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# Understanding factors influencing Latina women's screening behavior: a qualitative approach

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## Abstract

The purpose of this qualitative study was to understand influential factors associated with decisions to obtain breast or cervical cancer screening by diverse Latinas after attending a community-based educational program. Forty-five interviews were conducted in Arkansas, New York City and Buffalo, New York. Thematic data analyses were conducted to understand influential factors following from the intervention. Four major themes emerged from the interviews: Social Capital, Screening Utilization, Health Care Provider (HCP) Communication and Social Networks. Social Capital included resources, access or screening knowledge women had prior to participation in the program and new resources and contacts gained through the program that influenced care seeking. Screening Utilization factors included past health experiences and participation in the program. HCP Communication included perceptions of quality of care and communication issues with HCPs that positively and negatively impacted screening. Social Networks included women's networks regarding emotional support, encouragement to discuss health issues, overall family network and how these may influence health-seeking behaviors. These findings suggest that participating in group-based health outreach programs empowered women by increasing their knowledge and awareness about the health care system and enabled them, with the tools provided, to become proactive in their health care-seeking behaviors.

## Introduction

Cancer health disparities among minority and medically underserved groups have been attributed to low cancer awareness, low screening utilization rates, low social support and other sociocultural barriers that affect access to health care services [1–8]. Latina women in the United States are among such groups, with breast cancer being the most commonly diagnosed cancer and leading cause of cancer death [1]. Likewise, cervical cancer incidence rates are ~70% higher among Latina women compared with non-Latina white women. Latina women also experience the highest cervical cancer incidence rates of any racial/ethnic group in every region of the United States [1]. In regards to cervical cancer mortality rates, Latina women experience a 50% higher rate than non-Latina whites and ~80% of these deaths could be prevented by regular Pap screening and adequate patient follow-up treatment [1].

A study by Documét *et al.* [4] exploring perspectives of African-American, Amish, Appalachian and Latina women on breast and cervical cancer screening found that participants had limited knowledge about cancer risks, including inaccurate information regarding risks and screening guidelines, and free screening resources. Barriers to access to health care included cost of insurance (including co-payments and minimal or no paid sick leave), transportation, child care-related costs and difficulties in scheduling appointments [4]. Participants also discussed issues regarding communication

with Health Care Providers (HCPs) such as distrust, language barriers, limited recommendations for screening and intimidation regarding asking questions [4].

Well-established links exist between good social support, positive health outcomes and well-being [9,10]. Katapodi *et al.* [11] examined the influence of women's reported social support and their breast cancer screening adherence among mostly low-income African-American, Latina and Caucasian women. Overall findings demonstrated a significant relationship between social support and breast cancer adherence, which supports the assumption that women with more social support are more likely to adhere to recommended breast cancer screening guidelines [11]. A study by Suarez *et al.* [12] explored the role of social relationships on health behavior among Mexican, Cuban, Puerto Rican and Central American women and found that social integration was an important factor influencing cancer screening participation among Latinas. The effect of social integration was slightly stronger for Pap smear screening adherence compared with mammography, especially among Mexican Americans [12]. Among Puerto Rican women, social integration levels were lower and not related to cancer screening [12]. It is important to note that although underlying cultural characteristics (e.g. language and importance of family) can be similar among Latino groups, variations exist and can potentially affect the role of social networks on health behavior [12].

This study was a qualitative follow-up of a larger, randomized study measuring the effectiveness of a breast and cervical cancer educational program to increase mammography, clinical breast examination (CBE) and Pap screening ('Esperanza y Vida (EyV)'—'Hope and Life') (For more details see Ref. [13]). This particular qualitative study was implemented to better understand the findings from the quantitative analyses and inquire about potential factors among participants in both the control and intervention programs, because we had originally hypothesized that participants at the diabetes education programs would not obtain cancer screening at rates as high as participants at the cancer education

programs. However, within 2 months, 23% of non-adherent women who attended 'either' the intervention or control program obtained mammograms and 20% obtained Pap tests (Jandorf, Feldman, Winkel, Thelemaque, Saad-Harfouche, Bursac, Greene, and Erwin, in Review). Diabetes was chosen as a comparative control educational program due to the high rate of diabetes within the Latino community, with ~10.4% aged 20 years or older having diagnosed diabetes [14], and the ability to discuss prevention and screening for this disease in a time-matched group educational program. The purpose of this article is to report influential factors associated with decisions to obtain breast or cervical cancer screening by Latinas after attending either program.

