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## Factors Affecting African American Men's Use of Online Colorectal Cancer Education

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### Abstract

Colorectal cancer (CRC) incidence rates have decreased due to increased use of CRC screenings that permit the detection & removal of polyps. However, CRC is still the 2<sup>nd</sup> most common cause of cancer death among men ages 40 to 79 years; incidence and mortality rates for CRC are higher among African American (AA) men than among white men and AA women. CRC screening rates for AA men are comparable to their counterparts of other racial groups but adherence to the screening guidelines is less, contributing to disparities in CRC mortality. Internet use is widespread and could be a channel to reach and disseminate health information to AA men; however, there are disparities in internet use and limited literature exists on how to best address this divide. This pilot project sought to understand African American male attitudes on colorectal cancer screening (CRCS), receipt of CRCS information and the best strategy to provide African American men online CRCS education. Three focus groups and a feasibility trial were completed with African American men, ages of 45 to 75. Data suggest that disseminating information online is not a very effective way to reach older African American men with limited education. Although we do not recommend using websites among this population, email was more effective in getting participants to the website even though participants expressed a preference for phone messages. Recommendations for future research are provided.

### Introduction

Colorectal cancer (CRC) incidence rates have decreased over the past two decades, largely due to increased use of colorectal cancer screening (CRCS) that permits detection and removal of polyps [1]. However, CRC is still the second most common cause of cancer death among men ages 40 to 79 [2]. In addition, CRC incidence and mortality rates are higher among African American men than among white men and African American women [1, 2]. Current guidelines recommend that men and women ages 50 to 75 be screened via annual fecal occult blood test (FOBT), sigmoidoscopy (Sig) every 5–7 years combined with annual FOBT, or a colonoscopy (Col) every 7 to 10 years [3]. CRC screening rates for African American men are fairly comparable to their counterparts of other racial groups but adherence to the screening guidelines is less likely in this group [2,4]. Some studies attribute African American male CRCS adherence to low perceived risk of CRC, lack of knowledge,

and fears associated with getting the test and results [5–9]. Research suggests that more exposure and access to information about CRC and screening would increase African American male willingness to screen [6, 10]. Understanding male preferences for CRC education and information is an important step in increasing exposure and access.

Use of the internet to obtain health information is widespread, which suggests its importance as a tool to disseminate health information [11]. However, research suggesting a digital divide, which includes low income African Americans, highlights the importance of research that considers how to optimize the use of online health information to inform African American men about CRC [12]. This paper reports on a pilot project designed to 1) understand African American male attitudes about the use of web-based CRC education and 2) the factors associated with Black male use of an online CRC and CRCS website.

## Method

The Washington University in St. Louis Institutional Review Board approved this study and the consent procedures used.

### Focus groups

Three focus groups with African American men between the ages of 50 to 66 years were conducted. Men were recruited through a database of participants who had participated in previous studies and agreed to be contacted for formative research. The database was screened for the names and contact information of African American men, ages 50 to 75 years. Seventy-five men were identified; 46.67% (n=35) could not be contacted due to wrong or disconnected numbers and no answer to up to three calls and two individuals were deceased. Forty individuals were contacted and screened for eligibility. Of those screened, 32.5% (n=13) were not interested in participating or were unable to participate due to travel, illness or the timing of the groups and one (2.5%) was unable to provide consent. Of the twenty-six individuals who agreed to participate, 69.2% (n=18) attended.

### Procedures

Participants were greeted, escorted to the meeting room and received verbal consent descriptions while consuming a light meal, with additional time to review and complete consent forms and a demographic data sheet. During these group sessions, participants were asked a series of questions to ascertain their knowledge of and concerns about CRC and its associated screenings; and their preferences for channels for receiving health information, e.g., through print media, text messages, phone calls, voice messages, or email. A total of four messages were presented to gain participant reactions to the content and phrasing. Focus groups were completed in approximately 90 minutes; all sessions were audio-recorded for accuracy. Participants received a \$25 gift certificate after completion of the focus group interview session.

