

## **Using the Health Belief Model to Identify Perceived Barriers to Mammography Re-Screening among African-American Women**

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### **ABSTRACT**

Although extensive research has been done surrounding breast cancer causes and treatment options, we have yet to discover specific preventive mechanisms for the disease. With breast cancer survival rates being lowest among African-American women, perhaps due to a lack of access to care, an apparent need exists for educational methods that address significant barriers related to breast cancer screening. The purpose of this study is to assess attitudes and beliefs related to barriers to mammography re-screening among African-American women over the age of 40 who participated in Care for the Girls, a breast health education program presented by Education for Quality Living and Community Partners for Better Health in Las Vegas, Nevada. Participants of this program completed a 20 minute telephone survey based on principles of the Health Belief Model.

Twenty-one ( $n= 21$ ) participants in this study reported on their receipt of mammograms and clinical breast exams within the two years of Care for the Girls' dissolution; intentions of re-screening for breast cancer; and barriers related to re-screening. Responses were consistent,

confirmed understanding of information provided in the program, and identified barriers related to fears, pain, and embarrassment associated with mammography utilization that need to be addressed in future programming efforts.

**Key Words:** Breast cancer, mammography, African-American, barriers

### **INTRODUCTION**

Breast cancer is as an uncontrolled growth of cells, which develops in the breast as a benign or malignant lump. If untreated, the cancerous cells will begin to infect the surrounding healthy cells and spread throughout the breast and other parts of the body; thus regular mammograms are critical to long-term survival of breast cancer (Centers for Disease Control, 2012). According to Custódio et al. (2009), the goal of breast cancer screening is to detect, diagnose, and treat cancer early enough such that mortality is avoided. Breast cancer mortality rates are strongly associated with how early the cancer is detected (Yabroff, Brown, & Halpern, 2000).

### **The Breast Cancer Paradox**

Although incidence rates are highest among White women in the U.S., African-American (AA) women are more likely to die from breast cancer. The National Cancer Institute (2008) cited several factors, including lack of medical coverage, barriers to early detection and screening, and unequal access to improvements in cancer treatment as contributors to these observed differences in survival between AA and White women.

According to Peipins, Shapiro, Bobo, and Berkowitz (2006), assessing weak areas in clinics' screening delivery services, using mailed and telephone reminders, and addressing patients' knowledge of and

barriers toward mammography in a cultural context are ways to increase rescreening rates among low-income women. Alexandraki and Mooradian (2010) reported that “pain and embarrassment associated with screening mammography, low income and lack of health insurance, poor knowledge about breast cancer screening, lack of physician recommendation, lack of trust in hospitals and doctors, language barriers, and lack of transportation” were the most frequently identified barriers associated with low re-screening rates among minority women (p. 206).

According to these findings, developing culturally sensitive breast cancer educational programs is imperative to reducing barriers associated with screening. Alexandraki and Mooradian (2010) also suggested that by “recognizing predictors of screening among minority women, addressing culturally specific barriers, establishing consistency in primary care providers, and increasing confidence and knowledge through education may improve utilization of screening mammography among minority women” (p. 207).

### **Care for the Girls**

With lack of educational resources for breast health in Las Vegas, Education for Quality Living (EQL) and Community Partners for Better Health implemented “Care for the Girls” (CFTG), a community-based program with the goal of increasing access to breast health education and mammograms among low-income, AA women in underserved communities of Las Vegas. EQL is an organization that provides high quality, culturally appropriate health promotion, disease prevention, research, and evaluation expertise to entities working with racially, ethnically or medically underserved populations (Education for Quality Living, 2013). Community Partners for Better

Health was established as a diverse, broad-based, collaborative non-profit corporation of health care providers to enable and empower people of color to take responsibility for the prevention and treatment of disease (Community Partners for Better Health, 2011).

