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The African American Women and Mass Media Campaign: A CDC Breast Cancer Screening Project

Ingrid J. Hall, Ph.D., M.P.H.[1], **Sun Hee Rim, M.P.H.**[1], **C. Ashani Johnson-Turbes, Ph.D.**[2], **Robin Vanderpool, DrPH**[3], and **Ngozi N. Kamalu, M.P.H.**[2]

[1]Division of Cancer Prevention and Control, Centers for Disease Control and Prevention, Atlanta, Georgia

[2]ICF Macro, Atlanta, Georgia

[3]Department of Health Behavior, University of Kentucky College of Public Health, Lexington, Kentucky

Abstract

For decades, black radio has reached African American communities with relevant, culturally appropriate information, and it continues to be an ideal communication channel to use for contemporary health promotion. In an effort to combat excess breast cancer mortality rates and help eliminate cancer disparities among low-income African American women, the Centers for Disease Control and Prevention's (CDC) Division of Cancer Prevention and Control designed, implemented, and evaluated the African American Women and Mass Media (AAMM) pilot campaign. The AAMM campaign uses black radio, radio stations with broad African American listenership, as a platform for targeted, culturally competent health promotion and outreach to low-income, African American women. The AAMM campaign uses radio advertisements and print materials disseminated in predominantly African American neighborhoods to promote awareness of breast cancer, early detection, and the CDC's National Breast and Cervical Cancer Early Detection Program (NBCCEDP). Evaluation of the AAMM campaign found that the campaign successfully reached its target audience of low-income, African American women and increased women's awareness of breast cancer screening services through the Breast and Cervical Cancer Program in Savannah and Macon, Georgia.

Introduction

Breast cancer is the most common type of cancer and the second leading cause of cancer-related deaths among women in the United States.[1] Each year, about 210,000 women are diagnosed with breast cancer, and nearly 41,000 women die from the disease.[1] Breast cancer survivors are among the most prevalent cancer survivors. According to a recent estimate, about 22% (or 2.9 million women) of the 13.7 million cancer survivors were breast cancer

Address correspondence to: Ingrid J. Hall, Ph.D., M.P.H., Division of Cancer Prevention and Control Centers for Disease Prevention, 4770 Buford Highway, MS K-55, Atlanta, GA 30341, ihall@cdc.gov.

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survivors.[2] By 2022, the number of female breast cancer survivors is expected to increase to 3.7 million.[2]

Overall incidence and mortality rates of breast cancer have been declining at a rate of approximately 2% per year since 1996,[3] likely the result of widespread screening and earlier detection via mammograms and improved therapies. However, evidence suggests that African American women suffer disproportionately from breast cancer mortality. African American women diagnosed with breast cancer are 40% more likely to die from the disease than white women (32.0 vs. 22.8/100,000) and are less likely to survive 5 years after diagnosis (77% vs. 90%).[4] Whitman et al.[5] recently published that African American women die from breast cancer at a higher rate (range 24%–109%) in many urban centers across the country, leading to the excess mortality compared to white women.

Death from breast cancer can be reduced substantially if the cancer is discovered at an early stage. Clinical trials have demonstrated that mammography is the most effective method for detecting these early malignancies and reducing deaths.[6] Breast cancer deaths can be reduced through increased adherence to recommendations for regular mammography screening. The recent decrease in deaths from breast cancer in white women is attributed to greater use of breast cancer screening in regular medical care.[7] However, deaths due to breast cancer in African American women have not decreased to the same extent, in part because of later stages at diagnosis and delayed treatment.[7] Results from some national surveys show mammography screening prevalence among African American women to be equal to that of white women,[8,9] although low-income women and women with little education are less likely to have had a timely mammogram.[9] Given their greater prevalence for late stage diagnoses and higher mortality, African American women should be encouraged to have timely and regular mammograms. Culturally appropriate strategies are needed to reach low-income African American women with breast cancer screening information and to encourage them to participate in mammography screening.

Why Mass Media?

