Published in final edited form as:

Soc Sci Med. 2009 March ; 68(5): 832–839. doi:10.1016/j.socscimed.2008.12.023.

Barriers and facilitators related to mammography use among lower educated Mexican women in the USA

Silvia Tejeda,
University of Illinois at Chicago

Beti Thompson, PhD,
Fred Hutchinson Cancer Research Center

Gloria D Coronado, PhD, and
Fred Hutchinson Cancer Research Center

Diane P Martin, PhD
University of Washington, Seattle

Abstract

This study explores barriers to and facilitators of breast cancer screening and how people in a woman's social networks influence these screening behaviors. A total of 40 semi-structured qualitative interviews were conducted in rural Washington State (USA) among Mexican women aged 50 and over. Eligible women reported either having had a mammogram within the last two years, over two years ago, or never. We found that lack of health insurance, the perception that the mammogram is painful, and fear of finding cancer were cited as barriers to participation in mammography screening. Women who had lived in the US for a shorter period were more likely to report never having had a mammogram than women who had lived in the US for a longer period. Women often cited daughters and female friends as those from whom they received advice or encouragement to receive a mammogram. Few differences were found related to network size and mammography use among the groups. These findings may be useful in designing interventions to promote mammography screening among Mexican women. Including daughters in intervention activities may help facilitate mammography use among Mexican women.

Keywords

mammography; rural; USA; barriers; facilitators; Mexican women; Hispanic; screening

INTRODUCTION

Ethnic disparities in prevalence of advanced-stage disease and mortality are predicted to decrease with adherence to recommended screening intervals (Blanchard, Colbert, Puri, Weissman, Moy, Kopans et al., 2004). In the 2003 US National Health Interview Survey, Mexican women (63.4%) were less likely to report receiving a mammogram within the past

Corresponding Author: Silvia Tejeda, University of Illinois at Chicago, Chicago, IL UNITED STATES [Proxy], E-mail: stejeda@uic.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

two years compared to Non-Hispanic White women (70.4%) (Howe, Wu, Ries, Cokkinides, Ahmed, Jemal et al., 2006).

Individual level factors associated with mammography uptake among Hispanic woman include having health insurance, a regular clinic for health care, higher education levels, and being over 50 years of age (Coughlin, Uhler, Bobo, & Caplan, 2004; Gorin & Heck, 2005; Hiatt, Pasick, Stewart, Bloom, Davis, Gardiner et al., 2001). Other factors include a woman's culture and beliefs. Chavez et al. (Chavez, Hubbell, McMullin, Martinez, & Mishra, 1995) illustrated that Hispanic women were more likely to have a belief system that was different from the biomedical model. In the "Latina immigrant model", beliefs about physical trauma to the breast along with behavior and lifestyle choices were seen as causes of breast cancer. Similar findings have been reported among other populations of Mexican women in the US (Borrayo & Jenkins, 2001; Hubbell, Chavez, Mishra, Magana, & Burciaga Valdez, 1995). For example, women believed that breast cancer was a symptomatic disease and therefore it would be inappropriate to pay for an exam without having any symptoms. *Golpe* or physical trauma to the breast is commonly mentioned as a factor thought to be associated with breast cancer among Hispanic women and, specifically, Mexican women. Furthermore, a woman's family and upbringing may influence use of traditional remedies. For example, medical information is passed down from mother to daughter, and the woman must decide when she can treat an illness herself and when to seek help from a doctor (Gonzalez-Swafford & Gutierrez, 1983).

Associated with culture is acculturation, the process whereby individuals whose primary learning has been in one culture, adopt attitudes, values, and behaviors from another culture (Negy & Woods, 1992). Research findings among Hispanics suggests that women with lower levels of acculturation are less likely to have received a recent mammogram (O'Malley, Kerner, Johnson, & Mandelblatt, 1999; Palmer, Fernandez, Tortolero-Luna, Gonzales, & Dolan Mullen, 2005), while other studies show that the effect attenuates after adjusting for socioeconomic factors (Abraido-Lanza, Chao, & Gates, 2005; Marks, Solis, Richardson, Collins, Birba, & Hisserich, 1987).

While barriers to and facilitators of breast cancer screening are generally described at the individual level, interpersonal level factors, such as social networks, which are relationships or links between people that may function to provide support, may also play a role (Heaney & Israel, 2002). The number or quality of women's relationships may influence screening as these relationships may offer relevant information or support. For example, some studies have found that larger social networks were positively associated with breast cancer screening (Kang, Bloom, & Romano, 1994; Suarez, Lloyd, Weiss, Rainbolt, & Pulley, 1994). Also, in community-based cancer screening interventions women's informal networks have been used as a way of influencing mammography use (Curbow, Bowie, Garza, McDonnell, Scott, Coyne et al., 2004). Additionally, social influence is a feature of relationships that can be used as a process to change health behavior (Lewis, DeVellis, & Sleath, 2002). For example, studies have found that a provider's recommendation for a mammogram is among the most influential factors in mammography use (Hawley, Earp, O'Malley, & Ricketts, 2000). While some studies have not found an association between recent mammography and being married (Aldridge, Daniels, & Jukic, 2006; Coughlin et al., 2004), other studies have found that a Hispanic woman's partner may act as a barrier to screening (Frank-Stromborg, Wassner, Nelson, Chilton, & Wholeben, 1998; Salazar, 1996). In a different study, with Mexican women of child-bearing age, Harley and Eskenazi found that in addition to a husband's social support having a positive influence on his partner's behaviors, such as diet quality, they also found that the husband's cultural beliefs had an effect on his wife's pregnancy behaviors, such as smoking (Harley & Eskenazi, 2006).