EQL developed a three hour workshop designed to encourage women to know their bodies, notice changes, and see a healthcare professional regularly for a physicals and mammography screenings (Education for Quality Living, 2013). Program objectives were fourfold and included: 1) increasing the number of AA women in Southern Nevada who exhibited an increased knowledge of breast health information; 2) educating women on early detection methods and seeking access to care; 3) providing referrals to women who experienced an abnormal mammogram result through this program; and 4) eliminating transportation as a barrier to getting a mammogram.

Women were recruited for participation in CFTG from several local churches. A social marketing campaign was implemented to target AA women and educational workshops were offered as part of the program. One hundred and thirty women who were at least 35 years old (the 2009 recommended age for baseline breast cancer screening) and provided self-reports of being uninsured, having never received a mammogram, and being less likely to seek referral from a primary care provider, participated in CFTG and were provided with a mammogram free of cost from the Hope Coach mammography unit (Centers for Disease Control, 2000).

Although a summative evaluation assessment was completed to investigate the immediate impact of the program, it is important to be able to report on long-term outcomes of the project, especially considering that AA women are facing

disproportionately fatal outcomes related to breast cancer and low early detection rates. Therefore, the purpose of the present study was to use the Health Belief Model (HBM) as a framework to identify barriers to breast cancer re-screening practices among CFTG participants within 24 months of program dissolution. The following research questions were developed to support the study objective: 1) Have women who participated in CFTG been re-screened in the past 24 months? 2) Did women who were re-screened within the last 24 months do so at a freestanding clinic or mobile unit? 3) Did women have intentions on being re-screened within the next 12 months, and if so, would rescreening take place at a freestanding clinic or mobile unit? 4) What specific barriers, if any, do these women perceive related to getting a mammogram?

### **Theoretical Framework: The Health Belief Model**

The earlier breast cancer is found, the greater the chance of survival (Yabroff, Brown, & Halpern, 2000). Engaging in regular screening to detect disease may not be easy for some. The original premise of the HBM is that a person's behavior is prompted by their own personal beliefs and perceptions about disease occurrence reduction (Hayden, 2009). These beliefs are based on the following six constructs: perceived susceptibility, seriousness, barriers and benefits; cues to action; and self-efficacy.

Perceived susceptibility refers to an individual's belief that a health problem is personally relevant or that a diagnosis of illness is accurate (Hayden, 2009). The greater the perceived risk of breast cancer, the greater the likelihood of engaging in behaviors to screen for it. Conversely, when women believe that they are not at risk for the disease, they are less likely to engage in

early detection practices. Perceived seriousness refers to one's belief about the severity of a disease based on medical information and personal beliefs they may have about the difficulties a disease will cause for their life (Hayden, 2009). For example, women who perceive breast cancer as a minor ailment are less likely to try to prevent its occurrence.

Perceived benefits are an individual's opinion of the effectiveness and value of behaviors to prevent disease acquisition (Hayden, 2009). Although there is extensive evidence that supports the benefits of screening, women have to believe that there is a personal benefit for adopting the behavior. Perceived barriers are the most significant factor in determining behavior change. This is an individual's evaluation of the costs and obstacles in their way of establishing a new behavior (Hayden, 2009). Embarrassment associated with getting a mammogram or clinical breast exam (CBE), financial costs associated with physician visits, and transportation barriers are all reasons why women may choose not to seek breast screening.

Cues to action are people, events, and external things that motivate an individual's adoption of a new behavior (Hayden, 2009). If a woman is aware of the struggle a friend or family member is having with breast cancer, she will be more likely to engage in screening behavior. Finally, self-efficacy is one's belief in their actual ability to achieve a certain behavior with accuracy (Hayden, 2009). For example, if a woman understands the benefits of mammograms but is not confident that she can go through with actual action of doing so, she is less likely to try it.