According to The Guide to Community Preventive Services (The Community Guide),[10] sufficient scientific evidence demonstrates that multicomponent mass media campaigns increase use of breast and cervical cancer screening. Mass media includes television, radio, newspapers, magazines, and billboards. Multicomponent mass media campaigns are those that use multiple channels (e.g., TV, radio, print) to disseminate information to the population. However, the effectiveness of multicomponent mass media campaigns has not been sufficiently evaluated in vulnerable populations, including among low-income populations.[9,11] In addition, few studies have sought to tease out the effectiveness of individual campaign components (e.g., radio alone) in increasing use of breast cancer screening services.[10]

The Potential of Black Radio

A platform to disseminate health messages and reduce health disparities

Black radio, radio stations that target and reach African American audiences, is an important communication channel to connect with African American audiences. It can be used in health promotion and has been used to recruit African Americans into public health research from within the community.[12–16] Previous reports have discussed the potential of black radio as a tool for reaching the African American community,[17] given the high prevalence and consistency of use among African Americans of all ages[18] and the perceived advantages it has over print media in circumventing low health literacy issues.[17] Reaching this population with public health messages that address African Americans' lack of knowledge and awareness of preventive health behaviors requires comprehensive communication strategies. Black radio, a culturally appropriate community information resource, could prove effective in filling this need.

Development of the African American Women and Mass Media Campaign: Research to Inform the Campaign

In order to address the racial disparity in breast cancer mortality, CDC contracted with ICF Macro to develop, implement, and evaluate the African American Women and Mass Media (AAMM) campaign. The AAMM project was implemented in three phases to (1) conduct formative research to understand low-income, African American women's knowledge and awareness of breast cancer screening and early detection and to investigate their health communication preferences by exploring what personal and environmental factors influence National Breast and Cervical Cancer Early Detection Program (NBCCEDP)-eligible African American women to (or not to) get screened through the CDC's NBCCEDP available at their local health department, and what the most viable messages and channels are to promote breast cancer screening services to these women, (2) test culturally appropriate concepts, messages, and materials to raise women's awareness of breast cancer and mammography and to increase the use of CDC's NBCCEDP, and (3) evaluate the effectiveness of the AAMM pilot campaign to reach the target audience and increase community awareness of Georgia NBCCEDP breast cancer screening services. All study methods were reviewed and approved by the Federal Office of Management and Budget and the Institutional Review Boards at the CDC, ICF Macro, and the Georgia Department of Human Resources (GA DHR). This article presents results of our efforts to increase awareness of the availability of local screening services.

Site selection

Georgia was chosen as the pilot state based on the practical ease of setting up the partnerships with the CDC needed to conduct a study of this type. Three cities were selected for the study—Savannah and Macon as intervention sites and Columbus as a comparison site. These three cities were selected because:

- All three cities implemented the NBCCEDP through their local health departments.

- The cities shared similar demographic makeup and were similarly ranked in the Arbitron radio marketing rankings (Table 1).
- The cities were geographically distinct and had non-overlapping radio market coverage.

Theoretical framework

Development of the AAMM campaign was guided by Witte's Persuasive Health Message (PHM) framework.[19] A framework differs from a theory in that it does not attempt to explain human behavior; it simply outlines what one should do to develop the most effective and persuasive campaigns. The PHM framework combines the best of three prominent persuasion theories—Theory of Reasoned Action,[20] Elaboration Likelihood Model,[21] and Protection Motivation Theory[22]—to offer an integrated approach to generating culturally, demographically, and geographically appropriate messages and campaigns.[19] The PHM framework consists of three steps: (1) determine information about threat and efficacy, (2) develop an audience profile, and (3) construct a persuasive message.[19] These steps were implemented in project phases I and II to develop the AAMM pilot campaign.

Phase I: Focus groups

Phase I of the study used focus group methodology to gather information from African American women aged 40–64 years who were Georgia residents and who met the income and insurance eligibility criteria (www.cdc.gov/cancer/nbccedp/screenings.htm?s_cid=dcpc_bcbtn_001) for participation in NBCCEDP mammography screening. Women with a personal history of cancer and those who had a participating relative were excluded. Discussion topics, per the PHM framework, focused on if women perceived breast cancer to be a serious issue for them, if they felt motivated and empowered to do anything about breast cancer, if they thought mammography was effective at detecting cancer early, and if early detection improved health outcomes after diagnosis.

Specifically, we sought to better understand how low-income African American women might use TV/radio as sources of health information and attempted to identify the particular formats, programs, stations, and hours during which the targeted women listen. Additionally, we examined how and where African American women get information on community issues, services, and events and whether these could be used as viable means to disseminate information on health services.

