Published in final edited form as:

J Community Health. 2018 August ; 43(4): 633–638. doi:10.1007/s10900-017-0461-1.

Developing a Mass Media Campaign to Promote Mammography Awareness in African American Women in the Nation's Capital

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Abstract

This study developed and examined the reach and impact of a culturally appropriate mass media campaign pilot, designed to increase awareness about the importance of mammography screening and the available community mammography services for low-income African American women ages 40 and above. We conducted formative research using focus groups to inform campaign development, resulting in five emergent themes—good breast health, holistic views of healthiness, cancer fatalism, fear of mammogram machines, and mammogram affordability. The campaign targeted specific low-income African American communities in the District of Columbia via print ads in Metro stations and on buses, print ads in the *Washington Informer*, and online ads on a local TV network website. Data were collected before, during, and after campaign implementation to assess reach and impact. Reach was measured by number of impressions (number of people exposed to the campaign), while impact was assessed via online ad click-through rates, website use and referrals, and mammography center calls. The campaign was successful in reaching the target audience, with a total combined reach from all media of 9,479,386 impressions. In addition, the mammography center received significant increases in new website visitors (1482 during the campaign, compared to 24 during the preceding period) as well as 97 calls to the dedicated phone line. Further research involving a more long-term investment in terms of funding and campaign run time, coupled with a more robust evaluation, is needed to assess if culturally appropriate mass media campaigns can generate increased mammography screening rates and decrease breast-cancer-related mortality.

Keywords

African American women; Breast cancer; Persuasive Health Message (PHM) framework; Mammogram; Mass media campaign

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In addition, the authors declare that they have no conflicts of interest and no financial disclosures to report.

Introduction

Mammography screening is the primary method recommended for diagnosing breast cancer while still in curable stages of development [1]. Unfortunately, disparities in breast cancer mortality seem to be growing over time [2]. In the United States, black women have incident rates of breast cancer similar to white women (121.5 per 100,000, compared to 123.6); however, they are more likely to be diagnosed at a later stage of cancer development (10.3 compared to 6.6) and are more likely to die of breast cancer (29.2 compared to 20.6) [3]. Locally, the Washington, DC, metropolitan area has the highest incidence and mortality rates for breast cancer in the United States, with incidence rates 20% higher than the national average and mortality rates nearly 40% higher than the average [4]. DC also has a high minority population, including 47.7% black residents [5]. Thus, increasing mammography awareness and screening rates among African American women in the nation's capital could help decrease the disparities in breast-cancer-related mortality.

For over 25 years, the impact of mass media on trends in mammography screening compliance has been documented [6–10]. However, much of that research has been passive, largely consisting of measuring the impact of various news events on actions [6–9, 11]. That research has shown a measurable positive correlation between mass media messages and their impact, regardless of tone (either positive or negative) or whether the message was intentionally crafted or generated organically through newsworthy events. Only a few campaigns have attempted a more active role, such as testing mammography campaigns utilizing mass media outlets [8, 12, 13]. Those campaigns were crafted to increase mammography compliance, particularly among low-income African American women, and the related studies likewise found a positive correlation between their campaigns and increased mammography screening among the target population, at least during and for the immediate time period after the campaign. However, because two of those three studies are 25 years old, updated research is needed.

This paper reports on the development and subsequent reach and impact of a community-based, culturally targeted multimedia campaign, the *Breast Health Is Beautiful at Any Age* campaign, piloted by the Georgetown Lombardi Comprehensive Cancer Center's Capital Breast Cancer Center (CBCC) and designed to increase mammography awareness and ultimately mammography screening among low-income African American women aged 40 and above in the District of Columbia. To reach these women, we targeted specific communities in the District of Columbia that were predominantly African American and low income. More specifically, we employed print media images in Metro stations and on buses running routes through the targeted communities; print ads in the *Washington Informer*, a local African American community newspaper; and online ads on the website of WJLA, the local ABC network television station.

