



# HHS Public Access

Author manuscript

*J Health Care Poor Underserved*. Author manuscript; available in PMC 2016 January 20.

Published in final edited form as:

*J Health Care Poor Underserved*. 2010 August ; 21(3 0): 76–90. doi:10.1353/hpu.0.0364.

## A Comparison of Two Educational Methods on Immigrant Latinas Breast Cancer Knowledge and Screening Behaviors

**José Luis Calderón, MD,**

Associate Professor in the Department of Socio-behavioral and Administrative Pharmacy, College of Pharmacy, Nova Southeastern University (NSU), where he can be reached at 3200 S. University Drive, Fort Lauderdale, FL 33328-2018; drcalderon@sbcglobal.net. In addition, Dr. Calderón is affiliated with the Center for Health Services Research at Charles Drew University of Medicine and Science (CDUMS)

**Mohsen Bazargan, PhD,**

Associate Professor, Department of Family Medicine, at CDUMS

**Nisaratana Sangasubana, PhD,**

Assistant Professor, Department of Socio-behavioral and Administrative Pharmacy, at the College of Pharmacy, NSU

**Ron D. Hays, PhD,**

Professor, Department of Medicine/Division of General Internal Medicine and Health Services Research at the University of California, Los Angeles

**Patrick Hardigan, PhD, and**

Chair for Health Professions Division Research and Director of the Center for Statistical Consulting at NSU

**Richard S. Baker, MD**

Professor, Department of Ophthalmology and Dean, College of Medicine, CDUMS

### Abstract

Underutilization of screening mammography by Latinas continues unabated and may contribute to disparities in disease-free survival and mortality.

**Objective**—Comparison of two discussion group-centered educational interventions at enhancing breast cancer knowledge, breast self-exams (BSE), and screening mammography.

**Methods**—Pre-test post-test study design. Two cohorts of 200 Latinas each participated in survey screening and discussion groups at baseline. One cohort also viewed an animated video and had BSE training. Breast cancer knowledge, self-reported BSE and mammography history were measured at baseline and three months post-intervention.

**Results**—Breast cancer knowledge scores were good for both groups at baseline, and significantly increased at three month follow-up for both groups ( $p < .05$ ) but no significant difference was observed between groups at baseline or post-intervention.

**Conclusion**—Community-based discussion groups are a cost-effective method for improving breast cancer knowledge and promoting screening behaviors.

## Keywords

Breast cancer knowledge; breast self-exam; screening mammography; Latinas

---

Primary prevention through lifestyle modification can combat many cancers (such as lung cancer, the leading cause of cancer death among women). However, secondary prevention through screening mammography continues to be the single most important test for early detection of breast cancer and the key to disease-free survival.<sup>1,2</sup> In recent years breast cancer mortality for the population of women as a whole has decreased, in large part due to the cessation of routine use of hormonal replacement to treat menopausal symptoms and the availability and use of timely screening mammography to detect breast cancer at early stages.<sup>3</sup> However, breast cancer is the primary cause of cancer deaths among Latinas who tend to underutilize screening mammography.

In 1994 Latinas were less likely to report having had a mammogram in the previous two years than non-Hispanic white (NHW) women (51.9% and 60.6%, respectively).<sup>4</sup> In 2005 despite an increase in self reported screening mammography for both groups, disparities in screening mammography between Latinas and NHW continued unabated (58.8% and 67.4%, respectively).<sup>4</sup> Moreover, immigrant Latinas tend to have less than a high school education, and in 2005 women with less than a high school education were less likely to report having had a mammogram in the previous two years (52.8%) than women with high school or college education (64.9% and 72.7%, respectively).<sup>4</sup> Underutilization of screening mammography contributes to later stage at time of diagnosis and less disease-free survival, making breast cancer the leading cause of cancer death for Latinas.

The reasons for underutilization are complex and may include cultural mores (embarrassment), health beliefs (perceived seriousness and susceptibility to disease), socio-economic status (limited education, unemployment, lack of health insurance and regular source of care), and political factors (resident status, fear of deportation).<sup>5-8</sup> These factors likely influence the level and intensity of exposure to health information that may promote breast cancer health literacy and/or the ability or willingness to negotiate health care delivery systems.<sup>9</sup> Moreover, for immigrant Latino populations such as that in Los Angeles, word-of-mouth remains an important means of receiving and disseminating health information.<sup>10-12</sup> Therefore, educational interventions that may promote positive breast cancer screening behaviors should leverage cultural and linguistic preferences for accessing health information such as word-of-mouth and discussion groups.