In December 2004, a total of eight focus groups with 78 NBCCEDP-eligible African American women were conducted to examine women's knowledge, attitudes, and beliefs about breast cancer and mammography as well as preferred communication outlets to inform screening messages to promote an effective public health approach to mammography. The groups were held in Savannah and Macon, Georgia, and were segmented by age (40–49 and 50–64 years old) and screening status (women screened through the NBCCEDP in the past 24 months vs. women who were eligible for NBCCEDP services but not screened in the past 3 years).

In Savannah and Macon, local site recruiters, who were African American women from the community, recruited all unscreened participants for the focus groups. Health department staff recruited screened women from their screening rosters in order to retain confidentiality of NBCCEDP participants per Health Insurance Portability and Accountability Act of 1996 (HIPAA) regulations. Recruiters were reimbursed for each woman who attended a focus group. The focus groups were moderated by a skilled, African American, female moderator with extensive experience moderating focus groups on sensitive health topics. Transcribed audiotapes from each group were imported into ATLAS.ti, a qualitative data analysis software program, and coded to identify themes, patterns, and interrelationships within the discussion data.

All participants completed the Pre-Discussion Information Sheet, which collected demographic information about participants, their radio listening behavior, and use of television and print media. Across groups, 52% of women were between 50 and 64 years old. Fifty percent of participants had a high school diploma and some college, 23% had a 12th grade education with a diploma, and 7% had completed a 4-year college degree. Participants' employment status varied, with similar proportions of full-time, part-time, and unemployment. Participants were employed in various occupations, such as child care worker, cook, housekeeper, seamstress, and retail sales. Eighty-six percent of respondents reported listening to radio weekly, with 55% of women listening daily. The most commonly preferred radio formats were gospel music (25%), general Christian music (16%), and rhythm and blues music (R&B) (13%).

Per the PHM, the focus group discussion was designed to capture information needed to develop a compelling health campaign. Most participants reported obtaining health-related information (including information specifically about breast cancer) from doctors, family members, friends, the local health department, radio, and television. Although some women indicated the use of the Internet, most claimed having limited access to the World Wide Web or did not consistently use it as a resource.

Several questions were asked to try to assess participants' knowledge, attitudes, and beliefs about breast cancer and mammograms. When participants were asked what came to mind when they heard the term "breast cancer," most said that their initial thought was fear of death or of being sick, in general. Among the common causes of fear related to breast cancer were the physical pain of being sick, hair loss, loss of finances, inability to work or pay for treatment, and long-term treatment of the disease. The majority of women appeared to recognize that a mammogram was the best method to determine if one had breast cancer and that a regular mammogram was the key to early detection and subsequently improving the chance of surviving breast cancer. Some participants also discussed self-examinations and clinical breast examinations as effective ways to detect a breast lump and possibly breast cancer. Participants in the screened groups adamantly stated that if a woman found a lump in her breast, she needed to follow up with a mammogram at a doctor's office or hospital. Although participants in the unscreened groups talked about mammograms, they did not commonly mention self or clinical breast examinations for early detection of breast cancer.

We asked participants if they believed that “women like them” were at risk for getting breast cancer. All participants agreed that they could be at risk and commented that African American women were at increased risk for breast cancer because of family history of cancer, poor diet, and lack of adequate health insurance. Participants were asked to discuss their attitudes and beliefs about mammograms and when women should get mammograms. Although most participants believed that mammograms were important for early detection, some participants voiced serious concerns about mammograms and getting screened. Specifically, participants questioned if mammogram results were accurate, if repeat mammograms could put women at increased risk for cancer, and the possibility of getting cancer from exposure to radiation during a mammogram. In unscreened groups, most participants also suggested that mammograms would be uncomfortable and/or painful. Beliefs about at what age mammography should begin and its frequency were varied. Some participants said that women should get a mammogram if they detected a lump in their breast, and others said that women should get annual mammograms starting at age 40. Still others stated that mammograms should begin at age 18 years or when women become sexually active or that mammograms should be done every 3–6 months or twice a year.