Methods

Formative Research and Campaign Development

We first conducted formative research using focus groups to inform development of the pilot mass media campaign, as approved by the Georgetown University Medical Center

Institutional Review Board (IRB# 2015-0531). Specifically, we conducted six focus groups with African American women 40 and above ($n = 48$) to assess DC African American women's perceptions and understanding of breast health and mammography screening and the patient navigation services available through the CBCC in order to inform campaign messages, materials, and channels. Recruitment was conducted through flyer distribution in cooperation with community-based partners. Participant inclusion criteria were African American women 40 and above and residents of DC. The focus groups were conducted at CBCC's office or at a transitional housing facility for women in northwest DC. Focus group size ranged from 7 to 10 participants per group. Four of the focus groups ($n = 32$) were conducted in January and February 2016 to gather data to inform the campaign message development. After the messages were developed, they were assessed by two more focus groups ($n = 16$) in August 2016.

The formative phase was informed by the Persuasive Health Message (PHM) framework [14]. The PHM framework considers *constants* that include perceptions of threat, perceptions of efficacy, indirect cues, and audience members' demographics [15]. These elements inform the *transients*—message goals, salient beliefs, referents, cultural environment, and preferential factors. When put into practice, PHM can support the creation of culturally, demographically, and geographically appropriate messages [14]. PHM was used to guide the development of a focus group guide and the culturally, demographically, and geographically appropriate promotional messages. As the research suggests [16–18], we carefully planned and tested the content and format of the focus group guide and campaign with the target audience.

The first four focus groups sought to gather information on participants' awareness of, feelings about, and experiences with breast cancer; how participants perceived mammography; their barriers to accessing mammography; and their awareness of and preferences for various communication channels. Transcribed recordings from each focus group were coded for data analysis using a constant comparative analysis method. First, emergent themes from the data were determined through codes. Next, the data were combined and pieced together, with emerging categories noted and similar material grouped together. Finally, core categories were selected and systematically related to major themes. The findings addressed each focus group and its emerging themes, how these findings corresponded to the major themes across focus groups, and any outliers or discrepancies that emerged during analysis. The predominant themes highlighted varying participant perceptions: (1) what it means to be healthy and have good breast health, (2) holistic views of healthiness, (3) the importance of addressing cancer fatalism, (4) fear of the actual mammogram machine and the related uncomfortableness, and (5) the affordability of receiving a mammogram.

Based on the results, we developed the message goals and established salient beliefs and referents in a cultural and environmental context. We applied this information to the health messages developed and the channels, sources, wording, images, and content of the mass media campaign. We then brought the proposed messages back to the target population in the two final focus groups to assess message content and linguistic, cultural, and health literacy appropriateness of the messaging. Participant feedback revealed that messages, tag

lines, and promotional materials that are positive in tone, communicate empowerment, and are more diverse (e.g., age, race, and ethnicity) are perceived as more relevant and therefore effective. Based on this final feedback, we worked with a DC-based award-winning health and cultural marketing firm, Harrison Maldonado Associates, Inc., to help us refine messages and develop branding and media buy-in and placement strategies.

Campaign Implementation

The *Breast Health Is Beautiful at Any Age* mass media campaign was then implemented between February 15 and April 30, 2017. Between March 6 and April 30, Metro stations and buses on specific routes in the targeted communities carried print ads. Between February 15 and March 12, ABC's WJLA website ran banner ads (both individual ads on the homepage and the news page as well as run-of-site ads, where the image was on all pages of the website). On February 16 and 23 and March 2, 9, and 16, the *Washington Informer* ran print ads, and during this time period, the newspaper sent out an email blast that included the campaign ad. The metro stations, buses, TV channel website, and newspaper were chosen as avenues that would reach a large percentage of the target population.

Campaign Evaluation and Analysis

Mass media campaigns have been widely used to disseminate messages that reinforce behavior change and/or increase awareness about health issues, such as the use of tobacco, alcohol, and other drugs; heart disease risk factors; and cancer screening and prevention [19, 20]. A campaign message can be measured during the course of a dissemination effort using the following advertising industry metrics:

- Reach: the number of people/households exposed to an ad at least once.
- Ad impressions: the number of times an ad is displayed.
- Click-through rates: the percentage of people visiting a web page who access a hypertext link to an ad.