Embarrassment has been cited as an important reason for underutilization of breast self-exam (BSE) and clinical breast exams (CBE) by immigrant Latinas.<sup>5,13-15</sup> Since they are less likely to have a CBE, Latinas may be less likely to be referred for screening mammography.<sup>15</sup> It is important to note that although BSE is not an accepted evidence-based method for breast cancer screening, women who reported higher BSE duration, frequency, and quality were more likely to have mammograms.<sup>7</sup> Conversely, women who reported less regular BSE and CBE were less frequent users of mammography.<sup>16</sup> The value of BSE may be in promoting awareness of breast health and promoting utilization of CBE that is associated with increased referral for screening mammography.

Referral for screening mammography does not guarantee compliance, however, especially if there are barriers to health services. A qualitative study about research participation using focus group methods among women (African American, Pacific Islander, Asian, and Latina) revealed that the primary health care concern for immigrant women was acquiring information on where to access free health services.<sup>17</sup> Culturally and linguistically appropriate venues and information about breast cancer and how and where to access health services may help mitigate barriers to participation in breast cancer screening among immigrant Latinas.

The purpose of this paper is to report findings from a study that tested the efficacy of two discussion group-based educational interventions at enhancing breast cancer knowledge, and promoting BSE and screening mammography among immigrant Latinas in Los Angeles. This study was approved by Institutional Review Board of the Charles Drew University of Medicine and Science (IRB Study #: 06-09-001-03).

## Methods

This study used a convenience sample of 400 Spanish-speaking immigrant Latinas residing in Los Angeles. They were recruited with the help of stakeholders living in the community of research interest who functioned as contact points for the project's coordinator (who also served as a health navigator/*promotora*). In this study we recruited and included women age 30 and older though age 40 is the recommended age for initial routine screening mammography. Our rationale was that recruiting among this age group is in keeping with reports that minority women younger than 40 have higher rates of being referred for screening mammography and a larger proportion of breast cancer cases diagnosed among women younger than 40 than NHW of the same age group.<sup>18,19</sup>

Tough cluster randomization was considered, we did not use randomization to groups since the interventions took place in settings where women from the same immediate community (near a school, church, community center) were recruited to participate and knew each other. Moreover, most of the intervention sessions took place at stakeholder homes, making randomization impractical since participants would be likely to interact and communicate with each after inclusion into the study. The first cohort of 200 women recruited participated in focused discussion groups (FDG) alone. The second cohort of 200 women recruited participated in FDG supplemented with 1) viewing of an animated video about breast cancer that provided instruction of breast self-exam (BSE) methods, and 2) BSE training using latex models (FDG-Plus). Subjects completed Spanish versions of the Drew Demographic Questionnaire and the Breast Health Literacy Survey (BHLS), developed for this study, at baseline and at three months post-intervention.

We sought to answer two research questions: 1) Do FDG (alone or Plus) enhance breast cancer knowledge? 2) What is the impact of FDG (alone or Plus) on self-reported BSE and screening mammography? We hypothesized that FDG (alone or Plus) would enhance breast cancer knowledge and that FDG-Plus would be more efficacious at promoting screening behaviors than FDG alone.

## Focused discussion groups

A qualitative methodology, FDGs involve a participant-observer. They differ from traditional focus groups in that the latter have as their only objective qualitative data gathering without moderator participation.<sup>20</sup> In contrast, FDGs have as their objectives both qualitative data gathering and the education of participants about the topic at hand, usually health-related, by the moderator prompting discussions and probing in ways that would unveil and identify myths and perceptions about health and disease that are contrary to evidence-based practice and that are then dispelled through further discussion by the group. This is accomplished by the moderator interacting with participants as a participant-observer.<sup>21</sup>

Four hundred women participated in 32 FDG groups at baseline that consisted of between five and 20 participants. The FDGs were convened in Spanish at trailer parks, community stakeholder homes, schools, churches, and community centers. All FDGs were guided by a trained and experienced culturally, linguistically, and gender-matched health navigator who moderated the sessions. As with traditional focus groups for the purposes of prompting discussion and collecting qualitative data we constructed a script with introductory, transition, key, closing, and summary questions (Box 1).

Introductory and transition questions generated discussion about knowledge and perceptions of breast cancer. Key questions generated discussion about risk of disease and motivators to screening. Closing questions generated discussion about access to care and the FDG learning experience and participant willingness to participate in breast cancer screening. Summary questions were open-ended. Predetermined questions were adapted to read at less than 6th grade level readability (considered very easy to read) using the Flesh-Kincaid readability formula and Flesh Reading Ease Index available on the Microsoft Word 2000 program, to promote comprehension.<sup>22</sup> The script was then translated into Spanish using the forward translation/back-translation method. The final translation was generated by consensus review of translated documents by three primary Spanish speakers from three different countries of origin who also evaluated the documents for linguistic appropriateness.

