CAPRELA (Cancer Prevention for Latinas): Findings of a Pilot Study in Winston-Salem, Forsyth County

Alejandra E. Koval, MA, MPH, Alicia Alemán Riganti, MD, and Kristie Long Foley, PhD

Abstract

Objective: *To evaluate knowledge and attitudes that affect cervical and breast cancer screening among uninsured Hispanic women.*

Study Design: *Cross-sectional, descriptive study of uninsured Latino women in Forsyth County, North Carolina.*

Data Sources/Study Setting: *A convenience sample of Hispanic women who immigrated to the United States within the last ten years, primarily from Mexico (N = 70).*

Data Collection Methods: *Two trained lay health advisors (promotoras) administered in-person, structured surveys to 70 women in the community. All interviews were conducted in Spanish. Additionally, two focus groups were conducted in Spanish to elucidate cultural beliefs and barriers to cancer screening not otherwise captured in the standardized surveys. Quantitative data were analyzed using logistic regression analysis. Qualitative data were transcribed and analyzed using a multi-step framework approach to identify and validate themes.*

Principal Findings: *Of 70 women, 42 (60%) reported a Pap smear within the last year; 26 (37%) reported two exams within the past three years. Among women aged 40 and older, 10 of 18 (56%) reported ever having a mammogram. Being married (OR=4.05, CI 1.07-15.25) and having the same healthcare provider (OR 5.64, CI 1.04-30.56) predicted better Pap smear screening in multivariate analyses. Limited knowledge about breast cancer and needing an interpreter to communicate reduced the likelihood that women received a mammogram. Qualitative results indicated that women had poor prior experiences with Pap smears, held several misconceptions about cancer etiology and risk factors, and expressed distinct gender roles for Latina women and men that may affect healthcare utilization.*

Conclusions: *Screening rates for cervical and breast cancer are low among uninsured Latina women. Therefore, community and clinic-based interventions are needed to improve underutilization of and satisfaction with cancer screening practices among uninsured Latina women.*

Introduction

Cancer is the leading cause of death for women between 40 and 79 years of age and the second leading cause of mortality in American women of all ages. Even with reduced incidence rates, there remain significant disparities in the incidence and mortality rates of cervical cancer among women of color, when compared to rates among white women. The incidence of cervical cancer among Hispanic women is 16 cases per 100,000, compared with nine cases among white women.[1,2] Breast cancer incidence is low among Hispanic women compared with non-Hispanic white women, but a greater proportion of Hispanic breast cancer patients experience a longer duration of symptoms and are more likely to die from the disease.[3,4] Having both a longer duration of symptoms and excess mortality point to the lack of adequate care received for breast cancer in this population. It may be expected that breast cancer incidence rates among the Hispanic population will increase due to changing exposures associated with increased acculturation.[5]

Disparities in breast and cervical cancer screening are at least partially to blame for the excess morbidity and mortality experienced by Hispanic women. Only 67% of Hispanic females

Alejandra E. Koval, MA, MPH, is Regional Manager of the Triad Baby Love Plus Program for the North Carolina Department of Health and Human Services. At the time of the study, she served as a Research Associate for Wake Forest University Health Sciences, Department of Surgical Sciences, The Hypertension and Vascular Disease Center. She can be reached at alejandra.koval@ncmail.net or, NC DHHS, 4265 Brownsboro Road, Suite 115, Winston-Salem, NC 27106. Telephone: 336-896-7944, ext. 254.

Alicia Alemán Riganti, MD, is an Assistant Professor in the Department of Preventive Medicine at the School of Medicine, Universidad de la Republica, Montevideo, Uruguay. At the time of the study, she was an Assistant Professor for the Latin American Center for Perinatology and Human Development (CLAP) in Uruguay.

Kristie Long Foley, PhD, is an Assistant Professor of Social Sciences and Health Policy in the Department of Public Health Sciences, Wake Forest University Health Sciences. She can be reached at kmlong@wfubmc.edu.