Each of these metrics is traffic-driven, and together they are key to understanding performance of health marketing campaigns for a set period of time [21].

In this study, we sought to measure the campaign's reach (through impressions) and impact (through click-through rates and calls to the CBCC mammography center). The impressions were calculated by the DC Washington Metropolitan Area Transit Authority for all bus and Metro station ads using industry standard measurements, by ABC/WJLA based on website analytics, and by the *Washington Inquirer* for print paper ads and email blasts based on their circulation rates. Click-through rates and use of website were calculated using website analytics. Calls to the mammography center were directed to a dedicated CBCC campaign telephone number for easy tracking.

Results

The campaign generated a total of nearly 10 million impressions. The majority of impressions were generated via Metro advertising (8,456,680), with the bulk of those via the 40 king-size bus posters. The ABC/WJLA website advertising also generated 705,206

impressions, while advertising with the *Washington Informer* generated 317,500 impressions (see Table 1).

The online ad with ABC/WJLA generated 1922 click-through from 705,206 impressions, for a click-through rate (CTR) of 0.27%. While there is no industry standard in terms of impressions because they are very unique to each media type and market (personal communication, Carlos Velaázquez, Harrison Maldonado Associates, Inc.), there are industry standards for CTR. The national industry average CTR for similar advertising is 0.08%, and anything above 0.1% is considered successful. This campaign generated nearly triple the average CTR, which indicates that this campaign had a successful run that was three times better than the national average for similar campaigns.

In addition, the CBCC website saw significant increases in new users and engagement. Between January and February, website traffic nearly tripled, with 312 users in January (before the campaign) and 934 users in February. In March, the number of users grew to 1309, surpassing February. During the ad campaign, sessions (where users were engaged with the website) rose by 166.67%, and page views (the total number of pages viewed) rose by 128.38% when compared to the 2.5-month time period directly prior to the campaign. Additionally, the number of first-time visits to the website also grew during the ad campaign, from 68.6% in January, to 82.09% in February, to 90.93% in March. During April, the number fell back to 68.2%. During the ad campaign, 60.6% of website visitors came through referral sources like wjla.com, compared to 7.4% during the time period prior. In fact, 1452 of the 1482 new visitors during the campaign came from the ABC/WJLA website ads as opposed to only 24 new users during the 2.5 months prior who came via other sources (see Table 2).

In order to track calls generated by the campaign, the CBCC mammography center used a dedicated phone number throughout the mass media campaign. In January 2017, before the campaign, there was one phone call to the number. In February 2017, when the campaign had just begun, there were nine calls from five distinct phone numbers. As the campaign got into full swing, the calls to the dedicated line increased significantly: 30 calls in March (21 separate numbers), and 57 calls in April (33 separate numbers).

Thus, although the descriptive metrics used could not provide a comprehensive comparative analysis by advertising industry standards, we were able to assess the impact of the campaign message by the number of calls to the CBCC call center as well as the traffic to the center's website, which both spiked during the dissemination of the ad messages.

Discussion

Mass media, channels of communication that reach the general population [22], have been used in public health efforts to improve health behaviors and raise awareness on a variety of health issues. From altering habits such as physical activity [23, 24], alcohol consumption [25], eating habits [26], and car seat usage [27] to HIV/AIDS prevention [28] and other health issues, mass media campaigns have demonstrated variable success. Exposure to and

reception of health prevention messages are confounded by factors such as cultural norms, competing messages, and message saliency [18].

While mass media avenues have been used to promote mammography screening, particularly among low-income African American women, the efforts have been rare [8, 12, 13]. The most recent prior study utilized research into culturally appropriate messaging and channels (black-centered radio) and showed a significant increase in the measured behavior—calls to the mammography center [13]. Building on that success, this study employed similar methods (qualitative data collection to develop the messaging, targeted mass media channels, and action directed toward a local community mammography resource). We utilized different channels—public transit stations and bus ads, print ads in a community newspaper, and online ads for a local network television channel’s website—instead of radio. In addition, this study’s location/population is distinct, focusing on Washington, DC, where the incidence and mortality rates for breast cancer are the highest in the United States [4] and there is a large minority population, with 47.7% black residents [5]. Our campaign is also distinct in that we created both traditional and nontraditional message products (i.e., print vs. online ads), offering the possibility of both interaction between the two and increased impact. Our findings suggest that using culturally relevant messages, images, graphics, and channels with the target group has a positive impact on action across geography and for multiple (targeted) channels.