The purpose of this study is to describe barriers to and facilitators of breast cancer screening and how people in a woman's social networks influence these screening behaviors.

METHODS

Setting

We conducted a qualitative study, interviewing individual women of Mexican descent living in the Yakima Valley of Washington State (USA). Data collection took place between November 2005 and May 2006. The study was approved by the Institutional Review Board of the University of Washington, Seattle.

Sample

We used a quota sampling method to recruit 40 participants in categories based on their screening experience: women who had had a mammogram recently (i.e., within the past two years), more than two years ago, or never. Furthermore, we attempted to interview an equal number of women in each group who were between ages 50–59 and over age 60.

Participant Recruitment

Participants were identified through an ongoing local program (Hispanic Cancer Network program) which provides cancer information to community members. Recruitment methods included flyers posted at organizations such as schools, grocery markets, community centers, and churches, with a phone number to call for further inquiry. Second, a brief announcement about the study was made on the local Spanish radio station. Third, program staff set up tables with pamphlets and information about cancer and screening at the local organizations mentioned above. Program staff asked women to provide their name and phone number for later contact about their participation in studies or programs about cancer prevention. Women who did so were contacted later to solicit their participation for this study.

Interview

An appointment was made by telephone and scheduled at the participant's home. Women provided written informed consent, which included their permission to audio record the interview. At the start of the interview, a diagram was presented to the participant and the interviewer explained to her that it was a woman having a mammogram. The participant was asked if she had ever had a mammogram and the date of her last mammogram. After the interview, women were provided with pamphlets in Spanish or English, containing information about breast cancer screening, programs about free or low cost cancer screening for women, and information about other health care services. On average, the interviews were 90 minutes long.

Interview guide

Questions about sociodemographics and social networks were structured. The social network index utilized in this study was based on the modifications made by Suarez et al. (Suarez et al., 1994) to the original index developed by Berkman and Syme (Berkman & Syme, 1979). This index was selected due to its previous use in a study with Hispanic women (Suarez et al., 1994). The index included seven items: number of confidants, close friends, and close relatives; frequency of contact with close friends or relatives; church membership; church attendance; and marital status. A score was assigned to each participant by summing across all variables and grouped into tertiles: low (0–13), medium (14–24), and high (25–41). Semi-structured questions included: How do you keep yourself healthy? Where do you seek advice for health issues? What kinds of things have encouraged or discouraged you to have a mammogram?

What are some of the things that people you know have said or done that you found most helpful, or have prevented you from getting a mammogram?

Analysis

All interviews were transcribed verbatim in the language in which the interview was conducted, either Spanish or English. The transcripts were imported into Atlas.ti 5.2 to sort, organize, and code the data. The data were analyzed by coding and comparing patterns recurring in the data. First, codes were developed based on the interview questions and new ones were added as codes became apparent in the data. Codes were attached to “chunks” of words, sentences, or paragraphs (Miles & Huberman, 1994). Second, codes were grouped into categories and recurring patterns or events were identified in the data (McCann & Clark, 2003) and compared by mammography status (had a recent mammogram, over two years ago, and never had one) and by age group (50–60 years and >60 years). Coded transcripts were compared to assess similarities and differences in the text coded, and differences in coding were resolved by consensus.

We also identified the text that was related to the participant speaking about other people based on three questions. We compared responses from the first question of the index about number of people trusted with personal issues to the two open-ended questions about where women seek health advice and who had encouraged/discouraged them screening.

RESULTS

Forty women were interviewed, including 14 who reported having a mammogram within the past two years, 14 who reported having had a mammogram over two years ago, and 12 who reported never having had a mammogram (Table 1). Among participants, 24 were between ages 50 to 59 years and 16 were over 60 years of age. Participants self-identified as being Mexican (N=37), Mexican-American (N=2), or Hispanic (N=1). Most women were born in Mexico, had lower education levels, and conducted the interview in Spanish. Over half were employed (20% food warehouse, 18% farmworkers, and 15% service). Others reported babysitting their grandchildren (20%), not working (18%), or that they were retired (10%). All women, except for three, lived-year round in the US.

Differences among women existed in number of years lived in the US and health insurance status. Those who reported never having had a mammogram had spent fewer years, on average, living in the US than those women who reported that they had ever had a mammogram. A greater percentage of women who were uninsured reported that they had never had a mammogram or had not had a recent mammogram.

We describe barriers to and facilitators of screening by themes. Where there are differences by screening group (recent mammogram, over two years ago, never) or age group (50–60 year and >60 years) we make note of it.

Barriers

Perceived low risk—Women who reporting never having had a mammogram were similar to those reporting having had one over two years ago in that they described not having pain or a lump on the breast as meaning that they did not need to have screening. They did not believe they were at risk for breast cancer. Women in both age groups shared this belief. A 59-year-old woman who reported never having had a mammogram and had lived in the US for 3 years while returning to Mexico every winter, described how an examination was needed only if she felt a physical symptom.