(over age 40) report having had a mammogram within the past two years, which is 4.7 percentage points lower than non-Hispanic whites. Differences in screening rates appear to be declining. There is a 9.7 percentage-point decrease in today's rates from those ten years ago.[6] Low income, lower levels of formal education, race, ethnicity, culture, insurance status, and age all contribute to underutilization of breast cancer screening.[7] Similarly, although Pap smear screening rates are rising for ethnic minorities, Hispanic women consistently report lower rates of cervical cancer screening than non-Hispanic women or African American women. Twenty-five percent of Hispanic women have never had a Pap smear, compared with 9% of non-Hispanic women. Fifty-one percent of Hispanic women 40 years and older and 43% of Hispanic women between 18 and 40 years of age reported not having a Pap smear during the previous year.[8]

While Hispanics are generally treated as a homogenous group, there is great variability in screening patterns among various Hispanic/Latino subgroups. In a comparison of three cancer screening practices (Pap smear, mammogram, and clinical breast exam) among five subgroups of Hispanic women, Zambrana et al[9] determined that Mexican women were the least likely to be screened with any procedure. Additionally, using data from 1990-1992 National Health Interview Survey (NHIS), Peek[6] reported mammography rates of 35% among Mexicans, 43% among Puerto Ricans, 41% among Cubans, and 47% among other Hispanics. Further, regional variations exist: 45% of Mexican Americans in Texas had been screened for breast cancer compared to 60% of Mexican Americans in California.[6]

This study evaluates breast and cervical cancer screening patterns among uninsured Hispanic/Latino women living in North Carolina, primarily of Mexican origin. Our goal was to evaluate screening practices and barriers to early detection among women who had recently immigrated to the United States and who had limited financial resources, yet had access to free mammography and Pap smear services through a local free clinic.

Methods

Setting

This study was conducted in Forsyth County, North Carolina. This county was home to 19,577 Latinos as of 2000. New arrivals are mainly from the rural areas of Mexico, such as the states of Guerrero and Oaxaca, where access to healthcare services is limited. The average level of education among Hispanics/Latinos who immigrate to the United States is fifth grade, a lower attainment level than for Hispanics at the national level. More than one quarter of North Carolina Latinos live in poverty (27.4%).[10,11] The study targeted an apartment complex with 260 occupied units, where 90% of the residents are of Hispanic origin.

Data Collection

Upon Institutional Review Board (IRB) approval, the study team identified, contacted, and established a rapport with two *promotoras* (lay health advisors). The selected *promotoras* were of Mexican origin to reflect the majority of Latina immigrants in the Forsyth community. They act as a bridge between researchers and the target population and are able to develop a sense of trust in the participants of a community program. They are often the best recruiters, not only of participants, but also of other community health workers.[12,13,14]

The *promotoras* were paid to attend two training sessions, which entailed how to: inform the women about the purpose of the study and the target populations and instruct them about confidentiality issues and consent procedures. Training also familiarized *promotoras* with the questionnaire and provided a mock interview session. In addition, *promotoras* received an operations manual. Because the survey included the use of color-coded cue cards, we taught *promotoras* how to manipulate the cards as they were reading the questions.

Promotoras recruited women who met the following criteria: (a) an adult (at least 18 years of age); (b) uninsured; and (c) a resident of the United States for less than ten years. *Promotoras* maintained a roster where they indicated the number of attempts they made until they were able to reach the participant, as well as contact information for them and intent to participate in a focus group. The average number of attempts was 1.34 (± 0.90), range 1-5.

Sample

The *promotoras* conducted 70 in-person, structured, Spanish interviews within eight weeks during the Spring 2004. The average time to complete the survey was 30 minutes. Surveys were conducted either in homes (95%) or at the workplace (5%). Participants received a gift card to a grocery store when they completed the survey.

The principal investigator (PI) and a co-PI also facilitated two focus groups with seven and eight women, respectively. For the first focus group, women between 20 and 40 years of age were recruited. The goal of the second focus group was to include women 40 years old and older, but the research team experienced difficulty locating and recruiting older women to participate. Only two women over age 40 participated in the focus group.

We used a model apartment that was made available by the management of the property. Food and childcare in a nearby location were provided. Although the initial goal was to stratify the women by age group, we were not able to recruit enough women age 40 and over for the second session, so we invited women who were younger in order to meet the minimum necessary for a fruitful focus group experience.