### Coding and analysis

Audiotapes of the focus group sessions were transcribed into Microsoft Word documents. Two team members developed a coding scheme based on the objectives and areas of inquiry in each focus group. Researchers reviewed each transcript and assigned appropriate codes to the corresponding line numbers in the transcript. Emerging themes unforeseen in coding development were noted. Coders compared results and discussed and resolved all discrepancies. The coded transcripts were reviewed for patterns within each code, and summarized by the each reviewer and then discussed and summarized into a final report that was used to guide development of the CRC screening messages tested in the education trial.

## Communication trial

The purpose of the feasibility trial was to determine the practicality of conducting a large population-based intervention that delivered messages about CRCS to African American men using phone and email technology, supplemented by an internet website.

## Participants

A convenience sample of 60 African American men aged 50 to 72 years participated in an internet based CRC education feasibility study. Participants were recruited through the same database used for focus group recruitment, as well as two participant recruitment resources and community organizations and venues used in previous studies [15–16]. Participant eligibility criteria were: self-identified African American males, between the ages of 50 and 75, who had never been screened for CRC, had no previous CRCS trial participation, and had a working email address and residential telephone. The database yielded 178 additional names, of which 65.0% (n=115) were ineligible or could not be contacted; of the 42 eligible individuals identified, 52.0% (n=22) agreed to participate. Thirteen participants, pre-screened for eligibility and interest, were referred from two medical school recruitment resources. The remaining participants were recruited from community organizations and events.

## Measures

Participants completed information forms and a baseline survey. The information form asked for home address (for mailing of incentives), email address, and home and/or cell phone number. The baseline survey obtained age, income, employment status, marital status, and education. The baseline survey also assessed participants' knowledge, and beliefs about CRC and perceived benefits and barriers to CRCS. Items assessing benefits and barriers to screening were based on the measure by Rawl, Champion, Menon, Loehrer, Vance, and Skinner [13]. A previous study using the measure with African American men reported alpha coefficients for FOBT barriers of .87 and .92 for Scope barriers. CRCS benefits had alpha coefficients of .82. A 3-item validated scale measured absolute perceived risk of CRC [14]. Responses ranged from strongly disagree to strongly agree. A validated 4-item measure of CRCS self-efficacy ( $\alpha = 0.82$ ) was administered [14]. Response options ranged from strongly disagree to strongly agree or not at all confident to very confident. The coefficient alpha for this sample was .51. Knowledge items assessed recommended age for initial screening, recommended frequency for three CRCS strategies. Finally, participants were asked to report their intent to obtain CRC screening.

## Intervention website

Based on formative work, CRC education materials for African American men were modified and placed on a website [15]. The webpage consisted of screen shots of a series of magazines that were previously developed for a CRC screening community intervention trial for African Americans [15]. The webpage described CRC, CRCS options and testing intervals, and screening resources. Participants received a link to the page every time they receive a message via phone or email.

## Procedures

After completion of the baseline survey, participants were randomly assigned to intervention groups; one group received email messages and one group received phone messages. Each group (30 African American men per group) received the same three messages that varied only by the communication mode and the order in which the messages were received. Messages were through a web-based service call service. All participants received one message per week of the three week trial for a total of three messages. The messages

contained information describing CRC, its incidence and mortality among African American men, encouraged CRCS and prompted participants to visit the website over a three week period.

Study participants received follow-up phone calls to determine reaction to receiving reminder messages via telephone or email, whether they had visited the website, usefulness of content, likeability, and completed items related to CRC knowledge, CRCS benefits and barriers and current intent to screen. Participants received \$15 gift certificates following the completion of the baseline survey and the follow-up, two weeks post intervention.

## Analyses

Information from the baseline survey was coded by researcher team members and entered into SPSS statistical software. Descriptive statistics were generated to describe the demographic characteristics of the participants. Forced entry binary logistic regression was completed to determine demographic and attitudinal associations with website use.

## Results

### Focus groups

Eighteen African American men, between the ages of 50 to 66 years of age, (M=56.3) participated in the focus groups. Half of the men reported completing some college, 16.7% had a college degree, with 33.3% having a high school education or less. Over 60% of the men were employed; 44.4% earned between \$30 and \$70,000, 22.2% earned \$10 to \$29,999, and 16.7% earned less than \$10,000. Most men were married/living with a partner (44.4%), with 33.3% single and 22.3% divorced, separated or widowed.

