				
High school diploma or less	88	68.2	31.8	.03
Some college or more	80	82.7	17.3	
Region of birth				
South America	97	75.5	24.5	.74
North America (Mexico)	19	81.2	18.7	
Central America	52	72.0	28.0	
Language				
Monolingual (Spanish only)	125	73.3	26.7	.27
Other (English and Spanish)	42	82.0	18.0	
Marital status				
Married/living as married	95	53.7	65.9	.15
Single (divorced, widowed)	72	46.3	34.1	
Insurance				
Yes	71	86.8	13.2	.00
No	95	65.6	34.4	
Perceived health-care racism				
Agree — strongly agree	86	79.0	21.0	.29
Disagree — strongly disagree	81	71.8	28.2	
Experienced discrimination				
Yes	68	82.3	17.7	.13
No	98	71.9	28.1	
Perceived risk of breast cancer				
Not likely	52	25.0	75.0	.20
Unsure	10	30.0	70.0	
Somewhat likely	96	28.1	71.9	
Very likely	8	.0	100	
Definitely	1	100	.0	
Overall trust in providers				
High trust	89	72.3	27.7	.40
Low trust	75	78.1	21.9	
Rating of doctor's explanation of health problems				
Poor — fair	35	73.5	26.5	.78
Good — excellent	131	75.8	24.2	
How often you leave office with unanswered questions				
Always — some of the time	55	78.8	21.1	.45
Never — almost never	109	73.3	26.7	
Length of medical relationship				
<2 years	67	66.7	33.3	.07
>2 years	101	79.6	20.4	
Satisfaction with health-care relationship				
Mid — very high	100	83.3	16.7	.00
Low — very low	66	62.9	37.1	

Note: Adherence is defined as self-reported receipt of a mammogram within the past 2 years

Table 4. Adjusted Odds of Adherence to Recent Mammography According to Personal and Health-care Related Factors (N=168)

Variables	Model 1	Model 2	Model 3 (final model)
	OR (95%CI)	OR (95%CI)	OR (95%CI)
Age: 50+ (vs. 40–49 years old)	3.51 (1.63–7.55)	2.96 (1.33–6.59)	2.37 (1.03–5.47) [†]
Education: >high school (vs. ≤high school)	2.84 (1.31–6.15)	3.22 (1.43–7.25)	3.45 (1.45–8.23) [†]
Health insurance: Yes (vs. no)	-	2.62 (1.13–6.02)	2.32 (0.95–5.62)
Length of medical relationship: >2 years (vs. ≤2 years)	-	2.03 (0.94–4.42)	1.60 (0.69–3.68)
Satisfaction with health-care relationship (low vs. high)	-	-	3.34 (1.47–7.58) [†]
Model χ^2	15.35	25.17	35.92
Degree of freedom	2	4	6
$\Delta^* \chi^2$ (vs. compared model)	-	9.82 [‡] (vs. model 1)	10.75 [‡] (vs. model 2)

Note: The reference group was adherence to having a recent mammogram (within the past 2 years). Non-significant covariates and predictors were not retained in each model except age. The final model was significant at $P < .0001$, indicating a goodness fit to the data

*The symbol (Δ) denotes the differences in likelihood ratio chi-square (χ^2) tests between the tested model and the compared model

[†] $P < .05$

[‡] $P < .01$

with adherence to recent mammography in bivariate analyses (Table 3). Women who rated higher satisfaction in their health-care relationship were also more likely to have had a recent mammogram than those who reported lower satisfaction in their health-care relationships ($p < .001$).

To assess the impact of satisfaction with one's health-care relationship on adherence to mammography screening when adjusting for other covariates, we presented a series of stepwise regression results. In the first model, as displayed in Table 4, demographic factors, such as age (OR: 3.51, 95% CI: 1.63–7.55) and education (OR 2.84, 95% CI: 1.31–6.15), significantly predicted adherence to recent mammography. When we added medical factors to the model, health insurance (OR 2.62; 95% CI: 1.13–6.02) independently predicted receipt of recent mammograms. The effect of age on having a recent outcome remained significant after adjustment for insurance and length of the health-care relationship. When satisfaction is added in the third model, we see that women with high satisfaction in their health-care relationship were 3.34 times more likely (95% CI 1.47–7.58) to have had a recent mammogram than those with low satisfaction. Interestingly, health insurance was no longer significant after accounting for satisfaction with providers.

DISCUSSION

There are limited data on how subjective and cultural norms (e.g., perceived discrimination) affect the “art of care” (e.g., patient-provider relationships) and how the art of care may impact mammography adherence among Latina immigrants. We found that Latina immigrants reporting less discrimination

and higher trust in providers were more satisfied with their health-care relationships. In turn, Latinas with higher satisfaction in their health-care relationships had higher rates of mammography adherence. Overall, the rates of adherence to recent screening in this low income, immigrant population were high.