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## Methods

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'EyV' programs were presented in three geographic locations: Arkansas (AR), New York City (NYC) and Buffalo, NY (WNY) and were conducted in three host sites (faith-based, secular community organization sites and in private homes) to be sensitive to the target audience. Programs were conducted by trained 'Consejeros de Salud' (lay health advisors), 'Sobrevivientes' (breast or cervical cancer survivors or diabetes patients) and Program Coordinators. Program content focused on topic-specific screening guidelines, enrollment for screening services, diagnosis, treatment and the recovery process, as well as dispelling myths and answering questions about either cancer or diabetes (for more details see Ref. [15]). It is important to note that both types of educational programs offered participants a printed resource guide for local clinical services that included free- and low-cost diabetes, breast and cervical cancer screening services and primary care clinics such as Federal Qualified Health Centers and Community Health Clinic program sites.

In-depth qualitative telephone interviews were conducted with adherent participants to understand factors influencing their screening decisions following participation in either program (i.e. control or intervention). We were also particularly interested in understanding why women from the diabetes

program had a relatively high rate (23%) of breast and/or Pap screening adherence [16]. Eligibility for this qualitative study included women who were non-adherent to any one of the three recommended guidelines (per American Cancer Society (ACS)) for age-specific screening exams (Pap test, CBE and mammography) at the time of either educational program and became adherent during a 2-month follow-up period. Women were considered non-adherent if it had been >3 years since their Pap test and >1 year since their last mammogram and CBE. Women (who self-reported not having had a hysterectomy) were adherent for cervical cancer screening if they reported having had a Pap test within the previous 3 years and if they completed a mammogram and CBE within the past year and had attended either EyV program (for more details see Ref. [13]). It is important to note that non-adherence status at baseline and adherence status at 2-month follow-up were self-reported with documentation of facility and date of exam [17]. Women who met the eligibility criteria were identified from the larger study sample. A total of 102 women were identified for potential follow-up interviews, of which 57 women were unreachable (i.e. disconnected phone numbers, moved or unable to contact after eight or more attempts) and a total of 45 women were interviewed from Arkansas (cancer program: 11; diabetes program: 4), New York City (cancer program: 10; diabetes program: 5) and Buffalo, NY (cancer program: 7; diabetes program: 8). Once contacted, no women refused to participate in the interview. Verbal consent was obtained from all women who participated in the telephoned interviews. Women also received a \$20 gift card as an incentive for their participation in this interview.

During this semi-structured telephone interview, participants were asked a series of 19 questions regarding their medical care, health insurance status, comparative recall of pre- and post-intervention knowledge of resources for screening and information about factors that may have influenced their screening decisions. Information was solicited regarding existing social network contacts in which participants confide for emotional support

and health-related information and support; specific aspects of the EyV programs that influenced their decisions to seek medical care; and communication with HCPs and screening experiences, as well as any feedback for improving the educational programs. See Table I for a list of the interview questions.

Using a grounded theory approach, the text was analyzed for categories and concepts emerging from the responses from participants [18, 20]. The emerging themes were identified from the concepts and terms used by the study population in response to the interview questions. Patterns among themes and respondent characteristics were explored in order to generate explanatory models for understanding the factors that influenced screening adherence among Latina women who participated in EyV. Due to the fact that this separate qualitative interview was not part of the original research design for the larger, multi-site intervention study (ACS Research Scholars Grant, RSGT-07-021-01-CPPB), there were limited resources for implementing and transcribing these qualitative interviews. Interviews were conducted in Spanish and were recorded, translated and summarized into English for analysis, including direct quotes, by project coordinators in each of the three sites. Then lead investigators (Erwin and Jandorf in English) and three project coordinators (in Spanish) reviewed the findings. This process included going back to the original interviews, transcribing specific comments by participants and validating analysis, but we did not have funding to have the 45 interviews transcribed. This helped to determine accuracy of results and develop preliminary themes on factors that influenced screening to understand the qualitative data in relation to quantitative data on program and environmental factors that influenced screening adherence among interviewees. Final, integrative thematic analysis was conducted by the investigative team to understand the data beyond the cognitive and psychosocial content and help inform the quantitative results as well. This resulted in the data being categorized into four thematic dimensions: social capital, screening utilization, HCP communication and social networks.