“She [a nurse in Mexico] tells us when showering we can touch [the breast] like this, she says that we can feel some *bolitas* (little lumps) here [on the breast]. She says that when feeling the *bolitas* then you need to go have an exam. If you don’t feel them, then there is no need to have those exams done. I have always felt fine.”

A 62-year-old woman, who had lived in the US for 20 years but had never had a mammogram and currently did not have health insurance, explained how she did the breast self-exam. “You put soap [on breast], every time I shower I don’t feel anything ... my daughter, told me that’s how it’s done...I’m looking to see if it hurts... I don’t feel pain.” During the interview the participant mentioned that she was going to schedule a mammogram, which would make her daughter happy.

Health insurance and time off from work—Younger women (50–60 years) who reported never having had a mammogram or having had one over two years ago were more likely to mention the cost of the exam and needing to take time off work as barriers to having the test. In most cases, women who discussed cost as a barrier did not have health insurance. Only one woman over age 60 years mentioned cost as a barrier and none mentioned work as a barrier. Three women in the younger age group said that they had recently signed up for the state’s health insurance and did want to have the exam. Another woman, without health insurance, mentioned that in the past week she had gone to the doctor for heart pain and the doctor scheduled a mammogram for her. Similarly, a 50-year-old woman, who was born in the US and reported never having had a mammogram, mentioned that she had recently signed up for the state health insurance and said that in the past, “The doctor wanted me to schedule one [mammogram], I was working and I didn’t have the money to go do it...” Additionally, a 50-year-old woman, who had lived in the US for 9 years and had a mammogram over two years ago, but currently did not have health insurance, stated,

“... There are some clinics that charge a lot and since we work in the fields [farmworker] we barely have enough for bills ...that is the reason why we don’t go to the clinic to do the mammogram and Pap test.”

Pain of exam—Women from all screening groups reported that the mammogram was a painful procedure. Women who reported never having had a mammogram mentioned that they had heard from other women that the mammogram was painful. A 55-year-old woman, who was born in the US but reported never having had a mammogram – although she did currently have health insurance – mentioned that her doctor had set up an appointment for her, but she decided not to go. Moreover, she had a previous negative medical experience that further discouraged her.

“I didn’t go. Women have told me that it’s very painful... They put your breast there [mammogram machine]. Not me, I feel desperate. I remember the time they put me in a tube [MRI] ... I felt I was suffocating.”

Similarly, women who reported having a mammogram over two years ago also talked about the pain associated with the exam. A 51-year-old woman who was born in the US, stated, “I haven’t had one for years, I’ve always been afraid of them...I’ve gone one time... It just hurt me so much ... I said, no never again and the doctor has given me notices, but I don’t go.” In contrast, older women who reported a recent mammogram also mentioned pain of the exam, but expressed a positive point, for example, being comfortable with the technician or having had the exam for the benefit of their own health. As a 60-year-old woman who had lived in the US for 10 years stated, “It does hurt, but the women [technicians] are always nice, it’s not the same one...I do feel uncomfortable because they [technicians] squeeze it [breast]...I let them do it for my own good.”

Fear of finding cancer—Fear of finding breast cancer or having the breast removed was mentioned as a barrier to screening among women from all screening groups. Yet, only women who reported never having had a mammogram referred to themselves as fearing the exam; for example, a 55-year-old woman who was born in the US commented, “I’m afraid they will tell me that I have something and that I have to return [for more tests].” Women who reported having had a previous mammogram referred to other women as being afraid of finding cancer. For example a 57-year-old woman who had lived in the US for 5 years and had a mammogram over two years ago pointed out, “... If they cut their breast then they will die. I think it’s the fear. With faith in God, many do get ahead [recover from cancer].”

In contrast, women in both groups that reported having had a previous mammogram used the word fear to describe what encouraged them to have a mammogram. A 51-year-old woman who had lived in the US for 31 years, explained, “I don’t like being without it [mammogram] for a long time. So many people have died of cancer. I’m afraid. A friend died of cancer...I was with her [when she died], oh my God, it was such sadness.” For this similar reason, a 62-year-old woman who had lived in the US for 9 years said, “...to be sure that one doesn’t have anything, because my breasts have never hurt for any reason, but nonetheless, I wanted to do that [mammogram] because of fear, because they say that everything can be fine, nothing hurts, and sometimes you come out with it [breast cancer]. The participant explained that when women feel pain internally, “it’s the infected *golpe* (physical trauma to the breast) where the blood becomes bad and the *golpe* bursts so you have an operation”.

Facilitators

Knowing people with cancer—Women from both age groups who reported having had a mammogram explained that knowing relatives who had had cancer motivated them to get a mammogram. A 51-year-old woman who was born in the US stated, “My mom and my sister [had cancer] then I thought it may be in the family, so I better get myself checked.” Similarly, a 66-year-old woman, who had lived in the US for 40 years, mentioned that what encouraged her to seek screening was that she was getting older and her mother had cancer in the eye. These examples are also related to having knowledge of risk factors related to cancer.

Health care system—Women from both age groups who reporting having a recent mammogram described factors related to the health care system as encouraging them to do so. A female doctor was one factor. One 60-year-old woman who has lived in the US for 37 years stated, “I wouldn’t let a man do it [mammogram], I get very embarrassed.” This woman also said that she had a mammogram every year and knew that it would be better to find cancer when “it’s early”. Another factor influencing women was having had a recommendation from the doctor, while some women also mentioned having received a call from the clinic or getting a notice in the mail about screening.