Focus group questions addressed knowledge, beliefs, myths,

barriers to screening practices, *familismo*[a] and *machismo*,[b] and probed into the women's interest in participating in an educational intervention. The goal of the focus groups was to provide greater insight into the cultural impact of cancer knowledge and screening behavior. The discussions were taped, transcribed, and then translated into English. Women received a gift card to a grocery store for their participation in the discussion.

Measures

We selected the survey constructs based on a review of the literature and previously established surveys[15,16] used among low-income women. We also modified them to be culturally relevant to Hispanic women, based on input from our two Hispanic study team members, the co-PI, and a nurse practitioner who works in the Hispanic community.

Cancer Screening Practices. The dependent measures in this study included Pap smear screening behavior and mammography screening behavior. Pap smear screening behavior was divided into the following categories: ever had a Pap smear, having had a Pap smear within the last year (since 2003), and whether they had received at least two Pap smears within the last three years (since 2001). This latter measure was calculated to establish whether the women had adopted regular Pap smear screening behavior.

Mammography screening behavior was measured among women 40 years old and older and included: ever had a mammogram, having had a mammogram within the last year (since 2003), and whether they had received at least two mammograms within the last three years (since 2001). Similar to Pap smear screening, our goal was to establish whether regular screening behavior occurred.

Demographics included age (less than 24 years, 25-32 years, 33-39 years, and greater than or equal to 40 years), place of origin, and length of residence in the United States (less than or equal to three years, three and one half to six years, greater than or equal to seven years). For marital status, we categorized all responses into: married/living together, and residing without a partner (single, divorced/separated, widowed, and never married). We also determined the total number of children in the home, but dichotomized the variable into (any children vs. no children.). We stratified educational attainment as sixth grade or less, seventh through 11th grade, and high school graduate or more. We measured employment status as follows: housewife, volunteer (no job), part-time job, full-time job, unemployed (job hunting), unemployed (not seeking job), retired, can't work (disabled), and other. We computed the total number of people in the household (continuous measure). Women were asked if they typically see the same provider when they go for healthcare (yes/no). We asked women to determine how well they spoke English (very little and need interpreter, enough to manage without an interpreter, and fluently). Because no one responded that they spoke English fluently, the item was dichotomized.

Knowledge of cervical cancer was a summary measure of six items. For each correct response, respondents received a score of 1. A total score of 6 was possible on the cervical cancer knowledge scale. They were asked whether they agree or disagree with the following statements: (1) "Cervical cancer runs in the family;" (2) "Hispanic women have a higher cervical cancer risk than other women;" (3) "Young women are at higher risk of developing cancer than older ones;" (4) "Women smokers are at higher risk of developing cancer;" (5) "Having sex without a condom increases the risk of cervical cancer;" and (6) "If the Pap test is positive, they will have to remove my uterus." A maximum score achieved among the women was 5 out of 6. We totaled and divided the scores into low knowledge (0-1), moderate knowledge, (2-3) and high knowledge (4-5) for analytical purposes."

Knowledge regarding Pap smear screening was a summary measure of seven items, with each correct item scored as 1. A higher score on the total scale indicated greater knowledge. The women were asked (1) "Do you know whether there is a test for cervical cancer?" Women who said yes and could either name or describe the procedure were coded as 1. We also asked (2) "How often do you think a healthy woman should have a Pap test?" Women who responded that they should have a Pap smear at least once per year were considered correct and assigned a value of 1. Women were also asked to indicate whether they agreed or disagreed with the following statements: (3) "I feel ok; I don't need a Pap;" (4) "If a woman no longer has menstrual periods, she doesn't need to have a Pap any more;" (5) "After a few negative Paps you don't need a Pap any more;" (6) "Women who have had their uterus removed don't need a Pap;" and (7) "Only women who have had several sex partners need a Pap." Women who correctly responded to these questions were scored a 1. Again, we totaled and categorized the scores into low knowledge (less than or equal to 3), moderate knowledge (4-5), and high knowledge (6-7).

Barriers to Pap smear participation included three items: (1) "Getting a Pap can hurt;" (2) "No cure for cancer, so why bother getting a Pap;" and (3) "I don't have time to get a Pap." The scores were then dichotomized into having at least one or more barriers (1,0).