**Table I.** *List of In-Depth Interview Questions*

1. Where do you go if you need routine care, like a checkup?
2. Where do you go if you have a medical emergency?
3. Do you have medical insurance?
4. Do you travel to your home county for health care?
5. Do you feel that the doctors/nurses here in the United States are different from back home?
6. Would you rather get information from a doctor or nurse about female exams?
7. How would you describe the communication between you and your provider/providers?
8. Do you believe that seeing a health care provider that spoke Spanish would improve your quality of care?
9. Do you have someone in the area that you can confide in about your health and medical issues?
10. Did you know where to go for your exams before attending the Esperanza y Vida program?
11. Did attending the Esperanza y Vida program influence you to go to a health care provider?
12. Did attending the program influence your conversation with the health care provider about these cancer screening tests?
13. What helped you to decide to get your CBE/Pap/MAM exam(s) when you did?
14. What do you remember most about the Esperanza y Vida program you attended?
15. Do you remember picking up any printed materials about cancer screening or health resources in your community?
16. How did the program help you get screened?
17. How did meeting the staff and volunteers influence or help you?
18. What could we add to the program that would make it more helpful?
19. It would help us to know if there are parts of the program that women didn't like so we can change it and make it better. What would you change?

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## Results

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### Demographic characteristics

Demographic characteristics between women reached and those not reached were compared and there was no significant difference among women except for location (Table II). The majority of the women who were not reached were living in Buffalo (47.4%), originally from Puerto Rico (50.0%) and were not married (56.4%) and represent the 'snow-bird' subgroup of Latinas in this area who return to Puerto Rico annually during the winter. Women interviewed were from Mexico, Puerto Rico, Dominican Republic, Central and South America. All participants were older than 40 years, with 56% being 40–49 years old and 44% being 50 years and older. Most women were married (76%) and had a language preference of Spanish (89%). Among all participants, the majority have been in the United States for 10 years or more. Among those who have been in the United States for <10 years,

most were of Puerto Rican descent. The majority of women reported being unemployed, defined as currently not working, with only four women having either full-time or part-time jobs. The overwhelming majority of women had either no insurance (31%) or some form of public insurance, Medicaid or Medicare (38%).

### Social health capital

Social health capital emerged from responses to questions regarding how the information, resources and personal contacts received during the program benefitted the women and influenced their screening behaviors, health-seeking behavior and interaction with HCPs. The following statements reflect representative responses of the participants from cancer programs:

The program and the ladies reminded me that I need to take better care of my health (Mexico, 46 y/o, AR).

**Table II.** Demographics table by program site

	Arkansas		NYC		WNY		P-value
	N	%	N	%	N	%	
Study sample contacted							0.035
Reached	15	33.3%	15	33.3%	15	33.3%	
Unreached	23	40.4%	7	12.3%	27	47.4%	
Age <sup>a</sup>							0.067
18–39	0	0.0%	0	0.0%	0	0.0%	
40–49	11	73.3%	8	53.3%	6	40.0%	
50–59	2	13.3%	0	0.0%	4	26.7%	
60–64	1	6.7%	1	6.7%	3	20.0%	
65 or older	1	6.7%	6	40.0%	2	13.3%	
Country of origin							0.000
Mexico	10	66.7%	5	33.3%	0	0.0%	
Puerto Rico	0	0.0%	0	0.0%	12	80.0%	
United States	1	6.7%	0	0.0%	0	0.0%	
Central and South America	2	13.3%	4	26.7%	0	0.0%	
Dominican Republic and Other	2	13.3%	6	40.0%	3	20.0%	
Years living in the USA							0.575
<4 years	2	13.3%	0	0.0%	2	13.3%	
5–14 years	5	33.3%	5	33.3%	3	20.0%	
≥15 years	8	53.3%	10	66.7%	10	66.7%	
Marital status							0.024
Married/partnered	15	100.0%	10	66.7%	9	60.0%	
Not married	0	0.0%	5	33.3%	6	40.0%	
Language preference <sup>a</sup>							0.190
Spanish	11	78.6%	15	100.0%	13	86.7%	
English	0	0.0%	0	0.0%	1	6.7%	
No preference	3	21.4%	0	0.0%	1	6.7%	
Do you have health insurance?							0.008
No	9	60.0%	5	33.3%	1	6.7%	
Yes	6	40.0%	10	66.7%	14	93.3%	
Type of health insurance							0.011
None	9	60.0%	5	33.3%	1	6.7%	
Public (medicaid/medicare)	1	6.7%	7	46.7%	9	60.0%	
Work/self-paid/DK/other	5	33.3%	3	20.0%	5	33.3%	

<sup>a</sup>There is one reached participant missing data.