Although most screened participants were aware of the availability of free screening services at the local health department, they did not know the program by name. Most unscreened women who had not received a mammogram were unaware of the NBCCEDP program offering no-cost or low-cost mammograms. Most screened participants were supportive and trusting of free mammogram services, whereas unscreened women were ambivalent about free services. Most unscreened women expressed concern about the qualifications of technicians providing free mammograms; for example, participants questioned if the technicians were qualified to administer and accurately read mammogram results. Across various focus groups, these participants were distrustful of free services and suggested that if health services were free, the quality of services (such as the training level of the technicians) might be inferior to that of paid services. Some unscreened participants were apprehensive about how they would be treated by technicians offering them free mammograms.

Participants stated that they preferred to get information about breast cancer and mammograms in pamphlets received via the mail. In some groups, participants recommended disseminating printed materials in doctors’ offices, health clinics, and/or drugstores, such as CVS, Eckerd, or Kroger. When asked about receiving information via the radio, most participants were receptive to the idea and commonly reported that although they preferred to read information about health issues, they would pay attention to health messages on specific radio stations (e.g., gospel), especially if the message were a testimonial from a cancer survivor. Participants expressed a strong preference to hear information about breast cancer and mammograms from an African American female breast cancer survivor or an individual having had a personal experience (e.g., a family member with breast cancer) with the disease.

In assessing the most effective message tone to promote mammograms in the target population, participants were asked their opinions about a variety of message tones. Most participants thought that serious messages with facts about breast cancer among African

American women would be the best way of communicating to women about breast cancer and mammograms. Participants stated that serious messages, emphasizing the importance of early detection to save lives, would likely catch their ear and hold their attention. There was little support in the groups for scary messages or messages using humor to convey the importance of breast cancer screening. Across screened and unscreened groups, no major differences by age were observed.

Phase II: Develop and evaluate AAMM campaign messages and promotional materials

Phase I focus group findings were used to create campaign concepts, messages, and materials (audio and print formats), including images that reflected target audience preferences to motivate them to use the NBCCEDP. In phase II (August 2007), a prototype script for radio messages and an audio commercial was developed and tested against two audio commercials used by the GA NBCCEDP. Phase I findings also guided development and testing of a series of draft campaign posters. Draft campaign materials featured the name of the local screening program in Georgia, "BreasTest and More," indicated the recommended age to begin screening, and recommended frequency for screening. Audio materials incorporated African American breast cancer survivor testimonials and stated that free services were the same as those received by paying patients. We also incorporated themes of African American women's strength, family connectedness, and the concept that life is priceless.

Campaign concepts, messages, and materials were tested in phase II. Focus groups were segmented similarly to phase I focus groups, with four groups each in Macon and Savannah, GA. The groups were conducted with a total of 68 NBCCEDP-eligible women. Screened women recruited for phase II groups were not limited to NBCCEDP participants and could have received their mammography screening anywhere.

Detailed description and results of materials development and evaluation are provided elsewhere (Leeks et al.).[23] Phase II findings revealed that real life testimonials from breast cancer survivors were preferred in comparison to messages from celebrities. Participants preferred a conversational tone with factual information that allowed them to decide the best path for themselves. Participants liked references to free or low-cost services and were interested in learning more about these resources. Participants preferred images of happy, healthy, smiling faces, and images of family were particularly appealing.

Using phase II findings, the AAMM study team developed 30-second and 60-second radio public service announcements (PSAs) featuring breast cancer survivor stories. The survivor stories focused on each woman's personal story of cancer detection, ability to overcome breast cancer, and survivor advice for other women in their community. The radio PSAs also included a health professional and a call to action to contact the National Cancer Institute's (NCI) 1-800-4-CANCER phone number to obtain more information about the NBCCEDP.

Phase III: AAMM campaign implementation

The AAMM was piloted in Savannah and Macon, GA. Rotating radio PSAs (three new PSAs/month) and live radio shows featuring breast cancer survivor testimonials on radio stations (R&B and gospel formats) with wide African American listenership aired for 1 year

(August 2008–July 2009) in both sites. The live radio interviews were conducted monthly, included a discussion between a healthcare provider and a community breast cancer survivor, and were aired on black radio during Sunday morning public affairs programs. Campaign PSAs aired on two radio stations in Savannah and four stations in Macon.