Prevention—Women in the group that reported having had a recent mammogram discussed prevention, such as regular screening for early detection. Adoption of beliefs associated with the biomedical model about prevention and disease did not necessarily mean that their own beliefs about remedies were invalid. For example, a 51-year-old woman who had lived in the US for 31 years said, “I have a sister who for several years hasn’t had a mammogram...[I tell her] you have to do it [mammogram] every year...” This same women spoke about her preference for traditional remedies, “Many times the natural herb provides more healing than what the doctor gives you...”

Traditional remedies (barrier or facilitator?)—There was little difference in the percentage of women reporting use of traditional remedies by age group, as 70% of women from each age group mentioned using traditional remedies, such as herbs or remedies as learned

from their mother. There also seemed to be a small difference by years lived in the US. Based on the median, 71% of women who had lived in the US 19 years or more reported using traditional remedies compared to 78% of women who had lived in the US for less than 19 years. There did seem to be some difference by screening group as all but one women who reported never having had a mammogram used traditional remedies and 10 of 14 women who reported a recent mammogram, and only half (7 or 14) of women who reported not having a mammogram in the past two years used traditional methods. An example of a non-user of traditional remedies was a 55-year-old woman who had lived in the US for 32 years, who commented that she was not a “big user of home remedies” and said, “Mammograms help to be in good health, it’s important to find any illness in time...” She also mentioned that when she was younger there was no information about the benefits of breastfeeding children and its protection against breast cancer.

Influence from other people

Three questions were asked to understand how women’s social networks might influence screening behavior: first, from whom women sought health advice and second, how others had influenced or discouraged them to have screening. The third question was part of the social network index asking women whom they trust with personal issues. The social network index was used to assess how women’s answers related to the questions above.

Women who reported having had a recent mammogram mentioned that they spoke with female friends or relatives about their health and their doctors. The female most often mentioned was a daughter. When specifically asked about whether anyone influenced or discouraged participants to have a mammogram, they were more likely to mention their doctor as having recommended the exam, as described above, and daughters were also cited as providing encouragement. A 74-year-old woman, who had lived in the US for 42 years, stated, “[I tell] my daughter, it hurts here and she’ll right away be attentive. She tells me that we need to go [go to the doctor].” In addition, younger women were more likely to say that they gave advice to others about their health instead of saying that they received advice. Besides seeking health advice from people, fewer women sought health advice from printed materials. A 52-year-old woman who had lived in the US for 19 years explained that she learned about health from reading books, “I like to read books about medicine...and that is how one knows what is good to treat illnesses, and then I say, ‘in the name of God, ... I’m going to do this’, but I don’t take everything, only what I know is good, *yerbas* (herbs) that I don’t know, I don’t take.” This example shows that some women think God is someone who could help retain good health. The relationship with God was personal and practical.

In contrast, women who reported having had a mammogram over two years ago were more likely to say that they only spoke with their doctor and about half stated that they did not speak to friends or relatives about their health. When asked specifically about whether anyone influenced or discouraged screening, women from both age groups were more likely to say that others do not influence them because having a mammogram is for one’s own health. Women did not commonly mention seeking health advice from men or being influenced by them for their screening. Sons were mentioned twice and provided important support, such as calling an office about health insurance or providing a ride to the clinic. A 50-year-old woman who has lived in the US for 19 years stated, “If I tell them [sons] take me to the doctor, they take me, but to tell them that I have this or how I feel, ... well, no.” Similarly, she also mentioned not wanting to bother her friend with her own personal issues, “She’s busy with her stuff and it’s not as if I’m going to complicate her life with my life, that’s why I don’t.”

When asked from whom participants seek advice related to health, most women who reported never having had a mammogram mentioned a female relative. A 62-year-old woman who has lived in the US for 20 years explained how her daughter taught her how to do a breast self-

exam, as already quoted in the section on perceived low risk. Although women were asked about their health, they often gave examples about sharing information about their grandchildren's health with their female relatives and it was also common for women to stress that they were not sick therefore they did not need to discuss with others health related issues. Women also gave reasons for not speaking to others about their health. One 54-year-old woman, who had lived in the US for less than one year, said, "I don't look for it [health advice] anywhere... [I speak] with my *comadre* (her child's godparent), but I'm not a sick person..."

Finally, women in the three screening groups described how a woman's husband may discourage screening. Younger women who had reported never having had a mammogram or having had one over two years ago referred to their own experiences, while women who had a recent mammogram only referred to those of other women. For example, a 55-year-old woman who had lived in the US for 32 years spoke about others, "In our Mexican culture... machismo exists...[he says] 'how are you going to go and have them look at your breast', or he'll tell you that you don't have anything and you shouldn't go to the doctor." Similarly, a 50-year-old woman, who had lived in the US for 8 years, was divorced, and had never had a mammogram, noted of herself, "Sometimes women stop themselves because of the way the husband is treating them; if they are going to do that [mammogram] then they are going to do something else with the doctor... my husband would tell me that if I went to do those exams it was because I was going to do other things and that is not true."