The information in your program was very important and it made me think about my breasts and the health of my daughter (Mexico, 53 y/o, AR).

Attending the program made me feel good about myself and made me feel empowered (Mexico, 70 y/o, AR).

The majority of women stated the information provided by the cancer education program, Spanish-speaking staff and volunteers and/or

Spanish language materials were considered to be extremely valuable. They reported being educated about screening guidelines, breast self-exams, HPV, the importance of getting screened early and free-/low-cost cancer screening resources. (Pre–post knowledge increases were tested and reported in earlier publications, see Refs [19,20]). Staff and volunteers were considered to be very personable, caring and interested in helping women with their health needs. Women also alluded to feelings of ‘empowerment,’ which led to an increased sense

of confidence and being motivated to take better care of their health.

Participants mentioned the topic-specific educational materials and screening guidelines, understanding the importance of early detection (for either disease), resource-related information and staff availability to answer questions as important benefits of the program that influenced their overall health-seeking behavior and screening utilization. Many women reported not seeing or receiving these or similar materials, especially in Spanish, in their communities or clinics. Diabetes program participants also reported that program participation influenced them to go see their HCPs and ask questions due to increased understanding about their rights as patients, and an increased motivation to take care of themselves and health needs. For diabetes program participants, this proactive attitude was generally related to increased awareness and education about services and interacting with the US medical care system as demonstrated with the following examples.

Yes, because when you did the program I had not done my Pap exam for over 10 years and it gave me the encouragement to go (Puerto Rico, 65 y/o, WNY).

EyV program helped me take care of my health and to take my medications (Guatemala, 79 y/o, NYC).

Early detection is important; I was scared to have a Pap test, but I'm not scared anymore (Mexico, 46 y/o, NYC).

Participants in the cancer program expressed similar experiences regarding the program's influence on their interaction with HCPs and access to care. Participants stated they were educated about their rights as patients and empowered to ask their HCPs questions regarding their health. Many became proactive about setting up medical appointments and seeking medical care when needed, in addition to screening.

After I attended the EyV program, I asked my doctor lot of questions about female

screening (Dominican Republic, 44 y/o, NYC).

[A]fter attending the EyV program I scheduled my annual appointments, before my doctor reminded me to do it (Mexico, 47 y/o, NYC).

Participants were also asked about the health care facilities they frequent for routine medical care and emergencies, and regional differences were identified. Most women in Arkansas (primarily from Mexico) used free-/low-cost clinics due to lack of health insurance ( $n=9/15$ ), with one woman stating she used a free-/low-cost clinic because she did not know how to use her health insurance. Women from Arkansas also identified using emergency rooms of local hospitals for medical emergencies. Women in Buffalo (primarily from Puerto Rico) stated they frequent specific clinics/hospitals because it is in close proximity to their homes, with approximately six (of 15) women also frequenting the same primary care physician within those clinics/hospitals of close proximity. They also identified using hospitals that are in close proximity to their homes for medical emergencies. Most women in NYC ( $n=13/15$ ) (from various countries) reported having a regular primary care doctor they frequent for medical services. When asked about medical emergencies, many stated close proximity to home and prior experiences both personal and with family as main reasons for using certain hospitals.

### Screening utilization

Respondents sometimes had previous knowledge regarding available screening resources from participating in existing free-/low-cost breast screening programs (i.e. federally funded NYS Cancer Services Program and Arkansas BreastCare Program) and primary care doctors (mentioned mostly by participants in New York City and a few in Buffalo NY). It is notable that approximately one-third of the women interviewed did not know where to go to receive screening services.

Yes, [I] knew about BreastCare, but EyV facilitated the enrollment/scheduling process (Mexico, 70 y/o, cancer program participant, AR).

Yes, [I] knew where to go, but by attending the EyV program I learned very good information; this is a very good program (Mexico, 46 y/o, diabetes program participant, NYC).

No I did not know, I did not read about it; my friend told me to come to an Esperanza y Vida program (Puerto Rico, 53 y/o, diabetes program participant, WNY).