### **METHOD**

This present study used a 24-month follow-up survey based on constructs of the

HBM to assess behaviors, attitudes, and beliefs of CFTG participants about re-screening practices and barriers related to re-screening. EQL had no previous survey that met the outcome evaluation needs of the program, so one was created. Questions were formulated and revised with an expert panel prior to being sent to the University of Nevada, Las Vegas Institutional Review Board for approval. The Executive Director of EQL shared contact information for the program's participants. A total of 130 contacts were provided with full names, telephone numbers, addresses, and e-mail addresses. An e-mail was sent to confirm participants' contact information and after a preliminary round of telephone calls, the initial list of 130 was narrowed down to 80, removing those with outdated contact information. Calls were then made to the remaining participants from a UNLV office telephone to alleviate issues with call screening since caller ID and call waiting allow potential respondents to avoid calls from unidentifiable telephone numbers (Check & Schutt, 2013). Additionally, varying the time of day and day of the week for callbacks was useful in accounting for participants who have obligations during different times of the day. Phone calls were made to each participant up to three times. After the third contact, if the interview was not completed, the participant would be identified as a "non-contact."

After obtaining verbal consent from participants contact successfully, surveys were administered via telephone. Inclusion criteria for participation included: a) being a participant in the CFTG program in 2009; b) being at least 40 years old; and c) self-identifying as AA. Although the U.S. Task Force recommends biennial screening beginning at the age of 50, it is also important that context be taken into account when educating women, especially minorities on the importance of early

detection. Participants' mailing addresses were also confirmed in order to send a breast cancer awareness charm bracelet as an incentive for sharing their time and thoughts. Participants' responses were entered into a survey created through Survey Monkey and the data were analyzed and reported using descriptive statistics.

## RESULTS

A total of 80 phone numbers were dialed which produced 34 (43%) respondents. Twenty-one women completed the survey, 9 verbally refused to participate, 1 person had passed away since program participation, 3 surveys were incomplete due to age ineligibilities, and 46 were identified non-contacts. Three respondents (14%) received a mammogram as a participant in CFTG and 16 women (76%) reported receiving a mammogram since participating in the program. Two of these women (13%) reported using a mobile mammography unit versus a free standing clinic to get their mammogram. Eighteen women (85%) reported that they had intentions on rescreening in the next 12 months and 2 (11%) planned on utilizing a mobile mammography unit for their screening.

Table 1 provides all of the results from the survey and demonstrates which questions were associated with the appropriate HBM construct. Self-efficacy was not investigated, since questions related to this construct overlapped with perceived barriers, which were the focus of the study.

Twenty-four percent of participants (n=5) reported that they had not been screened for breast cancer since their participation in CFTG; however, of the 18 women who reported not having had a mammogram or CBE prior to participation in the program, 72% (n=13) had received a mammogram and 89% (n=16) had received a CBE within the 24-month follow-up

**Table 1.****Participants' Responses to Statements on Perceptions of Mammography Utilization Using Constructs of the Health Belief Model**

Statements on Perceptions (Five Constructs of the Health Belief Model)		<i>n</i> (%) <sup>*</sup>			
		Strongly Agree	Agree	Disagree	Strongly Disagree
Perceived susceptibility	I am too old or too young to get a mammogram.	1 (5)	1 (5)	11 (52)	8 (38)
	I do not think mammograms are a good way to detect breast cancer.	3 (16)	4 (21)	10 (53)	2 (10)
	I do not think I will get breast cancer.	3 (14)	4 (19)	10 (48)	4 (19)
	I believe that mammograms cause cancer.	--	1 (5)	13 (62)	7 (33)
	I have no family history of breast cancer.	4 (19)	3 (14)	9 (43)	5 (24)
	I do not have symptoms or problems with my breasts, so I do not need to get a mammogram.	2 (10)	2 (10)	11 (52)	6 (28)
	I am pregnant or breastfeeding.	--	--	9 (43)	12 (57)
Perceived seriousness	Out of everything I have to do, getting a mammogram is not important to me.	4 (19)	6 (29)	8 (38)	3 (14)
	I am too sick to get a mammogram.	1 (5)	--	11 (52)	9 (43)
	I do not like to go to the doctor unless I am really sick.	3 (13)	6 (29)	6 (29)	6 (29)
	I made an appointment for a mammogram, but forgot to go.	1 (5)	--	11 (55)	8 (38)
	I was given a referral by my doctor to get a mammogram, but I forgot to schedule an appointment.	2 (10)	4 (20)	10 (50)	4 (20)
Perceived benefits	It is enough that I perform self-breast exams to predict breast cancer.	4 (14)	3 (14)	9 (43)	6 (29)
	It is enough that my doctor does clinical breast exams to detect breast cancer.	2 (9)	5 (24)	9 (43)	5 (24)
	I don't understand why I have to get a mammogram.	2 (9)	2 (9)	8 (38)	9 (43)
Perceived Barriers	I am afraid of being told I have breast cancer.	4 (14)	4 (19)	10 (48)	4 (20)
	I am afraid of losing my breasts if I have breast cancer.	4 (19)	6 (29)	8 (38)	3 (14)
	I am too sick to get a mammogram.	1 (5)	--	11 (52)	9 (43)
	I cannot afford to pay the out of pocket costs for a mammogram.	3 (14)	3 (14)	10 (48)	5 (24)