Knowledge of breast cancer was a summary measure of five yes/no items. Women were asked whether they agreed or disagreed with the following: (1) "Hispanic women are at greater risk for breast cancer than others," (2) "Older women are at higher risk for breast cancer than younger women," (3) "The only treatment for breast cancer is surgery that removes the breast,"(4) "Women

a The concept of *familismo* (familism) is used to describe a high degree of interpersonal bonding within the Latino family, resulting in greater identification with the group and dependence on the family.

b *Machismo* (as opposed to Marianismo, which defines the role of the ideal woman modeled after the Virgin Mary, as based on chastity, abnegation, and sacredness, while reinforcing obedience and virginity) characterizes the male gender role in Latino society. It stresses virility, independence, physical strength, and sexual prowess. *Machismo* is socially constructed, and promotes and reinforces a particular set of behaviors. The influence of *machismo* and *marianismo* on sexuality and gender roles leads to the exaltation of penetrative sexual behavior and to women's ignorance about their bodies and about sexuality.

who have never had children are at lower risk for breast cancer," and (5) "Breast cancer runs in the family." The possible range of scores was 0 to 5. Scores were categorized into low knowledge (0-1), moderate knowledge (2-3), and high knowledge (4-5).

Knowledge about mammography screening was a summary measure of five items, with each correct item scored a 1, and a maximum possible score of 5. A higher score on the total scale indicated greater knowledge. The women were asked, (1) "Do you know whether there is a test for breast cancer?" and (2) "How often do you think a woman your age should have a mammogram?" They were also asked whether they agreed or disagreed with the following statements: (3) "A woman over 40 who feels well does not need a mammogram;" (4) "mammography radiation can cause cancer;" (5) "After a few mammograms that show everything is ok, you don't need to continue having them." We categorized scores into low knowledge (0-1), moderate knowledge (2-3), and high knowledge (4-5).

In order to explore ***barriers to mammography screening***, we asked women whether they agreed or disagreed with the following statements: (1) "It's difficult for me to get an appointment for a mammogram," (2) "The technician does not treat me with respect," (3) "It is too complicated to go somewhere else for a mammogram," (4) "I have no money for a mammogram," (5) "I don't know where to go for a mammogram," (6) "I'm embarrassed to have a mammogram done," and "(7) It hurts to get a mammogram." Scores assigned were yes = 1 and no = 0. We ranked barriers into low (0-3), moderate (4-5), and high (6-7).

Data Analysis

Quantitative. We computed descriptive statistics for all variables in the study. Measures of central tendency (e.g., mean, standard deviation) were obtained for continuous variables and frequencies for nominal and ordinal data. We conducted bivariate analyses using chi-square tests to evaluate the correlations between all independent and dependent variables (screening behavior). Multivariate analyses using logistic regression were conducted to evaluate the effect of knowledge of cervical cancer and barriers to Pap smear on Pap smear screening behavior within the last year. Due to a limited sample size of women age 40 and older, mammography screening behavior could not be evaluated using logistic regression techniques. All quantitative analyses were conducted using Stata 7.0.[17]

Qualitative. Transcripts of focus groups were analyzed using a multi-step framework approach.[18] The first step involved familiarization and immersion in the raw data. Two investigators who were present during the focus groups independently read the transcribed interviews and extracted key comments associated with how individuals ascribed meaning to the cancer experience. The second step was identification of a thematic framework. The investigators met to discuss the abstracted information and identified themes that emerged. This process was also reviewed by a third and independent reviewer. Third, the thematic framework, including all themes, was applied to all data.[18]

Results

Descriptive Statistics

Seventy-eight women were approached, 70 (90%) completed the survey. Table 1 describes the demographic characteristics of the survey. Women were, on average, 32 years of age (± 9.2; range 19-52). They had eight years of formal education (ranging zero to 15), which is slightly higher than the average for new immigrants into the state,[11] yet lower than the national average of high school attainment.[10] Most women were married or living together (72%) and less than half were employed outside the home (46%). The mean number of years of residence in the United States was 5.2 (range 0.5 to 9.5). The sample was predominately of Mexican origin (97%) and Catholic (79%), with limited knowledge of English. Almost everyone (93%) responded that they need an interpreter during a medical visit. Most of the women typically received healthcare at a local free clinic (62%) or a local university-owned community clinic