These similar comments from both cancer and diabetes program participants demonstrate the benefit of offering language appropriate printed materials about local health care services and how to access these services, including toll-free numbers, to supplement the outreach program. Although the educational information in the diabetes program focused on nutrition, exercise and how to prevent diabetes or stay healthy in the event that you have been diagnosed with diabetes, these comments suggest that women were attentive to the other screening services from the supplemental resources. Moreover, word of mouth about the program and resources—‘...my friend told me to come...’—played a role in women’s decisions to attend a program and may have influenced other behaviors.

The primary reason given for why women went for either cancer screening test was due to past health experiences, either personal or family/friends. The EyV program was mentioned as the second most common reason women got screened, primarily because of increased awareness of screening-related health information and resources available to get screened. Few women mentioned their doctor’s recommendation as a reason for getting screened, although ‘past health experiences’ may have been related to referrals by HCPs.

### **HCP communication**

Communication and its effect on quality of care from participants’ perspectives emerged from the

interviews and were discussed in terms of language barriers, preference of communication and overall quality of communication with HCPs.

### *Language barriers*

The majority of women reported that having a HCP that speaks Spanish would be more beneficial for them and would improve their quality of care. Women said that if they could communicate with their HCP, they would be better able to express themselves, ask questions, seek medical care more frequently and HCPs would be better able to understand them and their medical needs. Some women from NYC had HCPs who spoke Spanish and others felt it would be no different.

My doctor and nurse speak Spanish and it makes my appointment much easier (Mexico, 58, y/o, cancer program participant, AR).

Of course, it would improve my quality of care 100%; I don’t speak English very well; I can express myself better in Spanish (Dominican Republic, 42 y/o, cancer program participant, NYC).

### *Preference of communication*

When asked about preference in getting information from a doctor or nurse regarding female exams, most women preferred getting their health information from a doctor versus a nurse. Women referred to doctors as being male, having a higher level of knowledge and power status because of their medical education compared with nurses. Participants reported that doctor’s were better equipped to provide health information and answer their questions. Most participants referred to nurses as female, and expressed a sense of comfort in speaking to another woman about women’s health issues. Some women perceived nurses to be less knowledgeable but having more time for patients compared with doctors. Women in Buffalo reported being more

comfortable speaking with nurses than doctors compared with women from New York City and Arkansas.

Nurse; because 'it's easier to talk to a woman' (Mexico, 70 y/o, cancer program participant, AR)

Doctor; because 'he knows more than the nurse and can describe what's going on with me better' (Mexico, 41 y/o, cancer program participant, AR).

### *Overall quality of communication with HCPs*

There was a difference in participants' reported perceptions of the quality of communication with HCPs. Women in New York City and Buffalo reported having what our analysis categorized as 'good' communication with their HCPs. This consisted of not feeling rushed, having HCPs listen to them, feeling like their HCP understands them, having access to an interpreter when needed and experiencing follow-up from HCPs. Women in Arkansas were less likely to report any of these 'good' qualities of communication with their HCPs. In fact, communication and interaction elements mentioned by Arkansas participants included feeling rushed at appointments, seeing too many different HCPs when receiving medical care which led to inconsistent care, not being understood by their HCPs, and lack of trust and privacy when using interpreters. Women at both sites also mentioned uncertainty regarding the interpreter's translation (e.g. was the interpreter really translating what was being said or were they translating incorrectly) and how unreliable the interpreter service was when receiving care.

I wonder if the interpreters at the clinic are really saying what I just told them, so if my doctor spoke Spanish it would improve my care by a lot (Mexico, 63 y/o, cancer program participant, AR).

Regardless of interpreters you never know if they are truly saying what you want and feel

(Guatemala, 79 y/o, diabetes program participant, NYC).

### **Social networks**

Issues related to social networks of participants emerged from questions about perceptions of who they confide in emotionally and for health-related issues. Participants were asked about their current living situations and the proximity of their closest relative(s). An additional area of interest related to the social network theme resulted from the responses about dissemination of knowledge gained from program participation within the participant's personal network.

Reported networks for emotional support consisted of family members, specifically husbands, children, siblings and friends/neighbors. Similarly, networks regarding health and medical issues also consisted of family members (e.g. husbands, children, siblings, sister-in-laws and friends/neighbors). Ten of the 45 women (22%) reported not having anyone to confide in regarding emotional and health/medical issues, demonstrating the isolation of this sample of women, many of whom do not work outside the home and are living in a foreign country. Overall, reported social networks overlapped in regards to their constitution and because they were mostly composed of family members reveal the potential limitations women have for obtaining new health-related information.