Table 1 Continued

Statements on Perceptions (Five Constructs of the Health Belief Model)		<i>n</i> (%) <sup>*</sup>			
		Strongly Agree	Agree	Disagree	Strongly Disagree
	Getting a mammogram is very painful and makes me feel uncomfortable.	3 (16)	4 (21)	10 (53)	2 (10)
	I do not have reliable transportation to get to the doctor when I need to.	--	3 (14)	9 (43)	9 (43)
	I am embarrassed about having clinical breast exams.	2 (10)	1 (5)	8 (38)	10 (47)
	I am embarrassed about getting a mammogram.	1 (5)	2 (10)	10 (47)	8 (38)
	I feel uncomfortable asking my doctor for a referral for a mammogram.	1 (5)	1 (5)	10 (47)	9 (43)
	The place where I would get a mammogram has limited hours, which makes it hard for me to get a mammogram.	1 (5)	3 (16)	10 (53)	5 (26)
	The staff at the radiology facility where I get a mammogram does not treat me with respect.	--	--	12 (60)	8 (40)
	The place where I would get a mammogram is not convenient for me to get to.	1 (5)	2 (10)	11 (55)	6 (30)
	It is hard for me to make an appointment at the place where I get my mammogram.	--	--	13 (65)	7 (35)
	I do not have a doctor who can give me a referral for a mammogram.	1 (5)	2 (10)	13 (62)	6 (28)
Cues to action	My doctor has never recommended to me that I get a mammogram.	2 (10)	1 (5)	11 (52)	7 (33)
	My family history of breast cancer worries me.	3 (14)	6 (29)	7 (33)	5 (24)
	Someone important to me feels that it is important that I get a regular mammogram.	8 (38)	12 (57)	1 (5)	--

*Note.* \* Some percentages may not perfectly add up to 100% due to approximation to one decimal place. Not all respondents answered every question.

period. Only one woman reported that she did not have reliable transportation to get to the doctor, however, she also reported still being likely to receive a mammogram in the next 12 months. This information is pertinent for future programming efforts because access was not cited as a perceived barrier to prevention.

**Perceived susceptibility and perceived seriousness:** The majority of women disagreed with barriers that directly related to their perception of screening as irrelevant. Eighty percent (n=19) did not believe that their age was a barrier to mammography utilization. Sixty-seven percent (n=14) believed that there was a possibility that they could get breast cancer, and 33% (n=7) reported that their family history of breast cancer worried them. Ninety-five percent (n=20) did not view their current health status as a barrier to getting a mammogram. However, 48% (n=10) felt that out of everything they had to do, getting a mammogram was not a priority, and 43% (n=9) reported that they did not like going to the doctor unless their health was severely threatened.

**Perceived benefits:** Most women demonstrated an understanding that breast cancer screening methods were beneficial to their health. Seventy two percent of participants (n=15) believed that SBE's were not a sufficient means of breast cancer detection; 67% (n=14) reported that CBE's were not enough to accurately predict breast cancer.