Focus group participants suggested that using text messages as a communication tool among older African American men might not be feasible.

“I don’t have a cell phone so I’m home phone all these.”

Some men indicated that while they owned phones that possessed a text messaging feature, they did not use it due to cost and familiarity with the technology.

“Well I don’t text.”

P1: It ties up too much. Some of these phones charge you for incoming text messages. P2: That’s why mines blocked. P1: So you creating a bill for me.

Men were more receptive to the use of email; although many noted that work was their primary point of access. In addition, these African American men indicated that the slow internet speed of home computers might interfere with using the internet to obtain health information.

“I think I would ultimately. See the only email address I have is at work. The computer at home is older than me.”

However, participants did discuss what CRC health information they needed. The messages were seen as too brief to adequately motivate screening; the men reported a desire for website information that could address places to obtain screening; and options for receiving free/low cost screening if they did not have insurance. Thus, the focus groups led to a plan to develop a webpage created for participants to use for gaining additional information.

The men also suggested changes to the messages to make them stronger and more effective in increasing CRC screening awareness and possibly improve CRC screening among African Americans. Only three messages of the four proposed in the focus group interviews

were positively evaluated by participants. One message was viewed as vague and lacking concrete information:

“It’s your right to get all the information you need about colon cancer screening tests before deciding to get one. Taking charge of your health puts you in control and gives you more choices in your life and in your health care. Do whatever you can to stay healthy and protect yourself from colon cancer.”

P1: Number 2 doesn’t do a lot for me. It’s so vague to me, it’s just .....

P2: It also should contain where and how and why. Because the why is there but where and how.

Each message contained a theme and it was suggested that the order in which the messages were received might affect participants’ responses. The participants offered suggestions on message order, but differed in their opinions of effective order. As a result of these findings, the feasibility protocol was altered to include consideration of the order of messages.

### Feasibility trial

The average age of trial participants was 55.2 years. Ten percent of the men participating in this trial had graduate education, 35% reported completing some college, 23.3% had a college degree, with 31.7% having a high school education or less. Although well educated, the majority of men were not employed (51.6%); 33.3% earned less than \$10,000, 18.35% earned \$10,000 to \$29,999; 25% earned \$30 to \$69,999 and 11.7% earned \$70,000 or above. Most men were single (33.3%) or divorced/separated (33.3%), with 30% of men married/living with a partner and 3.3% widowed.

Only 68.3% of men completing the baseline survey completed the follow-up survey: 19 received email messages and 22 telephone messages. There were statistically significant demographic differences among those men who began the study and those who completed the follow-up survey. Chi-square analyses indicated that men who had completed high school or had less than a high school education (19.5%) were less likely to have completed the follow-up survey ( $p < .05$ ) than other men (57.9%) and differences in employment and income status approached significance; those completing the follow-up survey were more likely to be employed (51.6% compared to 36.1%) and have higher incomes (19.4% with incomes over \$70,000).

Ten percent of the men completing the follow-up survey did not visit the website. Most men (56.4%) reported visiting the website one or two times and 33.3% reported visiting the website three times or more. Although not statistically significant ( $X^2(5) = 6.23, p = .28$ ), men who received CRC website information by telephone were more likely to visit the website at least once (30% vs. 25%); while a higher proportion of men who received messages via email, visited the website multiple times (37.1% vs. 20%). Logistic regression analysis indicated that of education and perceived risk, education was the only significant predictor of CRC website visitation ( $X^2(4) = 10.67, p < .05$ ; education OR=3.42, CI, 1.031 to 3.129; Nagelkerke = .323).

Chi-square statistics indicated that there were no statistically significant differences in message and website experience by email or telephone administration. While phone messages were generally evaluated more positively, a larger proportion of men receiving email messages reported that the messages got their attention, motivated them to go to the website, and a smaller proportion described the messages as annoying. Men viewed the information on the website positively regardless of the strategy used to guide them to it.