Discussions were audio-taped. The moderator and assistant moderator compared and harmonized field notes with reviews of audio-tapes after FDGs were convened in order to generate abridged transcripts. Specifics for qualitative data analysis and reporting are beyond the scope of this report since here we report findings from survey interviews.

## Animated video

Animated videos are audio-visual media that facilitate the dissemination of health information in a non-threatening manner; they may promote positive attitudes about screening behaviors.<sup>23,24</sup> We wrote and produced an animated Spanish/English motivational video entitled, *La Casa de Corazón: La Importancia del Cuidado de los Senos/Lotta Hart's House: The Importance of Breast Health Care*. The video was produced in association with Animax Interactive, LLC a 2006 Emmy Award-winning animation firm ([www.Animax.com](http://www.Animax.com)). The video uses a storyboard approach to relay a story of three women talking about a friend they recently lost to breast cancer. The protagonist is named Lotta

Hart, and is also called Corazón Quelate in Spanish (literally, *heart that beats*). The video addresses breast cancer risk, CBEs, and screening mammography, with a focus on how to do BSE. The running time for the Spanish version is 13 minutes. A three-minute trailer of this video may be viewed at [www.healthlampanimation.com](http://www.healthlampanimation.com). The video was shown and a copy given to FDG-Plus participants at baseline. A copy of the video was given to participants in the FDG alone cohort at three month follow-up.

### **Self-breast exam training**

Participants in the FDG-Plus cohort received BSE training by a family physician using three latex breast models of different shape and size. Each model had lumps of varying sizes in differing locations that are palpable and also showed common skin manifestations of breast cancer, for example, orange peel appearance and dimpling. In addition, a clear plastic model was used to show how tumors are situated in ducts and breast tissues. This provided a tactile component to the training and added three-dimensional visual reinforcement. The BSE training was convened after the animated video was shown. Lastly, a shower hanger with pictographic instructions on BSE that contained a small latex breast model with a palpable nodule was distributed to all FDG-Plus participants at baseline and provided to the FDG alone participants at three-month follow-up.

### **Breast cancer screening information**

All participants received brochures written in Spanish that contained information about breast cancer (including where to access free clinical exams and screening mammography). The Cancer Detection Program's *Every Woman Counts* project, funded by California state tobacco tax revenue, provides free clinical breast exams, mammograms, pelvic exams and Pap tests to California's underserved women. These women are age 50 and older (cervical cancer screening is provided to women 25 and older), and have incomes at or below 200% of federal poverty level. Free treatment is available to all Californians who qualify through the breast and cervical cancer treatment Program.<sup>25</sup> Women younger than 50 may be referred for clinical breast exams and screening mammography if clinically indicated. All women in both cohorts were encouraged to call to access screening services. Specifically, women younger than 40 were encouraged to screen for cervical cancer and were therefore made cognizant of where they might access free screening mammography.

### **Conceptual framework**

The Health Belief Model (HBM) and the Ethno-medical Science Model were used as conceptual frameworks for the study (FDG scripts, breast health literacy survey, and animated video). The HBM hypothesizes that screening behaviors are based on perceived susceptibility, perceived seriousness, perceived benefits to action, and perceived barriers to action.<sup>26</sup> Perceived susceptibility and seriousness are linked to knowledge of the disease and personal risk factors. Perceived risk factors may be accurate but are often contrary to the evidence-based practice and were targeted by the FDG. More recently, perceived self-efficacy was added as a variable in the HBM that may also predict behavior. The HBM has been used often to study breast cancer screening behaviors.

The Ethno-medical Science Model posits that different cultures perceive disease and illness and align themselves to health care differently, and also may differ in the social organization of the health care they seek (biomedical or traditional).<sup>17</sup> It also incorporates political, social, cultural, and socioeconomic factors that may exist within targeted communities or subgroups within the communities. Language adaptation, community mediated recruitment, interventions at local facilities, acknowledgement of traditional healing practices and inclusion of family were salient features taken into consideration.

### **Power estimate**

A previous pilot study of Hispanic women 40 years and older residing in public housing projects in South Central Los Angeles revealed that 40% had undergone mammography and 40% had received a CBE in the 12 months before being interviewed.<sup>15</sup> Consequently, the sample size for this study was deemed adequate to detect a 15% difference in the proportion of those who would utilize breast cancer screening practices (200 subjects in each group) (two-tailed test;  $\alpha=.05$  and  $\beta=.20$ ,  $\text{power}=0.80$ ) and took into consideration a potential attrition of 20% at three-month follow-up.