In Savannah only, print materials were disseminated in a variety of venues throughout the African American community, where women said that they would notice health information (e.g., beauty salons, pharmacies). In addition, we shared AAMM campaign materials at popular community events, including street fairs and community celebrations. We partnered with Cumulus Media, owner of several stations in Savannah and Macon, to promote and conduct outreach efforts and distribute promotional materials during usual radio remotes and other events in and around Savannah.

AAMM Campaign Evaluation

We conducted a 3-point quasi-experimental time series design involving collection and analysis of evaluation data at baseline, during, and after women's exposure to the AAMM campaign in Savannah and Macon and in one comparison site (Columbus, GA) to evaluate the campaign's effectiveness to increase awareness of breast cancer screening through Georgia's NBCCEDP in Savannah and Macon and assess campaign reach. Awareness and reach were measured by the number of and data obtained from calls to 1-800-4-CANCER. Specifically, we measured caller demographics and any change in numbers of callers to 1-800-4-CANCER who reported AAMM campaign radio PSAs as their source of information. The 1-800-4-CANCER number was shown on all promotional, print materials and stated in the call to action line at the end of all radio advertisements.

We partnered with NCI's Cancer Information Service (CIS) to monitor the number of calls generated by the AAMM in Savannah, Macon, and Columbus. For > 30 years, NCI's CIS has provided scientifically based, unbiased cancer information to patients, their families and friends, healthcare professionals, and the general public.[24] In this case, women called 1-800-4-CANCER, the number attached to campaign promotions, to obtain information on the breast cancer screening program and for referral to their local health department. The CIS provided baseline information on the number of calls received monthly from all study sites for 1 year, including data for the 2 months prior to the AAMM campaign launch and for 2 months after the end of campaign activities.

Collection of Telephone Call Data

The CIS routinely collects detailed information about each client interaction using a web-based Electronic Call Record Form (ECRF). Based on the information that emerges during the course of the telephone conversation, CIS information specialists record the type of user (e.g., cancer patient, friend/family member of a cancer patient, general public), type of cancer discussed (e.g., breast), subject of interaction that relates to the topic of conversation (e.g., mammography, referral to medical services), and the CIS response to the caller, including referrals to NBCCEDP as well as direct transfers to local public health departments. In addition, CIS asks each caller how they learned about the CIS (e.g., radio), if they had contacted the service before, their geographic ZIP code, and demographic

variables, such as age, sex, ethnicity/race, income, education, health insurance status, and access to healthcare on a random sample of clients (approximately 25%). For the purposes of this study, the CIS collected demographics on 100% of callers from Savannah, Macon, and Columbus ZIP codes.

Evaluation Findings

Evaluation findings showed an increase in total calls to 1-800-4-CANCER across the three study sites, including the 2 months before and after the campaign implementation (Fig. 1). In the 2 months preceding campaign launch in August 2008, CIS averaged 53 calls per month across the three study sites. Calls averaged 70 per month during the 12 months of study and fell to 44 per month when campaign activities ended in July 2009. The highest number of calls was received from Savannah and Macon (426 and 273, respectively, vs. 136 in Columbus) over the 12-month study period. By study site, the average number of calls per month increased over the first 2 months by 27% in Savannah, 42% in Macon, and 8% in Columbus.

Exploration of the caller data indicated that the AAMM campaign reached the target audience. Demographic information was collected from callers to 1-800-4-CANCER over the course of 16 months. However, about half of callers did not respond to all demographic questions asked on the call. We show caller characteristics of those who completed the full survey in intervention vs. control sites (Fig. 2). Call data indicated that callers from intervention sites (Savannah and Macon) were more likely to be African American (57% and 60%, respectively, vs. 44%), uninsured (41% and 44% vs. 20%), and classify themselves as general public (54% and 57% vs. 27%) than callers from the control location. More callers from intervention sites (26% and 31% vs. 0%) reported radio as their information source to call 1-800-4-CANCER.

Evaluation findings indicate that the AAMM campaign raised awareness of the Georgia NBCCEDP. We found that more callers from Savannah and Macon, where the AAMM campaign was implemented, reported radio as their information source vs. callers from the comparison site in Columbus (Fig. 3). Overall, the number of callers who reported radio as their source of information totaled 127 of 426 (30%) and 97 of 273 (36%) callers in Savannah and Macon, respectively, over a 12-month period compared to 0 of 136 calls in the comparison site (Columbus). In Savannah, the percent of callers reporting radio as their information source ranged from 19% to 40% monthly. Callers from Macon cited radio as their information source for 10% to 53% of calls each month. Although the number of calls fluctuated from month to month, the percentage of callers to 1-800-4-CANCER who reported radio as their source of information continued to increase in both campaign sites over the 12-month study period.