Table 1.
Characteristics of the Study Population

Demographics (N=70)	**%** *(unless otherwise noted)*
Age	32.2 (9.2)
[mean, (standard deviation), range]	19-52
Years in the United States	5.2 (2.8)
[mean, (standard deviation), range]	0.5-9.5
Years of formal education	8 (3.1)
[mean, (standard deviation), range]	0-15
Country of Origin	
Mexico	97.0
Guatemala	1.5
Venezuela	1.5
Marital Status	
Married	48.6
Living together	22.9
Divorced/Separated	11.4
Widowed	2.9
Never married	14.3
Work Status	
Homemaker	47.1
Employed part-time	24.3
Employed full-time	21.4
Unemployed	5.7
Disabled	1.4
Religious Affiliation	
Catholic	78.6
Pentecostal	5.7
Christian (not otherwise stated)	14.3
Children	
No Children	16.2
Any Children	83.8
Continuity of Care	25.7

Table 2.
Knowledge and Screening Practices for Cervical and Breast Cancer

	Pap Smear (N=70) %	Mammogram[a] (N=18)
Ever screened	90	56
Screened within the last year	60	33
Screened regularly	37	11
Knowledge regarding screening[b,c]		
Low	14.9	0
Moderate	35.8	25.0
High	49.2	71.4
Average	5.01 (1.58) Range 0-7 71% accurate	4.33 (1.02) Range 0-5 87% accurate
Knowledge regarding cancer	Cervical (n = 65)	Breast (n = 18)
Low (score: 0-1)	16.4	39
Moderate (score: 2-3)	65.7	50
High (score: 4+)	17.9	11
Average Cervical Cancer Knowledge Score	2.49 (1.06) Range 0-5 42% accurate	2.0 (1.23) Range 0-5 40% accurate

a Only includes women who were at least 41 at the time of the interview to ensure that they had at least one year since their 40th birthday.

b At least two within last three years and not in same year. For mammography, the women had to be at least 43 years of age to be included in the calculation.

c Pap smear scores were categorized as follows: low (0-3), moderate (4-5), and high (6-7). Mammogram scores were categorized as follows: low (0-1), moderate (2-3), and high (4-5).

(17%). Approximately one-in-four women (25.7%) reported that they typically see the same healthcare provider for care.

The majority of the sample reported that they had at least one Pap smear, but only 60% were examined within the last year (see Table 2). Only 37% had regular screenings (at least two consecutive Pap smears within the last three years and not in the same year). Among the 18 women age 40 and older, ten (56%) had a mammogram once, six (33%) had a mammogram within the past year, and only two (11%) reported at least two mammograms during a three-year time frame.

Respondents answered an average of two and one half (± 1.1) out of five questions correctly on the cervical cancer knowledge scale and five (± 1.6) out of seven questions correctly on the Pap smear knowledge scale. Approximately one half of the sample (49.5%) experienced at least one barrier to Pap smear screening. The most commonly cited barrier to Pap smear was pain associated with the screening test (38%). An additional 19% indicated that they don't have the time to get screened. Of the possible three barriers, the average number of barriers reported was 0.6 (± 0.8).

Women were able to correctly answer an average of two (± 1.2) out of five questions related to breast cancer knowledge and four (± 1.0) out of five questions related to mammography knowledge. On average, women reported 1.9 (± 1.5) barriers to mammography. The most common barriers were: no money for a mammogram (61%), too complicated to go to a different place (28%), and too embarrassed to have a mammogram (22%).