Regarding potential knowledge dissemination from outreach interventions through their personal networks, approximately eight (18%) participants mentioned sharing the knowledge they acquired from the EyV program with other women, their respective communities, HCPs and church. One participant mentioned that she became a volunteer for EyV after the program, which increased her network and status as a community leader. A few other participants alluded to increasing their network through community contacts because of their participation in the EyV program. Enhancing social network opportunities through participation in an educational program can help address the social isolation of new immigrant Latinas.



This program has changed everything about my life. I am a volunteer, I have new friends in the community, and people respect my opinions (Dominican Republic, 44 y/o, cancer program participant, AR).

I am [a] volunteer for EyV and I mentioned the program to the doctors at Westside Clinic (Mexico, 63 y/o, cancer program participant, AR).

To share the knowledge I learned at the program with other women, and to let them know how important it is to get screen[ed] every year [screening referred to breast and cervical cancer screening] (Mexico, 46 y/o, diabetes program participant, NYC).

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## Discussion

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This study provided nuanced information from in-depth qualitative interviews ~9 months after participants' experiences with outreach educational programs. From these interviews, we are able to compare experiences and the impact of the programs among diverse Latinas in very different urban/rural environments, and further understand how different educational topics impacted health behaviors and screening adherence among participants. Limitations of this study include the relatively small sample size in each location, inability to contact more of the recent immigrants from the larger study due to the transient nature of their local residence and relocation within the follow-up period, and the potential bias of not having the perspectives from those women we were unable to reach. Because most of the women reached in Arkansas were from Mexico, and in Buffalo were from Puerto Rico (which represents the Hispanic census for these areas), there may be some confounding of results due to the influence of site versus country of origin. The results include some supporting quotes from Central American women, so we suggest they are reflective of the population sampled for this

qualitative study. The limited numbers of respondents from each site and subgroup make these results challenging to untangle in this qualitative study and limit the generalizability of these findings. We did not encounter significant variations among women from Central and South America compared with women from Mexico in this or the larger study. We offer more discussion and exploration of these influences on our study population in other published reports of the larger study [13, 16, 19]. Also, most respondents ( $n=41/45$ ) in this study represented women who have been in the United States a longer period of time and may reflect a subgroup demonstrating greater acculturation/social integration, fewer barriers and more ease in responding to resources provided by the outreach and intervention programs. Although we only conducted 15 interviews at each site, from the content analysis, we did achieve saturation [21] for the topics and they are therefore considered representative responses for women who participated and obtained screening tests. An additional limitation was the limited resources for implementing and transcribing these qualitative interviews. However as mentioned previously, all interviews were conducted in Spanish and were recorded, translated and summarized into English for analysis.

Overall, participants in either program identified the educational content, bilingual staff/volunteers and printed resource guides as influences that positively impacted their screening decisions and health-seeking behaviors and/or may have resulted in more proactive behaviors to seek health care. Interestingly, participants from the diabetes programs identified similar factors of influence. Although the diabetes program did not present any breast or cervical cancer-related education, the call for seeking care, along with imparting information and printed resource guides about where to seek care, appears to have direct benefits that transferred to other health and screening opportunities such as mammography and Pap tests. In fact, when reading the interview responses, it was sometimes difficult to determine which program the woman attended, as there were very little differences in their responses. Whether this transition to other screening tests

occurred once a woman accessed primary care or was sought by the woman because she read about it in the materials is not completely clear. Future research should explore sources of information adoption at outreach programs and how much information about cancer screening can be received and understood by women from interaction with staff versus printed materials. Participants from the diabetes programs also discussed a positive influence on their health care-seeking behavior and communication with their HCPs due to increased confidence in understanding screening exams, patient rights and the ability to ask questions. These similarities in responses demonstrate the holistic nature of health from the women's perspective; they do not necessarily perceive these health issues through the lens of disease-specific screening guidelines, which suggests important opportunities for integrating health services for women in public health messaging.