Conclusions

Findings demonstrated that the AAMM campaign reached the target audience and indicated that callers to the CIS from campaign sites matched the desired demographic profile for the target audience of African American women. Evaluation results support the conclusion that

black radio is a viable and effective way to reach African Americans with important health messages and that community members respond to such messages. The findings support the notion that an approach using radio in the community, whether alone or as part of a multicomponent approach, to reach the target population (low-income, uninsured African American women in the general public) with public health messages was feasible and may positively impact changes in awareness. We are optimistic that the improved awareness of the GA NBCCEDP in Savannah and Macon will translate into behavior change. Future directions will determine if an increase in community awareness of the availability of breast cancer screening services translates into a greater number of mammograms obtained by African American women through the GA NBCCEDP in campaign sites compared to control.

Although its impact will need to be continually assessed against other, novel communication devices (e.g., smart-phones, social media sites), the longevity and pervasiveness of black radio as a viable community channel to target loyal audiences makes it a good option to use as an outreach and delivery platform for public health practitioners. Furthermore, with the proliferation of nationally syndicated radio programs airing on black radio,[17] there is a growing potential to target a greater number of listeners across the country, particularly in urban areas that have large concentrations of low-income African American women who suffer disproportionately from breast cancer mortality.

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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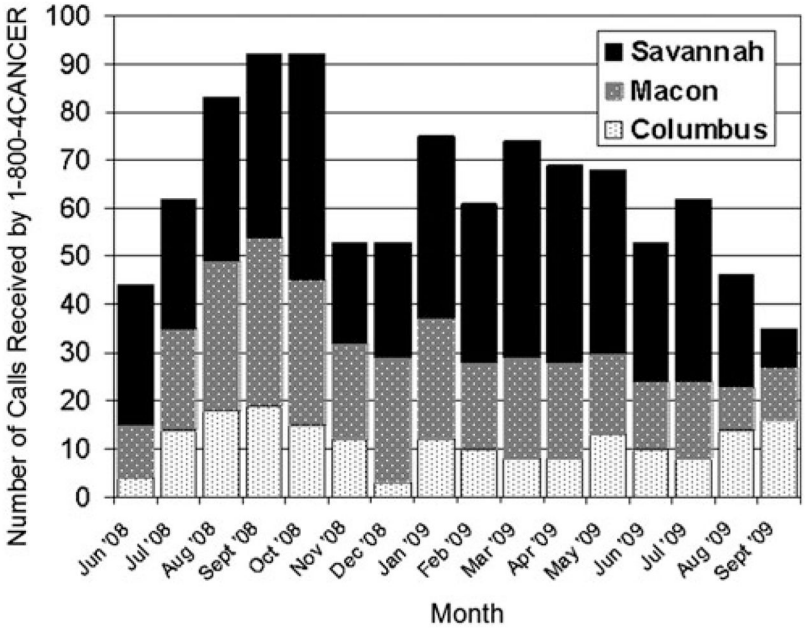

FIG. 1.

Total calls to 1-800-4-CANCER, by month and site, African American Women and Mass Media study, June 2008–September 2009.

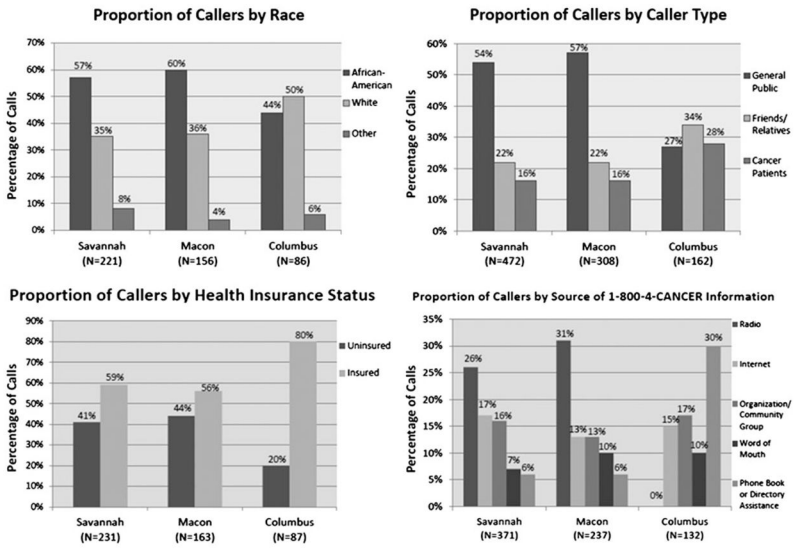

FIG. 2.