Bivariate analyses revealed significant associations between greater Pap smear knowledge (p = 0.03), having children (p = 0.02), being married (p = 0.007), and being seen by the same provider (p = 0.02) with Pap smear screening behavior. Using these variables, we conducted a multivariate analysis. We utilized this simplified model due to the limited sample size and reduced statistical power to include many covariates. Greater knowledge about Pap smear (OR 4.3, 95% CI 0.8-22.9) and having any children (OR 5.0, 95% CI 0.9-27.9) showed a non-statistically significant association with recent Pap smear completion when controlling for marital status and having the same healthcare provider. Married women (OR 4.05, 95%CI 1.07-15.25) and those who had typically seen by the same healthcare provider (OR 5.64, 95% CI 1.04-30.56) were more likely to have had a Pap exam within the past year (see Table 3).

Bivariate analyses also demonstrated that women who stated that were able to communicate with a healthcare provider without an interpreter were significantly more likely to have received a mammogram within the past year (X2 4.57, p = 0.05). Higher knowledge scores were also marginally associated with having a recent mammogram (X2 24.57, p = 0.10). No multivariate analyses were conducted regarding mammography due to small sample size.

Table 3.
Adjusted Odds of Having Had a Pap Smear within the Last Year

Indicator	OR	95% CI
Pap Knowledge		
Low	—	
Moderate	0.83	0.15-4.56
High	4.33	0.82-22.87
Married	4.05	1.07-15.25
Any Children	5.04	0.91-27.87
Same provider	5.64	1.04-30.56

Note: Odds ratios from the multivariate logistic regression equation, adjusting for Pap knowledge, marital status, children, and receiving care from the same provider.

Focus Group Results

Several themes emerged from the transcribed focus groups. These include themes specifically related to the Pap smear experience, knowledge about cervical and breast cancer etiology and risk, and the importance of gender roles on healthcare utilization.

Focus groups revealed that the primary reason women sought a Pap smear was for contraception or pregnancy-related planning or care. This provides some explanation as to the higher rates of Pap smear among married women and women with children in this sample. Some women reported that they found the providers who performed the Pap smear to be impersonal and uninformative. Women reporting impersonal or uninformative providers had very little understanding as to the purpose of having the Pap smear; they were simply complying with the provider's request. One study participant said:

> She didn't tell me anything. That is, she only told me that … they had to see … to see that each month the cells got better … or worse…. I tell her [her friend] "maybe the doctor is waiting until I get the illness pretty bad…. I don't know. Because I … I mean, she didn't give me any medication or anything. She didn't tell me this … nothing, nothing, nothing … that's why … I don't know what causes cancer, nor anything of that sort. And they haven't … told me anything….

Some women complained that they never receive results of the Pap test, which led them to worry unnecessarily and to avoid going for Pap smears in the future. "*Si estás bien … olvídate. Ni una llamada ni nada. Si te hablamos es que tú estás mal. Pero como nunca hablan.…*" (If you're ok … forget about it; not even a call, nothing. If we call you, it means you're unwell. But since they never call….")

Women had very little knowledge about breast cancer etiology and risk factors. Some misconceptions revealed during the focus groups were that milk clots may form during breast feeding, which can lead to breast cancer. Some women also thought that eating nuts or seeds and using antiperspirant deodorant could lead to breast cancer. In regard to cervical cancer, some of the women said that certain birth control methods can produce cysts which, in turn, can become cancerous. Although they identified a few accurate risk factors and behaviors, women never identified age as a risk factor. There was no understanding that uterine, vaginal, and cervical cancers are different. Some of the barriers to seeking a Pap smear or mammogram included procrastination, lack of information or recommendation from the healthcare provider, lack of time, cost, and language/communication barriers with their healthcare provider. Fatalism was also described as a barrier to cancer screening. "*…de todos modos, cuando Dios dice: 'Te toca' … es porque te toca.*" ("When God says, 'It's your turn,' it means it is your turn)" and "*Para mí el cáncer es la muerte.…*" (For me … cancer is death.").

We also inquired about gender roles and *machismo* as a barrier for cancer screening. Some women stated that many husbands do not want their wives to be examined by a male doctor, which could be a major barrier to screening, especially when women have little control over who provides their healthcare. Other participants stated that their husbands care about the health of their family, but do not play an active role in it. Being screened or taking the children to the doctor is the wife's duty; "À la Mexican," they commented.

Discussion

This study provides preliminary evidence that uninsured women of Hispanic origin have low rates of regular cancer screening and healthcare utilization. This has serious public health implications for Hispanics, the fastest growing population in the United States, as well as the healthcare system that serves this population.