Social network index

Few differences were noted between size of social network and reporting having had a recent mammogram or having had one over two years ago. A greater number of women who reported a recent mammogram were categorized in the large or medium social network index (Table 2). Most women who reported having a mammogram over two years ago had a medium or small social network. Women who reported never having had a mammogram were equally as likely to have large, medium, or small social networks. A lower percentage of women who reported never had a mammogram had weekly contact with their social network, and a lower percentage of women who reported not having had a recent mammogram attended mass weekly. The final component of the index was marital status; more than half of women in each group were married.

Women who reported having had a recent mammogram were more likely to mention female friends and daughters as people they trusted with their personal issues. This finding is similar to the open-ended questions where female relatives or friends were largely mentioned as people who women sought or gave advice to. Women also included males, such as husbands and sons, in their social network. This is one notable difference from the open-ended questions. Women were not likely to mention males as people from whom they sought health advice or influenced their screening. Some women mentioned that they did not trust others with personal issues. This is another similarity with the open-ended questions, where women said that they did not seek advice from others for health-related issues. A few women commented that they did not trust others with their personal issues. Women who reported having had a mammogram over 2 years ago mentioned female relatives, including daughters or female friends, as people they could trust with their personal issues. They also included males (such as sons) in their social network. Women who had never had a mammogram were also more likely to mention female friends and daughters as people they could trust with their personal issues. They were less likely to include males, such as husbands or sons, in their social network. This finding is similar to that of the open-ended questions.

Discussion

Barriers, facilitators, and social networks of 40 women of Mexican descent were characterized. We found that lack of health insurance, the perception that the mammogram is painful, and fear of finding cancer were cited as barriers to participation in mammography. In contrast, having received a doctor's recommendation, knowing others with cancer, and knowledge about prevention were cited as facilitators of screening. Women who had lived in the US for a shorter period were more likely to report never having had a mammogram than women who had lived in the US for a longer period. Women often cited daughters and female friends as those from whom they received advice or encouragement to receive a mammogram. Few differences were found by network size and mammography use among the groups.

While current measures may not fully capture the constructs of acculturation (Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005), the number of years lived in the US may increase the time women are exposed to the health care system and biomedical views of disease and prevention. The women in this study had cultural beliefs about disease, but some had also incorporated biomedical views such as needing yearly screening. This is the process of acculturation where people may adopt values and behaviors of the mainstream culture (i.e., biomedical views about disease and prevention) without giving up parts of their self-identity that comes from their culture of origin (Cuellar, Arnorl, & Maldonado, 1995). For example, low perceived risk was a common theme among women who had never had a mammogram and women who had not had one recently. Women's low perceived risk seemed to stem from their beliefs about breast cancer risk factors. Women believed they were at risk for breast cancer if they felt a *bolita* (little lump), if they felt pain in their breast, or if trauma to their breast had occurred. If they did not have these symptoms, then they were not sick and therefore did not need a mammogram. In contrast, woman who reported having had a recent mammogram were more likely to have biomedical views about disease and prevention, such as understanding that screening may detect breast cancer at an early stage or that a family history of breast cancer is a risk factor. Additionally, women believed that God helped to maintain health, further exemplifying the personal, practical relationship these women had with God.

Women from all screening groups believed that having a mammogram is painful. As one woman with health insurance and a scheduled exam mentioned, that fear of the exam led her not to go. Other studies have found that pain from the exam is a barrier to screening (Fernandez, Palmer, & Leong-Wu, 2005; Ogedegbe, Cassells, Robinson, DuHamel, Tobin, Sox et al., 2005). However, some studies find that even though women report pain from the exam, it is not a deterrent to screening (Bobo, Dean, Stovall, Mendez, & Caplan, 1999; Peipins, Shapiro, Bobo, & Berkowitz, 2006). Messages from community outreach programs should discuss with women that the compression is only a few seconds; in addition, an over-the-counter numbing gel can reduce some of the discomfort or pain caused by the exam (Lambertz, Johnson, Montgomery, & Maxwell, 2008).

We found fear to both encourage and deter women from screening. Women with a recent mammogram mentioned fear of getting cancer as a reason for seeking regular screening. It may be that some degree of fear may encourage women to have screening. Some women were influenced by knowing others in their social network who had cancer, which may have increased their fear about the disease and functioned as a motivating factor toward screening.

Women who reported a mammogram over two years ago and those who had never had a mammogram said fear of losing the breast to cancer could prevent women from having a mammogram. One study has found that the degree of fear is a determinant: moderate levels of worry can motivate women to use mammography, while high levels of worry may prevent women from getting mammograms (Andersen, Smith, Meischke, Bowen, & Urban, 2003).

Community outreach programs may use messages that explain to women who come from other countries with limited health care resources about the advances made in breast cancer treatment and that finding breast cancer early can lead to a better outcome.

The majority of women in this study had migrated to the US at an adult age and most had learned traditional remedies from their family. It may be that women who use traditional remedies to treat physical symptoms may be less likely to believe they need screening since they have no symptoms that would require a doctor's visit. This is consistent with their belief about needing a "doctor's exam" when they feel pain or a lump on their breast. One study noted a similar finding in that women who used traditional remedies were less likely to visit a primary care provider for preventive services (Iniguez & Palinkas, 2003). Women who reported having screening had different viewpoints that may help other women relate with the need of regular screening. One woman said that her doctor explained to her that having a mammogram was like bringing in the clothes that were hanging outside to dry: as dark clouds move toward home you bring the clothes inside to prevent them from getting wet.