Characteristics of callers to 1-800-4-CANCER, African American Women and Mass Media study, June 2008–September 2009.

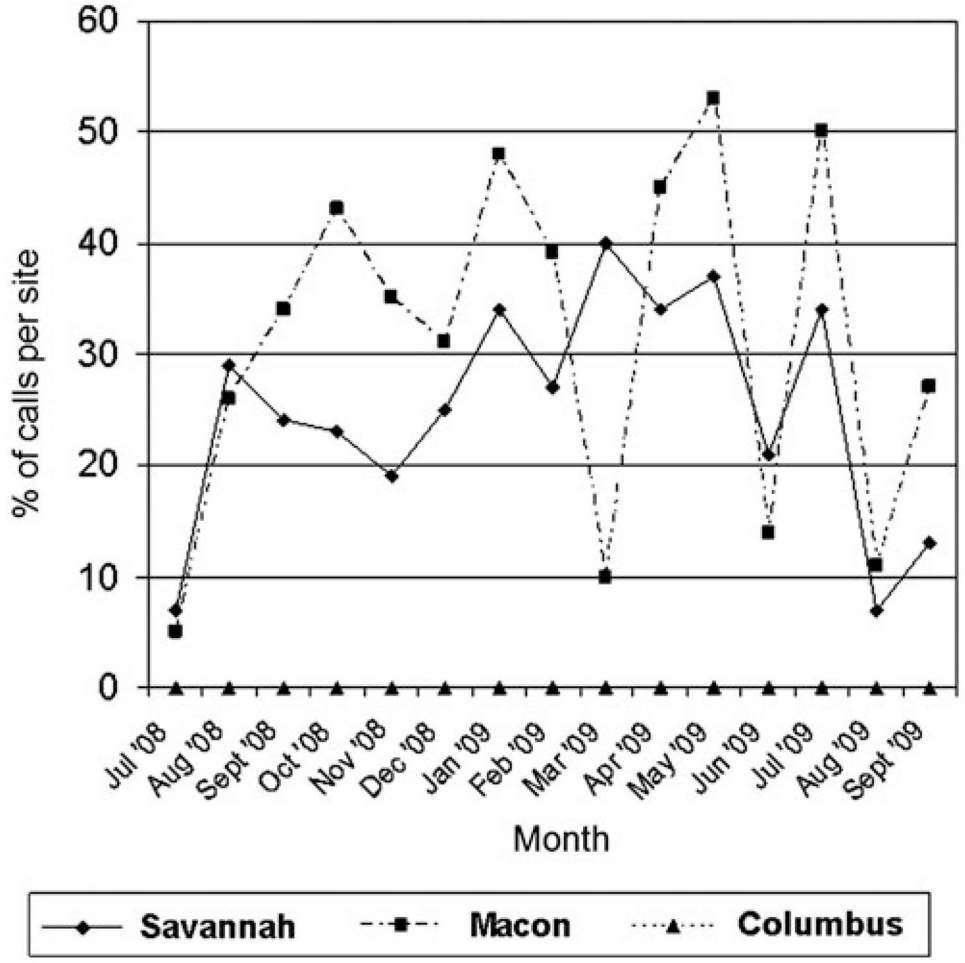

FIG. 3.

Percent of total calls to 1-800-4-CANCER heard on radio, by site and month, African American Women and Mass Media study, July 2008–September 2009.

Table 1

Georgia Arbitron Radio Markets (Spring 2002 Data)

	Market rank	Total persons aged 12 + years	African Americans aged 12 + years	% African Americans
Macon	153	262,000	95,000	36.4
Savannah	158	247,000	83,000	33.6
Columbus	178	206,000	87,000	41.9