### **Breast Health Literacy Survey (BHLS)**

The BHLS is a 40-item survey consisting of three scales that are intended to measure breast cancer knowledge and perceptions, utilization of breast cancer screening, and breast cancer risk. Items included modified questions from the Spanish version of the Breast Health Behavior Questionnaire that has been psychometrically tested.<sup>27</sup> We added several new knowledge items and items querying perceptions about breast cancer risk. Content validity of the BHLS was assessed by an expert panel (RDH, PH, MB, and JLC) and by conducting cognitive interviews in Spanish with eight individuals from the target population that focused on comprehension and perceived linguistic and cultural appropriateness of items and response options. Test-retest reliability was estimated by administering the survey to ten respondents at two week intervals at the South Central Family Health Center, Los Angeles. Survey reliability was very good (Pearson's correlation coefficient 0.89). Formal psychometric testing of the instrument is currently underway. The Spanish and English versions of the BHLS were culturally and linguistically adapted for use among those with limited literacy skills (for example minority groups and the elderly) by ensuring items were written using common language and had readability scores of 6th grade level or less with minimal variation in the readability of items within the surveys.<sup>28,29</sup> Translation of survey items from English into Spanish were accomplished as described above.

### **Study survey administration**

To promote completion of surveys and to prevent embarrassment on the part of participants who potentially have limited literacy skills or could not read, each item from each survey was projected onto a screen and read aloud by a research assistant who highlighted response options with a pointer. The survey was then self-administered with the help of two research assistants who went participant-to-participant to ensure all items were completed. Though the process of completing surveys was slower, the method was readily accepted by the participants and resulted in excellent completion rates.



## Data analysis

A breast cancer knowledge score for each participant was calculated as the number of items out of 12 answered correctly on the knowledge scale of the BHLS. Breast cancer knowledge scores may range from 0 to 12 (as continuous variable) and from very good to poor (very good (11–13), good (9–10), fair (6–8), or poor ( 5) as a categorical variable. We used chi-squared analysis for categorical variables and independent t-tests for continuous variables, except for the continuous variable age. Breast cancer behaviors were measured for each group as self reported frequency of BSE and screening mammography. Included in the analyses were subjects who completed the BHLS at baseline and three months post-intervention (n=350).

## Results

### Demographic characteristics

The women were nearly all of Mexican heritage, had limited educational attainment, lived at poverty level, and were uninsured (Table 1). Using chi-squared analysis for categorical variables and independent t-tests for continuous variables, except for the continuous variable age, no significant difference were found between the two groups in reference to demographic variables (Table 1). This provided evidence of comparable groups. Seventy-five percent of women did not finish high school with 44% having an educational attainment of 6th grade or less. Sixty-two percent had an annual household income of \$10,000 or less and nearly 60% were uninsured. All were primarily Spanish-speaking and preferred communicating in Spanish. Forty percent of the women participating in the study were between the ages of 30 and 39 (n=162) with the largest proportion being in the FDG-Plus cohort.

### Breast cancer knowledge

There was no significant difference between the FDG alone and FDG-Plus groups in breast cancer knowledge scores at baseline (Table 2). Using a 12-point scale, mean knowledge score was 9.71 (SD  $\pm$  1.64) for FDG alone and 9.48 (SD $\pm$ 1.7) FDG-Plus, indicating good breast cancer knowledge for both groups. To look for differences in knowledge scores between groups we conducted a generalized linear model with change score (difference between post and baseline scores) as the dependent variable and group (FDG alone, FDG-Plus) and age (continuous) as the independent variables. No significant difference in knowledge score was found between groups at 3-month follow-up while controlling for the effect of age. There was, however, a significant increase in knowledge scores for both groups three-months post-baseline.

### Screening behaviors

Of 400 women recruited and receiving an intervention 350 (87%) were retained in the study and followed after three months: FDG alone n=167 and FDG-Plus n=183. Excellent retention (12.5% attrition) was attributed to use of a health navigator/*promotora*, collaboration with community stakeholders, and convening of FDG in the community. There

was no significant difference between groups in the self-reported frequency of BSE or screening mammography during the 12 months prior to baseline survey.

Chi-squared analysis revealed a significant increase in the proportion of women reported practicing BSE post intervention ( $p < .001$ ). However, there was no difference between the FDG alone and FDG-Plus groups in the proportion of women practicing BSE at baseline and three months post-intervention (Table 3). There was a 46% increase in reported BSE for the FDG alone and a 52% increase in the FDG-Plus groups post intervention.