The structured survey and focus group data suggest that barriers to both breast and cervical cancer screening reported in this study are consistent with results observed in previous research among Hispanic women.[1,10,19,20] These women are likely to receive an initial Pap smear to obtain birth control. They are not likely to have regular Pap smears, however, which may be due to their considerable dissatisfaction with the Pap smear experience and the lack of follow-up regarding their results. This may be one explanation for the very low rates of maintenance Pap smear behavior.

Women who regularly see the same healthcare provider were 5.5 times more likely to have repeat Pap smear exams. Together, these results suggest that seeing the same provider may help build rapport and trust and improve communication surrounding the Pap smear experience. Free clinics could greatly improve the care that they deliver to the uninsured population by identifying a core group of healthcare providers who regularly conduct Pap smears for their patients. Focus group data also suggest that female healthcare providers may be more desirable among this population.

Focus group data also reinforce previous literature, which has demonstrated that Latinos hold negative conceptions of cancer as being a death sentence, something to avoid talking about, and a form of punishment from God, and they believe that there is little one can do to prevent it.[21] Because of their fatalistic view and fear associated with the disease, many Hispanics are reluctant to find out information about cancer or to get screened for the disease. In this regard, Burgess Wells et al. observed that there is a high correlation between purpose-in-life and breast health behavior. Purpose-in-life is significantly related to self-efficacy (having the knowledge and ability to care for oneself),[22] which may explain why Latinas delay seeking healthcare. This has significant implications for intervention development and should be incorporated into strategies to promote Pap and breast cancer screening among Latina women.

Although this study had a very limited sample of women ages 40 and older (18), the results suggest very low breast cancer screening rates for uninsured Hispanic women. This may be due to limited knowledge about breast cancer and poor communication with the healthcare provider. Women who did require an interpreter were significantly less likely to receive a mammogram. Myths about breast cancer also pervade (e.g., eating nuts may cause breast cancer), which also need to be debunked in order for women to have adequate breast health and screening behavior.

The results of this study should be interpreted with caution, as they were derived from a small, convenience sample of uninsured Hispanic women. *Promotoras* were able to recruit only 18 women ages 40 and older, thus limiting the interpretation of data regarding mammography utilization. Older women were also difficult to recruit for the focus groups, which limits the generalizability of the findings to a younger population of recent Latina immigrants. Additionally, the presence of an academic institution and a free medical clinic in the community from which these women were recruited may have influenced access to cancer screening services. Although the results could be safely generalized to low-income, Hispanic women in Forsyth County who have recently immigrated to the United States, they may not be generalizable to other counties in North Carolina.

Conclusion

Despite these limitations, this study is an important preliminary evaluation of breast and cervical cancer screening patterns among uninsured Hispanic women and the factors that contribute to poor regular screening behavior in this population. Interventions should be targeted not only to educating women about cancer and early detection, but also to the healthcare providers likely to provide care to these women. Cultural beliefs that underlie their screening behavior (e.g., lack of 'prevention' concept, machismo) need special attention when designing Hispanic-friendly interventions. Additional research is necessary to replicate these findings in larger populations of uninsured, Hispanic women, with more attention given to the healthcare delivery system and its contribution to poor screening behavior. **NCMedJ**

Acknowledgements: This pilot study was supported by the Piedmont Alliance for Cancer Research and Education (PACRE) grant, 1 P20 CA91434-01A1, and by the National Institutes of Health, Fogarty International Center International Maternal and Child Health Training grant, 1D43 TW05492 02. The study was approved by the IRBs of Wake Forest University Health Sciences and Winston-Salem State University. Informed consent was obtained from all participants.