HCP communication varied by geographic location, specifically in terms of perceived language barriers and quality of care. Although the majority of women believed the quality of care would improve if their HCPs spoke Spanish, participants from New York City felt it would not improve their quality of care or already had HCPs that could communicate in Spanish. Not surprisingly, participants from Arkansas, a more recent destination for Latino immigrants, reported more language and communication barriers due to differences in language and culture, resulting in lack of trust in HCPs and interpreters, and inconsistent care. These experiences reflect the geographical variation that Latina immigrants are experiencing when they reside in states that are not traditional Latino immigrant states (e.g. Arkansas, Alabama, Georgia, North Carolina, South Carolina, Tennessee and Virginia) and have a limited history of Hispanic/Latino immigration [22]. This new influx of Latino immigrants into non-traditional southern states has brought to light the limited infrastructure in the health care system to address culture and language-specific needs of vulnerable populations. This is corroborated by other published research on cervical cancer screening behavior among Latina immigrants in the South,

showing that lack of health insurance, access to consistent health care services (e.g. HCPs and interpreters), lack of trust in HCPs due to negative experiences with health care services, language barriers and difference in culturally based health beliefs served as barriers to getting screened [4, 23,24]. This was in sharp contrast to women's perceptions from New York City and Buffalo who described more positive overall communication experiences with HCPs. These variations can significantly impact the specific needs of communities, local adherence rates and emphasize the need to accommodate geographic and cultural variations in intervention programs. Past research has shown that lack of continuity of care and not knowing where to go for screening exams are significant barriers to access to health care and screening services among racial/ethnic underserved and uninsured minorities [5, 25].

In regards to social networks, participants mentioned knowledge dissemination (e.g. topic-specific screening information and local resources) within their personal networks (e.g. women, HCPs and their respective communities), as well as expanding their current personal networks due to their participation in EyV programs. Although these findings may have positive impact on the importance of social networks resulting from outreach efforts, further research specific to this topic is needed. This study suggests that providing women with a culturally tailored program, which included lay health advisors, may enable some participants to become natural helpers within their respective social networks, and disseminate information regarding diabetes or breast/cervical cancer and screening resources. Past research has shown that natural helpers play an important role in providing individuals from their respective social networks with individualized and culturally appropriate health information that can otherwise be difficult for professionals to address [26, 27]. Therefore, understanding the role of lay health advisors and social networks as a tool in cancer prevention and knowledge dissemination is crucial in order to enhance existing community-based interventions. In a broader public health context, this also serves

as an opportunity to further explore the interplay of social networks, social capital and its influence on health behavior within culturally diverse populations.

In this study, participating in a culturally tailored educational program within an appropriate cultural context showed increased self-confidence and knowledge among participants to positively influence health care-seeking and screening behaviors. Findings from our study confirmed known barriers to breast and cervical cancer screening adherence such as limited knowledge and awareness about breast and cervical cancer and screening guidelines, communication issues with HCPs and intimidation in asking questions due to fear and mistrust [28]. Past experiences, whether personal or through family/friends, provided a context for understanding how these experiences shape and influence health behaviors among participants and could be observed throughout the four themes that emerged in this study. Therefore, past health experiences should be explored and taken into account when developing culturally appropriate outreach programs. Our findings suggest that educational interventions and appropriate printed resources delivered at the community level, even when the focused message is a health topic other than cancer, can positively impact cancer screening. These findings informed the larger randomized study by demonstrating that participating in an outreach educational program, within local community settings (e.g. church, community center, friend's home), regardless of the specific health programming, provides new and essential resources and social contacts that women can apply to enhance their access to services and results in a broader social network. These qualitative findings further suggest that participating in the education outreach programs, regardless of topic, empowered women by increasing their knowledge and awareness of 'health care resources' (rather than specific disease facts) and enabled them with the tools needed to become proactive in their health behaviors. These findings are also informing future research plans and program content to explore the potential

impact of social networks and encourage women to be more proactive with their health care.

These study findings suggest the following actions: (1) promoting more communication and assertiveness with health care services and professionals, and empowering women with the confidence and resources to ask questions about their health care and screening; (2) increasing availability of culturally and language-appropriate printed materials at the community level, including resource lists of local facilities and (3) recognizing and addressing local community and geographic variability to access, screening adherence and health systems issues. As noted in the discussion, there are significant future research opportunities related to the role of print materials when compared with other educational design elements in positively impacting screening behaviors; and the role and influence of social networks developed through outreach interventions in both screening behaviors and dissemination of related health information.

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## Conflict of interest statement

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None declared.

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