### Screening mammography

Chi-squared analysis revealed a significant increase in the proportion of women who had post intervention mammography ( $p < .001$ ) with the FDG alone group showing a slightly greater increase. There was a 22% increase in screening mammography for the FDG alone group and an 18% increase in the FDG-Plus group (Table 4). Of the 247/400 women who reported not having had a mammogram in the 12 months prior to baseline screening (115 FDG alone; 132 FDG-Plus), data were collected for 206 (83%) three months post-intervention (90 FDG alone; 116 FDG-Plus). Of these, 49/206 (24%) reported having had a mammogram in the three months between baseline and post intervention interviews (28 FDG alone; 21 FDG Plus).

Sixteen of 162 women 30–39 years of age reported having had a mammogram post-intervention (9.5%). Nine of these (5%) were among the 120 women who reported never having had a mammogram at baseline. Of 38 women age 40 years and older who never had a mammogram, 22 (58%) reported having had a mammogram post-intervention. Thus, age was significantly associated with reporting having had a mammogram after the intervention ( $p < .05$ ). Older women and women who had undergone a mammogram in the twelve months before baseline were more likely to have had a mammogram post-intervention. This likely accounts for the overall greater percentage of post-intervention screening mammography reported by participants in the FDG alone cohort who as a group had a greater proportion of women over 40 years of age.

### Discussion

This study successfully confirmed the hypothesis that a community-based educational intervention using focus discussion groups enhances breast cancer knowledge and promotes BSE and utilization of screening mammography. However, the study did not successfully confirm the hypothesis that the addition of an animated video and hands-on BSE training to FDG was more efficacious than FDG alone. Tough Latinas participating in this study demonstrated good breast cancer knowledge at baseline, they had not participated in breast cancer screening on a regular basis prior to the study. However, they were very responsive to changing attitudes toward sensitive issues such as BSE when informed through discussion with their peers in a community setting. Furthermore, increase in the practice of BSE may have been influenced by participation in group discussions that addressed embarrassment and breast health awareness through BSE. This may have reduced embarrassment by providing a socially supportive venue that portrays BSE as socially acceptable. Moreover, it must be reasoned that the high proportion of Latinas reporting having had a mammography



post intervention may have been influenced by the provision of information on where to get free screening services through the Every Woman Counts project (rather than being attributable to participation in FDG alone). However, qualitative analysis did demonstrate that the FDG were perceived as classes by most participants. Further studies are needed to compare whether FDG or the provision of free screening information or both are adequate for promoting positive breast health behaviors.

From a social and research perspective immigrant populations tend to be marginalized and hard to reach, which may in part account for their late-stage diagnosis at time of screening mammography. The significance of this is that FDG may be convened anywhere. In our study, FDG were convened in trailer parks, community stakeholder homes, schools, churches, and community centers where they reside rather than in biomedical health care delivery venues. The latter is particularly important since the health care alignment for illness by immigrant groups often involves the use of traditional medical approaches practiced in their country of origin, which may delay screening mammography. Enhanced awareness of breast health as opposed to breast cancer knowledge alone may have led to improved breast health behaviors in this study.

### Study limitations

There were several limitations to this study, including the lack of randomization of participants. However, it was serendipitous that demographic characteristics, knowledge, and behaviors did not differ between groups in this study at baseline making them comparable. This may be due to the fact that we recruited in communities with high proportions of undocumented Latino immigrants who have similar characteristics and are limited in their interaction outside of work and home. Another limitation is the lack of a control group to give the study an experimental design. However, we felt ethically obliged to ensure all participants benefited from the project given that immigrant Latinas reportedly underutilize screening mammography, tend to present in late stages at time of diagnosis for breast cancer, and once diagnosed have less disease-free survival. An important limitation is that it is not known to what extent the animated video and BSE training contributed to improved breast cancer knowledge and screening behaviors. A lesson learned is that additional items may be added to the BHLS to query perceived self-efficacy in doing BSE and interacting with health care delivery systems for obtaining CBE and screening mammography. Finally, we did not include items at follow-up that specifically queried women younger than 40 who self-reported having had screening mammography post-intervention as to why they were referred and how they accessed screening services.

### Bioethical issues

**Using control groups in health services research**—Though inclusion and/or randomization into a control group is not unethical per se in the case of health services research, in the context of highly vulnerable populations that experience severe disparities in health outcomes it must be questioned whether it is justifiable to exclude participants from receiving information and/or training by including them in control groups.

For example, during the course of implementing the breast cancer study reported here the principal investigator (JLC) grappled with the ethics of assigning 200 women to a control group that would have them complete a survey and relegating them to usual sources of information and usual sources of health care for the next three months, given his experience and his report of the results of a multi-cultural qualitative study that demonstrated immigrants had a dire need for information about free health services. After discussions with the project's expert consultant, a comparison group rather than a control group was recommended and was employed. Although this represented a limitation in study design it was justified by three women who underwent screening mammography and who were diagnosed with breast cancer during the study. Two of the women were in the FDG alone cohort that would have been in the control group and the change from a control to a comparison intervention group may have improved their survival. One was diagnosed with stage 3 breast cancer.