**Perceived barriers:** The majority of participants disagreed with proposed barriers to screening that refer to the complexity, duration, and accessibility of screening methods. Regarding convenience of the radiology facility, 85% (n=17) did not believe this was a barrier to mammography utilization. Ninety percent (n=19) reported having a doctor for a referral for a mammogram and the same 90% felt

comfortable requesting a referral for a mammogram if necessary. However, decision were split (48% agreement, n=10; versus 52% disagreement, n=11) regarding having fear of losing one's breast if they were diagnosed with breast cancer; and 33% (n=7) agreed that they were afraid of being told they have breast cancer. Finally, 63% of participants (n=12) agreed that mammograms were painful and caused discomfort.

**Cues to action:** Mostly all women in this study reported that there were people, things, and events that motivated them to seek screening for breast cancer. Ninety five percent of participants (n=20) believed that someone important to them felt that it was necessary that they receive a mammogram, and 85% (n=18) reported that their doctor had recommended that they get a mammogram.

## DISCUSSION

It was hypothesized that barriers would differ among women who had and had not received mammograms since participating in a breast health education program and, further, that there would be differences among those who had received mammograms at mobile units versus free standing clinics. Due to the small sample size, it was not possible to address the hypotheses that were put forth, creating a limitation. Additionally, the results of this study cannot be generalized to others beyond this sample.

The information from this study is consistent with the findings that pain of a mammography and fear regarding the outcomes associated with a diagnosis of breast cancer are barriers associated with low rescreening rates among AA women. Conversely, results were not consistent with the ideas of lack of transportation, poor knowledge about breast cancer screening,

and lack of physician recommendation as barriers to screening. It was also clear that women felt comfortable communicating with the radiology clinic staff and/or physician about their needs.

Overall there were relatively few reported barriers to re-screening and when mentioned, women found resources to overcome said barriers. As mentioned previously, women noted specifically the pain related to getting a mammogram; however, their belief in the importance of screening for breast cancer outweighed this issue. Additionally, while there was also fear associated with potential diagnosis of breast cancer, women reported being strong in their faith such that any diagnosis would be healed and/or they would be provided with the resources to become cancer-free.

Face validity of the instrument should be noted as a strength to the study, as the tool was pre-tested with a woman of similar demographic characteristics before being used in the full study. Although the study produced a response rate higher than most phone surveys (usually less than 10% response rate), the small sample size is still a limitation to the study. The decline from original contacts provided to actual working telephone numbers may be due to the current climate of the economy, which has caused people to rethink necessities versus desires. Unfortunately, cell phones and home telephone lines may be of low priority compared to life's other necessities. It is also important to recall that CFTG targeted women of lower socioeconomic status. This audience is more inclined to move in and out of the telephone population because of economic reasons as well. Lastly, the growth in telephone exchanges because of telephone company competition and the surge in cellular phones as a main residential telephone line may have made it more difficult for telephone numbers to maintain

consistent (McGuckin, Santos, & Liss, 2000).

The high number of non-contacts ( $n=46$ ) cannot be directly attributed to any specific factors because no contact was made with participants; however, there are many technological barriers to reaching eligible participants, including the increased use of answering services and call identifying technologies, such as caller-ID and privacy guard, as well as multi-use telephone lines (McGuckin, Santos, & Liss, 2000). Additionally, the U.S. Preventive Services Task Force (2009) does not recommend breast self-exams as a method of early detection; however, responses to this question are useful and demonstrate that women are educated regarding the most recent recommendations and aim to go a step further in detecting breast cancer.

Future suggestions include methodology to keep an updated contact list for participants. Minimizing the time between program participation by sending courtesy e-mails or cards during breast cancer awareness times is a good way to both maintain interest in the topic and confirm contact information. In addition, with access to care not proving to be a major barrier to screening among this sample, efforts should possibly focus on providing more information about what happens after a positive breast cancer diagnosis, since women had personal fears related to outcomes of positive diagnosis. Recognizing barriers among populations who have been previously educated on breast cancer awareness and health protection is especially helpful since they have already received facts related to screening; however, there may be other underlying issues that require further investigation.

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