Study Strengths

The pilot *Breast Health Is Beautiful at Any Age* mass media campaign has demonstrated success in reaching and impacting the target audience and thus increasing mammography awareness among African American women 40 and above. In addition, the campaign has established a foundation for increasing mammography screening among the targeted group. This study used the PHM framework to guide the development of messaging for more culturally relevant messages since mass media campaigns that are culturally relevant to the desired audience are typically more successful [13]. Accordingly, the channels we tested—public transit print ads, local newspaper print ads, and TV channel website electronic ads—were chosen based on the PHM framework, thus increasing the likelihood of our reaching our intended audience.

Study Limitations

Despite our success at developing a culturally appropriate mass media campaign that reached a significant number of the targeted audience, lack of funding limited our ability to implement a longer, more extensive campaign and measure its effects in terms of increasing mammography screening. Measuring the effectiveness of a message or its impact requires long-term exposure to the communications intervention and a baseline of behavioral measures, which was outside the scope of the *Breast Health Is Beautiful at Any Age* campaign or this study. A greater long-term investment is necessary to extend and assess campaign impact [18].

Conclusions

Our findings underscore the importance of culturally appropriate content when promoting mammography screening, particularly among low-income African American women. It is important to create messaging that is positive and motivating; age appropriate; and racially, ethnically, and age diverse. Our next steps involve using the results and lessons learned from this pilot campaign to develop a long-term investment (incorporating more funding for a longer time period) with a more robust evaluation strategy that includes determining if the increased awareness resulting from the mass media campaign led to increased mammography screening rates.

Acknowledgments

This study was supported by funding from the Susan G. Komen Foundation (#NCR15CAPBCC) awarded to Dr. Lucile L. Adams-Campbell. The authors gratefully acknowledge Harrison Maldonado Associates, Inc., who assisted with the development of the campaign promotional pieces, and the many women from DC communities who participated in the formative focus groups.

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Table 1

Campaign results: impressions

Advertising category	Number of impressions
Metro transit advertising (March 6 to April 30)	8,456,680
2-Sheet poster (46" × 60" at 5 stations)	1,219,272
Diorama (43" × 62" at 5 stations)	1,059,408
Interior bus card (11" × 28" on 170 buses)	1,887,000
King-size poster (30" × 144" on 40 buses)	3,325,525
King-size poster with added value	965,475
ABC/WJLA website (February 15 to March 12)	705,206
Web and mobile ads in news section	
Run of site (ads on all pages)	
Web banners on home page	
Washington informer Ad (weekly February 16 to March 16)	317,500
Print circulation per week	312,500
Email blast, with ad	5500
Total combined impressions	9,479,386

Table 2

Campaign results: impact on website usage

Category	Value
ABC (WJLA) mobile/digital ad impressions	705,206
Ad clicks	1922
Click-through rate	0.27%
National industry average	0.08%
CBCC website traffic	
January 2017 users (before campaign)	312
February 2017 users	934
March 2017 users	1309
Percentage of increase in engaged sessions during campaign compared to 2.5 months before campaign	166.67%
Percentage of increase in total number of pages viewed during campaign compared to 2.5 months before campaign	128.38%
Percentage of number of first-time visits to the website by month	
January 2017	68.60%
February 2017	82.09%
March 2017	90.93%
April 2017	68.20%
Total number of new visitors to CBCC website during campaign	1482
Number of new visitors to CBCC website during campaign from ABC/WJLA	1452
Percentage of new visitors referred from ABC/WJLA	97.98%
Total number of new visitors from other websites in 2.5 months prior	24