### Conclusions

The South Los Angeles Breast Health Promotion Project had important outcomes that are germane to the conductance of research among minority populations including: 1) the use FDG as an innovative qualitative research and health education method; 2) a survey measure that is reliable and sensitive to changes in breast cancer knowledge and self-reported breast cancer screening behaviors; and 3) production of a bilingual animated video about breast cancer that has been well received at conferences nationally. Further studies are needed to assess the impact of the video alone at enhancing knowledge and promoting positive breast health behaviors. We conclude that focused discussion groups alone are an efficacious method for improving breast cancer knowledge among populations with limited education attainment. We also conclude that FDG are an efficacious method for promoting BSE and screening mammography when aligned with information about free breast cancer screening services.

To our knowledge the mean 24% increase in screening mammography among 350 women included in the analysis for this study is the highest reported for an educational intervention for breast cancer among minority women. Importantly, we also report a 58% increase in screening mammography among women aged 40 years and older who reported never having had a mammogram and a 56% increase among women 30–39 years of age who reported having had screening mammography (4.3% baseline, 9.8% post-intervention). It may be surmised that CBE were done among this group of women resulted in findings that warranted further examination by mammography. However, future studies should specifically query history of clinical breast exams.

There is a need for programs that promote and sponsor FDG about breast cancer where women live and interact socially. Furthermore, FDG represent a cost-effective and socially acceptable educational method for enhancing breast cancer knowledge and promoting screening behaviors. Such programs should be linked to existing programs that offer free CBEs and screening mammography without requiring information about political status as is done in the Every Woman Counts program

Educational interventions, such as FDGs, that may be convened in community settings rather than at points of health care are needed to reach marginalized populations such as undocumented immigrants. In the case of breast cancer this may help enhance breast cancer knowledge, dispel breast cancer myths, modify health beliefs, promote positive breast health behaviors, and mitigate health disparities.

## Acknowledgments

This project was supported by the National Center for Research Resources, Research Centers in Minority Institutions (G12-RR03026 and U54 RR019234), UCLA/DREW Project EXPORT, National Institutes of Health, National Center on Minority Health & Health Disparities, (P20-MD00148), the National Institutes of Health, UCLA/Drew EXCEED Program Grant (P01 HS 10858), the Agency for Health Care Research and Quality Minority Research Infrastructure Support Program M-RISP (1R24-HS014022-01A1) and the Centers for Medicare and Medicaid Services (1H0CMS300041).

The project team gratefully acknowledges the indispensable guidance of Dr. Richard Bragg of the CMS Hispanic Health Services Research Program who helped navigate our team through the ethical conundrums we faced. We also respectfully acknowledge the support of Dr. Eleanor Walker, Professor at Bowie State University, School of Nursing and President of the HBCU Research Network, whose lead allowed us to present at an American Public Health Association panel session that provided a key platform for the national and international dissemination of our work. We thankfully acknowledge the assistance and guidance of our colleague Magda Shaheen, MD, PhD, MPH, assistant professor, Charles Drew University of Medicine and Science, and of Martha Navarro, who coordinated our research study.

Special acknowledgments to Dr. Vivian Carter whose perspicacity of vision and commitment placed an onus on our research team to further consider and report ethical issues in the conductance of Health Services Research. Lastly, we acknowledge the Tuskegee University National Center for Bioethics in Research and Health Care, an institution that stands as guardian for ensuring equity and justice in research and health care.