Other factors associated with health care access seemed helpful to women such as having a recommendation from a doctor or getting a notice about screening in the mail. While women who have health insurance may have greater access to health care, community-based outreach programs need to provide women information about programs that offer free screening. Lack of health insurance was a clear barrier to screening as women said that the cost of the exam deterred them from screening. We found that younger women (50–60 years) were more likely to mention cost as a barrier and more reported not having health insurance.

The most common people to be mentioned in the social network index, as people trusted with personal issues, were female relatives, such as daughters; friends and partners were also mentioned but less frequently than daughters. Similarly, in open-ended questions, women mentioned daughters and female friends as people from whom they sought advice for health-related matters, and daughters were mentioned as those who provided encouragement for them to seek screening. We attempted to get at whom women trusted most to get a better idea of what individuals are most influential to women's behavior. Daughters were mentioned more often when referring to health, while friends or husbands were mentioned when relating to non-health issues. It may be more common for a mother to advise her daughter, but when women migrate to a new country, the changes in language and place may cause a partial shift in roles from mother to daughter. Daughters may function as a mediating role between the health care system and their mother. Women who come to this country as adults may have had most or all of their children in Mexico; therefore, they may have less experience with the health care system than their daughters who give birth to their own children in the US. Potential ways of using this information are to target daughters for intervention. For example, daughters might give their mothers a Mother's Day card that promotes mammography. Additionally, women who come to this country at an older age may retain their beliefs about only needing health care services when they feel pain or "bolitas" (little lumps), especially since these women live in an area with a large Mexican community and have opportunities to relate with other immigrant women.

Even though all women in this study mentioned at least a few people in their social network, women who reported never having had a mammogram and those who reported having had one over two years ago, were more likely to give reasons for not speaking to others about their personal issues or health. Furthermore, in the group of women who reported having had a mammogram over two years ago, they differed from the other two screening groups in that women were more likely to mention that they only discussed health with their doctor. In contrast, results from one study found that among women over 52 years of age, social norms,

or beliefs about whether women their age get screening influenced recent mammography (Allen, Stoddard, & Sorensen, 2007).

It may be that women confide in few people or only those they considered emotionally close. This has implications for screening promotion interventions in that women need to have a sense of trust in order to talk about their health. Reaching women in smaller groups or in a one-on-one setting may be more effective for screening promotion interventions than widespread media messages. Similar to our findings, a study that included a sub-sample of Hispanic women found that women who had had a mammogram within the previous year were more comfortable discussing health issues with female relatives and friends while women without a recent mammogram viewed their personal health as private (Fernandez et al., 2005). Women who do not confide in others about their health may have fewer opportunities to learn about breast cancer, be less skillful at obtaining screening (Suarez et al., 1994), and find fewer opportunities to discuss their experiences with mammography screening.

More women in the group that reported never having had a mammogram were less likely to mention their husband as a person they could seek advice for things related to health. It may be that women do not confide in their husband for health-related matters because they are unsupportive in this aspect. Some women felt that a husband may not encourage a woman to go for screening because of the belief that screening exposes women's body to a male doctor. While most studies do not report an association between marriage status and screening, one study found that lack of support from a partner can be a barrier to seeking health care (Frank-Stromborg et al., 1998), while a different study reported that women viewed their husbands as barriers to screening because the husband became upset if their wife went to a male doctor for female exams (Fernandez et al., 2005; Salazar, 1996).

While our study found few differences between size of the network and screening use, one study has found that a greater percentage of Hispanic women with large social networks reporting a recent mammogram (Suarez et al., 1994). It was interesting to find that women in the group that reported never having had a mammogram were categorized equally into the small, medium, or large category. This would suggest that time in the US is a more important factor for screening than the size of the social network, as we found in this study. Furthermore, while the number of years lived in the US may also increase the amount of time women have to build relationships in their community, we found that among women who had lived in the US for less than 10 years, seven of 14 were categorized in the small network and the other seven women had a medium or large network (data not shown). Women who had never had a mammogram may have a social network, but may not receive appropriate information or other social support that would positively influence screening use.

Limitations

This study has various limitations. Our sample was based on a small number of women living in a rural area populated largely by immigrant families from one particular area in Mexico. Different questions to elicit a better understanding about the types of social support may have provided greater insight into how women are influence by others. Additionally, it may have been insightful to have obtained additional information about the characteristics of the network members, such as their age, length of the relationship, and whether friends were neighbors, church members, or people from other organizations.

Finally, churches have traditionally served as sources of cultural education and fellowship (Castro, Elder, Coe, Tafoya-Barraza, Moratto, Campbell et al., 1995) for women and a place for intervention (Duan, Fox, Derose, & Carson, 2000), yet the only question asked in this study related to church was in the social network index. Open-ended questions were not asked, but

they could have elicited an understanding about the role of the church among this group of women.

Conclusion

These findings provide information about barriers to and facilitators of mammography and the people Mexican women include in their social network. Daughters and female relatives are important members of their social network and these women may be useful channels for screening promotion interventions. Furthermore, women who have never had a mammogram and women who have not had a recent one may not have networks that provide them with appropriate support to facilitate screening. Future studies should address questions about whether daughters are effective at helping older women reduce barriers to mammography.

Acknowledgments

Supported by NCI training grants: Biobehavioral Cancer Prevention & Control Training Program (R25 CA092408) and the Cancer Education & Career Development Program (R25 CA057699).

References

- Abraido-Lanza AF, Chao MT, Gates CY. Acculturation and cancer screening among Latinas: results from the National Health Interview Survey. *Ann Behav Med* 2005;29(1):22–28. [PubMed: 15677297]
- Aldridge ML, Daniels JL, Jukic AM. Mammograms and healthcare access among US Hispanic and non-Hispanic women 40 years and older. *Fam Community Health* 2006;29(2):80–88. [PubMed: 16552286]
- Allen JD, Stoddard AM, Sorensen G. Do Social Network Characteristics Predict Mammography Screening Practices? *Health Educ Behav*. 2007
- Andersen MR, Smith R, Meischke H, Bowen D, Urban N. Breast cancer worry and mammography use by women with and without a family history in a population-based sample. *Cancer Epidemiol Biomarkers Prev* 2003;12(4):314–320. [PubMed: 12692105]
- Berkman LF, Syme SL. Social networks, host resistance, and mortality: a nine-year follow-up study of Alameda County residents. *Am J Epidemiol* 1979;109(2):186–204. [PubMed: 425958]
- Blanchard K, Colbert JA, Puri D, Weissman J, Moy B, Kopans DB, et al. Mammographic screening: patterns of use and estimated impact on breast carcinoma survival. *Cancer* 2004;101(3):495–507. [PubMed: 15274062]
- Bobo JK, Dean D, Stovall C, Mendez M, Caplan L. Factors that may discourage annual mammography among low-income women with access to free mammograms: a study using multi-ethnic, multiracial focus groups. *Psychol Rep* 1999;85(2):405–416. [PubMed: 10611770]
- Borrayo EA, Jenkins SR. Feeling healthy: so why should Mexican-descent women screen for breast cancer? *Qual Health Res* 2001;11(6):812–823. [PubMed: 11710079]
- Castro FG, Elder J, Coe K, Tafoya-Barraza HM, Moratto S, Campbell N, et al. Mobilizing churches for health promotion in Latino communities: *Companeros en la Salud*. *Journal of the National Cancer Institute Monographs* 1995;18:127–135. [PubMed: 8562213]
- Chavez LR, Hubbell FA, McMullin JM, Martinez RG, Mishra SI. Structure and meaning in models of breast and cervical cancer risk factors: a comparison of perceptions among Latinas, Anglo women, and physicians. *Med Anthropol Q* 1995;9(1):40–74. [PubMed: 7697550]
- Coughlin SS, Uhler RJ, Bobo JK, Caplan L. Breast cancer screening practices among women in the United States, 2000. *Cancer Causes Control* 2004;15(2):159–170. [PubMed: 15017128]
- Cuellar I, Arnorl B, Maldonado R. Acculturation Rating Scale for Mexican Americans-II: A Revision of the Original ARSMA Scale. *Hispanic Journal of Behavioral Sciences* 1995;17(3):275–304.
- Curbow B, Bowie J, Garza MA, McDonnell K, Scott LB, Coyne CA, et al. Community-based cancer screening programs in older populations: making progress but can we do better? *Prev Med* 2004;38(6):676–693. [PubMed: 15193888]
- Duan N, Fox SA, Derosé KP, Carson S. Maintaining mammography adherence through telephone counseling in a church-based trial. *Am J Public Health* 2000;90(9):1468–1471. [PubMed: 10983211]