REFERENCES

1 Boyer LE, Williams M, Callister LC, Marshall ES. Hispanic women's perceptions regarding cervical cancer screening. J Obst Gyn Neo 2001;30(2):240-245.
2 American Cancer Society. Cancer facts and figures for Hispanics, 2000-2001. American Cancer Society, Inc., 2001.
3 Ramirez A, Suarez L, Laufman L, Barroso C, Chalela P. Hispanic women's breast and cervical cancer knowledge, attitudes, and screening behaviors. Am J Health Prom 2000;14 (5):292-300.
4 Wells JNB, Bush H, Marshall D. Purpose-in-life and breast health behavior in Hispanic and Anglo women. J Holist Nurs 2002;20(3):232-249.
5 Wilkinson J, Wohler-Torres B, Trapido E, Fleming L, MacKinnon J, Peace S. Cancer among Hispanic women in South Florida: An 18-year assessment. Cancer 2002;95(8):1752-1758.
6 Peek M, Han J. Disparities in screening mammography. Current status, interventions and implications. J General Internal Medicine 2004;19:184-194.
7 Legler J, Meissner H, Coyne C, Breen N, Chollette V, Rimer B. The effectiveness of interventions to promote mammography among women with historically lower rates of screening. Cancer Epidemiol Biomarkers Prev 2002;11(1):59-71.
8 Nápoles-Springer A, Pérez-Stable EJ, Washington E. Risk Factors for Invasive Cervical Cancer in Latino Women, in Marilyn Aguirre-Molina and Carlos Molina, Eds. Latina Health in the United States: A public health reader, Jossey-Bass, 2003, 1st ed., San Francisco, CA, 212-232.
9 Zambrana R, Breen N, Fox S, Gutierrez-Mohamed ML. Use of cancer screening practices by Hispanic women: Analyses by subgroup. Prev Med 1999;29:466-477.
10 US Census Bureau, Population Division. Population estimates for Hispanics in Forsyth County, US Census Bureau 2000. Available at: http://www.census.gov/popest/estimates.php. Accessed January 2006.
11 NC Institute of Medicine (NC IOM). NC Latino Health 2003: A Report from the Latino Health Task Force. Durham, NC: NCIOM, February 2003.
12 Castro F, Elder J, Coe K, Tafoya-Barraza H, Moratto S, Campbell N, Talavera G. Mobilizing churches for health promotion in Latino communities: Compañeros en la salud. J Natl Cancer Inst Monogr 1995;18:127-135.
13 Ramirez A, Villarreal R, McAlister A, Gallion K, Suarez L, Gomez P. Advancing the role of participatory communication in the diffusion of cancer screening among Hispanics. J Health Commun 1999;4(1):31-36.
14 Navarro A, Rock C, McNicholas L, Senn K, Moreno C. Community-based education in nutrition and cancer: The Por la vida cuidándome curriculum. J Cancer Educ 2000;15(3): 168-172.
15 Paskett E, Tatum C, D'Agostino R, Rushing, J, Velez R. "The FoCaS Project, imporving breast and cervical cancer screening among low-income women," in Bracht N, Ed. Health Promotion at the Community Level: New Advances, SAGE Publications, Inc., 1999, 2nd ed., Thousand Oaks, CA, 47-58.
16 Paskett E, Tatum C, D'Agostino R, Rushing, J, Velez R, Michielutte R, Dignan M. Community-based interventions to improve breast and cervical cancer screening: Results of the Forsyth County Cancer Screening (FoCaS) Project. Cancer Epidemiol Biomarkers Prev 1999;8:453-459.
17 StataCorp. 2001. Stata Statistical Software: Release 7.0. College Station, TX: Stata Coorporation.
18 Pope C, Ziebland S, Mays N. Qualitative research in healthcare: Analysing qualitative data. Br Med J 2000;320:114-116.
19 Byrd TL, Peterson SK, Chavez R, Heckert A. Cervical cancer screening beliefs among young Hispanic women. Prev Med 2004;38:192-197.
20 Fox S, Stein J, Gonzalez R, Farrenkopf M, Dellinger A. A trial to increase mammography utilization among Los Angeles Hispanic women. J Health Care Poor Underserved 1998;9(3):309-321.
21 Pérez-Stable E, Sabogal F, Otero-Sabogal R, Hiatt R, McPhee S. Misconceptions about cancer among Latinos and Anglos. JAMA 1992;268(22):3219-3224.
22 Burgess Wells JN, Bush H, Marshall D. Purpose-in-life and breast health behavior in Hispanic and Anglo women. J Holist Nurs 2002;20(3):232-249.