Over 70% of the men visiting the website identified the correct age to begin screening, which was an improvement over at baseline (56.4%). At baseline 80 to 90% of men reported not knowing the appropriate screening frequency for CRC strategies; however at follow-up, while believing that they knew the appropriate screening intervals only 2.9%, 11.4% and 38.5% could correctly identify the appropriate frequency for COL, SIG and FOBT. Univariate statistical analyses indicated that there were no statistically significant differences in the pre/post mean difference scores for benefits of screening, barriers to COL, SIG and FOBT between those who received emailed versus telephone messages. However, an examination of means indicated that while the mean benefits of screening score for email message recipients remained unchanged at follow-up, the mean scores for telephone message recipients declined. Of the 39 men completing follow-up surveys, only 31.4% reported that they planned to obtain CRCS and 62.9% reported that they intended to discuss CRCS with their physician. Of the two men who did not intend to seek CRCS, both had visited the website.

## Discussion

African American men are willing to access CRC education on line, but barriers remain. Although participants saw email and phone messages as a convenient method of receiving CRC information and viewed them as easy to follow, they reported that both reminder strategies were annoying. Although men had expressed a preference for phone messages in focus groups, phone messages were more likely to be perceived as annoying and less likely to be perceived as gaining participants' attention. Consistent with focus group reports, men were less likely to report that they liked email messages and fewer men reported that these messages would motivate them to seek CRCS. Highly educated men were more likely to visit the website although the need for CRC education is greatest among less well educated men. Despite messages to remind them, most men only visited the website one or two times and reported that receiving three messages was excessive and the number may not have increased website visits. Future studies should explore how many messages participants are willing to receive via either method.

Although all of the men who completed follow-up felt that the information on the website was useful, the majority found the website difficult to access and navigate. This was particularly true for those men who received email messages and might be related to the association between education and website visits or may suggest difficulties with the website link. Although intent to seek CRCS screening increased among men completing the follow-up survey, improvements in knowledge were minimal. The greatest gain was made in awareness of the appropriate age to begin CRCS, with more modest improvements in knowledge about the screening interval for each CRCS option.

While providing useful information to inform CRC education efforts among African American men, these data have limitations. First, the attrition rate from baseline to follow-up was significant and while some of the men may have viewed the website, we are unable to determine whether they found the information valuable, confusing, offensive, etc. Better educated men were more likely to visit the website and the findings may not accurately reflect the needs and experiences of less well educated men, for whom CRC education is most needed. This was a feasibility trial that used a small convenience sample, which limits generalizability and power to detect differences and may bias the results. However, the men included were members of the target population with important insights and recommendations to share and thus, the findings may be useful in developing future interventions.

Our data suggest that websites are not the optimal way of disseminating CRC education to African American men 55 and older. Given the proportion of men who had a college degree or more and their greater likelihood of completing the follow-up survey, the difficulty of using websites with this population may be greater than observed. This suggests that we should continue using traditional methods of communication (newspapers, radio campaigns, and targeted informational materials) to raise awareness about CRC and screening options.<sup>19</sup> Although we do not recommend using websites with this population, if websites are used to disseminate CRC education, email was seen as more effective in getting participants to the website and seemed to make it easier for men to access the website. Web based interventions, although not optimal for African American men 55 and older, may prove useful among younger men with more experience using computers. Research among less well educated men 30 to 40 years of age will provide insight on optimal design and content to increase CRC awareness and screening in the future. In addition, future research should consider how traditional media may be used to encourage use of more detailed web-based education on CRCS.

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**Table 1**

Percent of participants reporting agreement with items assessing message and website experiences.

Question	% Strongly Agree/Agree	
	Email Message	Phone Message
Convenient way to receive message	90.9	94.1
Liked this way of receiving messages.	76.5	90.9
Received too many messages.	93.3	81.8
Messages were annoying.	88.2	95.5
Information in messages easy to follow.	86.7	90.9
Information in messages got my attention.	81.3	77.3
Messages motivated me to get screened.	66.7	72.7
I will be able to use the information in the messages to get screened.	80	90.0
The messages motivated me to go to the website.	77.8	75
Webpage was difficult to get to.	80	63.6
Webpage was difficult to navigate.	90	90.9
Information on the webpage was useful.	100	100