## Notes

1. Rim A, Chellman-Jeffers M. Trends in breast cancer screening and diagnosis. *Cleve Clin J Med*. 2008 Mar; 75(Suppl 1):S2–9. [PubMed: 18457191]
2. Elmore JG, Armstrong K, Lehman CD, et al. Screening for breast cancer. *JAMA*. 2005 Mar 9; 293(10):1245–56. [PubMed: 15755947]
3. American Cancer Society. Breast cancer statistics. Atlanta, GA: American Cancer Society; 2009.
4. Centers for Disease Control and Prevention. Mammography percentages by race and ethnicity. Atlanta, GA: Centers for Disease Control and Prevention; 2009.
5. Dibble SL, Vanoni JM, Miaskowski C. Women's attitudes toward breast cancer screening procedures: differences by ethnicity. *Womens Health Issues*. 1997 Jan-Feb;7(1):47–54. [PubMed: 9009861]
6. Lantz PM, Mujahid M, Schwartz K, et al. The influence of race, ethnicity, and individual socioeconomic factors on breast cancer stage at diagnosis. *Am J Public Health*. 2006 Dec; 96(12): 2173–8. Epub 2006 Oct 31. [PubMed: 17077391]
7. Wells KJ, Roetzheim RG. Health disparities in receipt of screening mammography in Latinas: a critical review of recent literature. *Cancer Control*. 2007 Oct; 14(4):369–79. [PubMed: 17914337]
8. Echeverria SE, Caraquillo O. The roles of citizenship status, acculturation, and health insurance on breast and cervical cancer screening among immigrant women. *Med Care*. 2006 Aug; 44(8):788–92. [PubMed: 16862042]
9. Ishikawa H, Yano E. Patient health literacy and participation in the health-care process. *Health Expect*. 2008 Jun; 11(2):113–22. [PubMed: 18494956]
10. Rodríguez MD, Rodríguez J, Davis M. Recruitment of first-generation Latinos in a rural community: the essential nature of personal contact. *Fam Process*. 2006 Mar; 45(1):87–100. [PubMed: 16615255]

11. Fox MH, Averett E, Hansen G, et al. The effect of health communications on a statewide West Nile Virus public health education campaign. *Am J Health Behav.* 2006 Sep-Oct;30(5):483–94. [PubMed: 16893311]
12. Hackshaw AK, Paul EA. Breast self-examination and death from breast cancer: a meta-analysis. *Br J Cancer.* 2003 Apr 7; 88(7):1047–53. [PubMed: 12671703]
13. Hubbell FA, Mishra SI, Chavez LR, et al. The influence of knowledge and attitudes about breast cancer on mammography use among Latinos and Anglo women. *J Gen Intern Med.* 1997 Aug; 12(8):505–8. [PubMed: 9276657]
14. Tu SP, Reisch LM, Taplin SH, et al. Breast self-examination: self-reported frequency, quality, and associated outcomes. *J Cancer Educ.* 2006 Fall;21(3):175–81. [PubMed: 17371185]
15. Bazargan M, Bazargan SH, Calderón JL, et al. Mammography screening and breast self-examination among minority women in public housing projects: the impact of physician recommendation. *Cell Mol Biol (Noisy-le-grand).* 2003 Dec; 49(8):1213–8. [PubMed: 14983989]
16. Pearlman DN, Rakowski W, Ehrich B, et al. Breast cancer screening practices among black, Hispanic, and white women: reassessing differences. *Am J Prev Med.* 1996 Sep-Oct;12(5):327–37. [PubMed: 8909641]
17. Calderón JL, Baker RS, Fabrega H, et al. An ethno-medical perspectives on clinical research participation: a qualitative pilot study. *Medscape General Medicine.* 2006; 8(2):23. [PubMed: 16926762]
18. Kapp JM, Ryerson AB, Coughlin SS, et al. Racial and ethnic differences in mammography use among U.S. women younger than age 40. *Breast Cancer Res Treat.* 2009 Jan; 113(2):327–37. Epub 2008 Feb 9. [PubMed: 18264758]
19. Shavers VL, Harlan LC, Stevens JL. Racial/ethnic variation in clinical presentation, treatment, and survival among breast cancer patients under age 35. *Cancer.* 2003 Jan 1; 97(1):134–47. [PubMed: 12491515]
20. Calderón JL, Baker RS, Wolf KE. Focus groups: a qualitative method complementing quantitative research for studying culturally diverse groups. *Educ Health (Abingdon).* 2000; 13(1):91–5. [PubMed: 14741799]
21. Calderón JL. The evolution of the focused discussion group: from non-participant to one of the crew (how-to data collection series). *The Weekly Qualitative Report.* 2009 Jun 1; 2(22):135–8.
22. Calderón JL, Smith S, Baker RS. FONBAYS: a simple method for enhancing readability of patient information. *Annals of Behavioral Science and Medical Education.* 2007; 13(1):20–4.
23. Calderón JL, Singer G, Heslin K, et al. Animation as a venue for enhancing health literacy: implications for medical education. *Annals of Behavioral Sciences and Medical Education.* 2007; 13(2):87–91.
24. Feek, W. Entertainment programming for development. In: Greene, J.; Reber, D., editors. *Drawing insight: communicating development through animation.* Penang, Malaysia: Southbound; 1996.
25. California Department of Public Health. *Cancer detection program: every woman counts.* Sacramento, CA: California Department of Public Health; 2009.
26. Janz, NK.; Champion, VL.; Stretcher, VJ. The health belief model. In: Glanz, K.; Rimer, BK.; Lewis, FM., editors. *Health behavior and health education: theory, research and practice.* San Francisco, CA: Jossey-Bass; 2002.
27. Wells JN, Bush HA, Marshall D. Psychometric evaluation of Breast Health Behavior Questionnaire: Spanish version. *Cancer Nurs.* 2001 Aug; 24(4):320–7. [PubMed: 11502042]
28. Calderón JL, Morales LS, Liu H, et al. Variation in the readability of items within surveys. *Am J Med Qual.* 2006 Jan-Feb;21(1):49–56. [PubMed: 16401705]
29. Calderón JL, Fleming E, Gannon MR, et al. Applying an expanded set of cognitive design principles to formatting the Kidney Early Evaluation Program (KEEP) longitudinal survey. *Am J Kidney Dis.* 2008 Apr; 51(4 Suppl 2):S83–S92. [PubMed: 18359412]