Latinas in the US underutilize mammography,^{2,13,18,60,61} and foreign-born Latinas have even lower usage rates.^{14,18,62–63} However, the rate at which Latinas in our study underwent recent mammography (73%) was higher than that reported in a national study of Latinas (59%)^{63–64} and much higher than rates in other studies of Latina immigrants (39–47%).¹³ Our results may partially reflect the fact that most of the women had access to health care and/or health information and that the region includes several low-cost screening services. However, access factors were less significant in our study after considering satisfaction and other measures of the “art of care.”

Our results confirm other studies of non-Latina groups that show that factors related to the art of care in patient-provider relationships influence the use of preventive services,^{20,37,54,65–67} and that it is particularly important to Latinas.^{45,48,55,68} For example, in a qualitative study by Moy and colleagues, trust and the quality of the patient-physician relationship determined whether Latinas followed their physicians' mammography recommendation.⁶⁹ Most of the women in our study reported mid to high satisfaction with their health-care relationships, with 43% reporting very high satisfaction. Women with high trust in providers and those who did not experience discrimination were more satisfied with their health-care relationships. Satisfaction with the health-care relationship was, in turn, significantly associated with mammography adherence, controlling for other factors.

Though communication has been cited as important in Latinas' decisions about mammography screening and cancer treatment,^{55,66,69} studies have noted that Latinos may experience communication problems because of limited language concordance with their health-care providers.^{68,70–71} However, in our study, most women reported good to excellent communication with providers. This result may be due to the fact that most Latinas in our study received care from clinics that predominately serve Latinos and have bilingual administrative and medical staff.^{66,70} Thus, these women may have been better able to effectively communicate with their providers than Latinas receiving care from non-Spanish-speaking providers in other studies.

Foreign-born Latinos experience more difficulty obtaining culturally competent care^{38,41,72–73} and are more likely to report discrimination by health-care providers than are US-born Latinos.⁴² Approximately 41% of the sample reported that they experienced health-care discrimination. Thus, health-care disparities regarding preventive services (i.e., mammography use) may be due in part to distinctive discrimination experiences of minorities.^{18,20,42} Latinas' perception of discrimination or bias in health care has been cited as a barrier to mammography use,⁷⁴ and Latina breast cancer survivors reported perceptions of bias within the US health-care system because of language issues and a lack of respect for their culture.^{38,75} Beyond language concordance, Latinas have emphasized the value of having a Latino provider for cultural concordance.⁶⁹ We did not assess cultural, racial, or gender concordance between patients; this will be important to examine in future research in this population.

Important contributions of this study include the focus on an understudied population, use of bilingual cancer control staff, adaptation of a theoretical model for use with an underserved population, and very high response rates. We also provided information regarding the reliability of several scales not previously validated in studies of Latinas. Given that few studies have documented mammography patterns among Latinas from Central and South America, this study provides useful information to address issues in this growing population.

This study also has several limitations. First, mammography adherence was based on self-reports, often resulting in overestimates.⁷⁶ However, previous studies comparing assessment measures concluded that self-reporting of mammography use is highly consistent with actual mammography use as recorded in medical charts or insurance claims, even in low income groups.⁷⁷ Additionally, participants had access to a Latino health network with primarily bilingual staff, Latino providers, and/or Latino health information sources, creating a unique population subgroup. Mammography use may be different among Latinas without access to such clinics or health information sources. Thus, our study likely underestimates the needs of Latinas for mammography programs.

Thirdly, with the cross-sectional design, we were unable to determine the cause and effect between satisfaction with health-care relationships and adherence to mammography. Yet, our results suggest that satisfaction with health-care relationships is likely a mediator between perceived discrimination and mammography adherence. Future clinical research may examine this mediation effect to validate our findings. Fourth, we dichotomized the satisfaction variable rather than using a continuous score since a high proportion of our participants reported that they were satisfied in their relationships. The skewed distribution of the scale may have been attributed to social desirability (e.g., Latinos' high respect for their providers). This may also reflect that some women (e.g., foreign-born and those with limited education) find Likert formatted scales difficult to understand.⁷⁸ Dichotomizing this variable is likely to reduce statistical power. However, the association of satisfaction as a dichotomous variable and mammography adherence was very robust, suggesting that the true relationship may be even stronger than captured using a categorical definition.

Finally, subjective norms and attitudes pertaining to health-care access do not exclusively consist of experiences of discrimination or perceived racism, and may also include a broader range of cultural factors. Limited scales exist for assessing cultural factors related to mammography adherence in Latinas, and these may not reflect values such as *familismo* (respect for the family), collectivism (vs. individualism), fatalism, spirituality, and respect for authority. Selected cultural domains have demonstrated importance among Latinas seeking preventive care,^{79–81} so an expanded capacity to measure cultural constructs would be an important future research priority. Other factors such as patient knowledge of breast cancer prevention and family history may also impact mammography adherence and will be important to assess in future surveys with Latinas.^{82–83}

Overall, we found that Latina immigrants with higher satisfaction in their patient-provider relationships were more likely to adhere to mammography recommendations. Patient-provider relationships are complex and are likely to vary based on several factors (e.g., availability of providers, place of care,

etc.). Thus, identifying strategies to strengthen these relationships for Latinas will be an important area for future work.

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