- Fernandez ME, Palmer RC, Leong-Wu CA. Repeat mammography screening among low-income and minority women: a qualitative study. *Cancer Control* 2005;12(Suppl 2):77–83. [PubMed: 16327754]
- Frank-Stromborg M, Wassner LJ, Nelson M, Chilton B, Wholeben BE. A study of rural Latino women seeking cancer-detection examinations. *J Cancer Educ* 1998;13(4):231–241. [PubMed: 9883783]
- Gonzalez-Swafford MJ, Gutierrez MG. Ethno-medical beliefs and practices of Mexican-Americans. *Nurse Pract* 1983;8(10):29–34. [PubMed: 6646536]
- Gorin SS, Heck JE. Cancer screening among Latino subgroups in the United States. *Prev Med* 2005;40(5):515–526. [PubMed: 15749133]
- Harley K, Eskenazi B. Time in the United States, social support and health behaviors during pregnancy among women of Mexican descent. *Soc Sci Med* 2006;62(12):3048–3061. [PubMed: 16403596]
- Hawley ST, Earp JA, O'Malley M, Ricketts TC. The role of physician recommendation in women's mammography use: is it a two-stage process? *Med Care* 2000;38(4):392–403. [PubMed: 10752971]
- Heaney, C.; Israel, B. Social Networks and Social Support. In: Glanz, K.; Rimer, BK.; Lewis, F., editors. *Health Behavior and Health Education: Theory, Research, and Practice*. San Francisco: Jossey-Bass; 2002. p. 185–209.
- Hiatt RA, Pasick RJ, Stewart S, Bloom J, Davis P, Gardiner P, et al. Community-based cancer screening for underserved women: design and baseline findings from the Breast and Cervical Cancer Intervention Study. *Prev Med* 2001;33(3):190–203. [PubMed: 11522160]
- Howe HL, Wu X, Ries LA, Cokkinides V, Ahmed F, Jemal A, et al. Annual report to the nation on the status of cancer, 1975–2003, featuring cancer among U.S. Hispanic/Latino populations. *Cancer* 2006;107(8):1711–1742. [PubMed: 16958083]
- Hubbell FA, Chavez LR, Mishra SI, Magana JR, Burciaga Valdez R. From ethnography to intervention: developing a breast cancer control program for Latinas. *J Natl Cancer Inst Monogr* 1995;(18):109–115. [PubMed: 8562209]
- Iniguez E, Palinkas LA. Varieties of health services utilization by underserved Mexican American women. *J Health Care Poor Underserved* 2003;14(1):52–69. [PubMed: 12613068]
- Kang SH, Bloom JR, Romano PS. Cancer screening among African-American women: their use of tests and social support. *Am J Public Health* 1994;84(1):101–103. [PubMed: 8279592]
- Lambertz CK, Johnson CJ, Montgomery PG, Maxwell JR. Premedication to reduce discomfort during screening mammography. *Radiology* 2008;248(3):765–772. [PubMed: 18647845]
- Lara M, Gamboa C, Kahramanian MI, Morales LS, Bautista DE. Acculturation and Latino health in the United States: a review of the literature and its sociopolitical context. *Annu Rev Public Health* 2005;26:367–397. [PubMed: 15760294]
- Lewis, MA.; DeVellis, BM.; Sleath, B. Social Influence and Interpersonal Communication. In: Glanz, K.; Rimer, BK.; Lewis, FM., editors. *Health Behavior and Health Education: Theory, Research, and Practice*. San Francisco: Jossey-Bass; 2002. p. 45–66.
- Marks G, Solis J, Richardson JL, Collins LM, Birba L, Hisserich JC. Health behavior of elderly Hispanic women: does cultural assimilation make a difference? *Am J Public Health* 1987;77(10):1315–1319. [PubMed: 3631366]
- McCann TV, Clark E. Grounded theory in nursing research: Part 1--Methodology. *Nurse Res* 2003;11(2):7–18. [PubMed: 14708425]
- Miles, M.; Huberman, A. *An expanded sourcebook: Qualitative Data Analysis*. Thousand Oaks: SAGE Publications; 1994.
- Negy C, Woods DJ. Mexican-Americans' performance on the Psychological Screening Inventory as a function of acculturation level. *J Clin Psychol* 1992;48(3):315–319. [PubMed: 1602020]
- O'Malley AS, Kerner J, Johnson AE, Mandelblatt J. Acculturation and breast cancer screening among Hispanic women in New York City. *Am J Public Health* 1999;89(2):219–227. [PubMed: 9949753]
- Ogedegbe G, Cassells AN, Robinson CM, DuHamel K, Tobin JN, Sox CH, et al. Perceptions of barriers and facilitators of cancer early detection among low-income minority women in community health centers. *J Natl Med Assoc* 2005;97(2):162–170. [PubMed: 15712779]
- Palmer RC, Fernandez ME, Tortolero-Luna G, Gonzales A, Dolan Mullen P. Acculturation and mammography screening among Hispanic women living in farmworker communities. *Cancer Control* 2005;12(Suppl 2):21–27. [PubMed: 16327747]

- Peipins LA, Shapiro JA, Bobo JK, Berkowitz Z. Impact of women's experiences during mammography on adherence to rescreening (United States). *Cancer Causes Control* 2006;17(4):439–447. [PubMed: 16596296]
- Salazar MK. Hispanic women's beliefs about breast cancer and mammography. *Cancer Nurs* 1996;19(6):437–446. [PubMed: 8972976]
- Suarez L, Lloyd L, Weiss N, Rainbolt T, Pulley L. Effect of social networks on cancer-screening behavior of older Mexican-American women. *J Natl Cancer Inst* 1994;86(10):775–779. [PubMed: 8169975]

Table 1

Participant characteristics

		Mammogram within 2 years N=14	Mammogram over 2 years ago N=14	Never had a mammogram N=12
Age (n)	50–59	8	8	8
	60 and over	6	6	4
Birthplace (n)	Mexico	14	12	10
	US	0	3	2
Interview in Spanish (n)		14	12	10
Years in the US (median, range) ^I		28(8–42)	12(3–40)	8(1–39)
Education (median, range)		3(0–13)	2(0–12)	4(0–12)
No Health insurance (n)		3	6	7
Employed in formal labor (n)		7	6	8

^IExcluding 5 women born in the US

Table 2
Social network index

	Mammogram within 2 years N=14 N (%)	Mammogram over 2 years ago N=13 ¹ N (%)	Never had a mammogram N=12 N (%)
Size			
Large	7(50)	2(15)	4(33)
Medium	5(36)	6(46)	4(33)
Small	2(14)	5(38)	4(33)
Frequency of contact ²	9(64)	11(79)	3(25)
Church affiliation	14(100)	12(92)	12(100)
Church attendance ²	11(79)	5(38)	6(50)
Married	9(64)	7(54)	8(67)

¹ One participant did not provide information for the index

² Weekly or more