**Box 1****Focused Discussion Group Script****I. Introductory Question**

1. Please introduce yourselves by first name and tell us about your family.
2. What is breast cancer?

**II. Transition Questions**

- 3 Who gets breast cancer? Why?
- 4 When you hear about breast cancer what comes to your mind?

**III. Key Questions**

- 5 Do you believe you are at risk for breast cancer?
- 6 Does anyone in the group know someone with breast cancer?
- 7 How do you feel when you think about a women having breast cancer?
- 8 Do you believe that breast cancer can be prevented or cured? How?
- 9 What have you heard about checking your own breasts for breast cancer? Where did you hear this?
- 10 What would prevent you from checking your own breasts?
- 11 Has a nurse or doctor ever examined your breast? What did they tell you about the breast exam? Is this exam important?
- 12 How important is it for women have a mammogram?
- 13 Has any one here had a mammogram? Tell us about it.
- 14 What would prevent you from having a mammogram?

**IV. Closing Questions**

- 15 Do you know where to go for a mammogram?
- 16 Did completing the survey and this discussion help you learn about breast cancer? What did you learn?
- 17 Would you tell other women about what you learned today? How would you tell them?

**Table 1**  
**Selected Demographic Characteristics of Study Subjects (N=350)**

Variable	Focused Discussion Group (FDG) alone N=167	FDG-Plus N=183	Significant
Age (years)	45.81 ±11.01	42.97± 10.06	p<.01
30–39	35.50%	44.50%	
40–49	28.90%	32.60%	
50–59	24.60%	14.60%	
60 or older	10.80%	8.10%	
Years in US	20.96±9.66	18.93±9.67	Not Significant
Education	8.08±3.61	8.05±3.33	Not Significant
3rd to 6th grade	16.20%	12.30%	Not Significant
6th to 11th grade	48.70%	55.80%	
Completed high school	20.78%	20.50%	
Less than 3rd grade	6.49%	4.70%	
Post-high school	7.78%	6.40%	
Income (\$)			
Less than 10,000	15.00%	20.60%	Not Significant
10,000–20,000	9.00%	15.20%	
20,000–30,000	4.20%	2.10%	
30,000–40,000	63.80%	55.90%	
More than 40,000	3.60%	4.30%	
Medical Insurance			
Yes	51.20%	58.60&percent;	Not Significant
No	41.50%	38.50%	
Baseline Knowledge	9.71 ± 1.64	9.48± 1.70	Not Significant

FDG = focused discussion group



**Table 2**  
**Comparison of Mean Breast Cancer Knowledge Scores**

<b>Breast Cancer Knowledge Score</b>	<b>Pre intervention</b>	<b>Post Intervention</b>	<b>Level of Significance</b>
Focused Discussion Group (FDG) alone (N=168)	9.67	11.45	p<.05
FDG-Plus (N=183)	9.49	11.00	p<.05
All Participants (N=350)	9.58	11.25	p<.05

FDG = focused discussion group

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

**Table 3**  
**Comparison of Women Self-Reporting Breast Self-Examination**

Self-Reported BSE	Pre intervention	Post Intervention	Level of Significance
FDG alone (N=168)	39% (66)	85% (143)	p<.001
FDG-Plus (N=183)	46% (84)	89% (163)	p<.001
All Participants (N=350)	43% (151)	86% (301)	p<.001

FDG = focused discussion group

BSE = breast self examination

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

**Table 4**  
**Comparison of Women Self-Reporting Screening Mammography**

Ever Had a Mammogram	Pre intervention	Post Intervention	Level of Significance
FDG alone (N=168)	41% (69)	72% (143)	p<.05
FDG-Plus (N=183)	49% (90)	58% (163)	p<.05
All Participants (N=350)	54.3% (190)	64.9% (227)	p<.05

FDG = focused discussion group

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript