Toward a Trustworthy Voice: Increasing the Effectiveness of Automated Outreach Calls to Promote Colorectal Cancer Screening among African Americans

Karen Albright, PhD; Terri Richardson, MD; Karin L Kempe, MD, MPH; Kristin Wallace, MPH

Abstract

Introduction: Colorectal cancer screening rates are lower among African-American members of Kaiser Permanente Colorado (KPCO) than among members of other races and ethnicities. This study evaluated use of a linguistically congruent voice in interactive voice response outreach calls about colorectal cancer screening as a strategy to increase call completion and response.

Methods: After an initial discussion group to assess cultural acceptability of the project, 6 focus groups were conducted with 33 KPCO African-American members. Participants heard and discussed recordings of 5 female voices reading the same segment of the standard-practice colorectal cancer message using interactive voice response. The linguistic palette included the voices of a white woman, a lightly accented Latina, and 3 African-American women.

Results: Participants strongly preferred the African-American voices, particularly two voices. Participants considered these voices the most trustworthy and reported that they would be the most effective at increasing motivation to complete an automated call. Participants supported the use of African-American voices when designing outgoing automated calls for African Americans because the sense of familiarity engendered trust among listeners. Participants also indicated that effective automated messages should provide immediate clarity of purpose; explain why the issue is relevant to African Americans; avoid sounding scripted; emphasize that the call is for the listener's benefit only; sound personable, warm, and positive; and not create fear among listeners.

Discussion: Establishing linguistic congruence between African Americans and the voices used in automated calls designed to reach them may increase the effectiveness of outreach efforts.

Introduction

Colorectal cancer is the second leading cause of cancer-related death in the US and the leading cause in nonsmokers; increasing population screening represents a continued area of opportunity to save lives. Incidence, screening rates, and mortality rates vary by race and ethnicity. African Americans have the highest incidence of this disease, receive a diagnosis at earlier ages, and have later stages of disease and lower survival rates. The reasons for these disparities are complex and include factors related to biology, access to screening, and receipt of treatment, as well as lower educational and socioeconomic status, language or acculturation barriers, fear, medical mistrust, and lack of knowledge. Previous linguistic work suggests that traditional cultural orientation, group susceptibility to colorectal cancer screening, and medical mistrust should be considered when developing behavioral interventions to increase screening among African Americans.

In 2008, Kaiser Permanente Colorado (KPCO), a not-for-profit integrated care delivery system, initiated a large population outreach program to promote colorectal cancer screening in average-risk men and women. The combination of initial outreach by an educational interactive voice response (IVR) call (a technologic interface that allows people to interact with computer-generated prompts through the use of keypad inputs or speech recognition) followed by mailed kits for fecal immunochemical testing succeeded in increasing the rate of screening 4-fold. A total of 26,000 (45%) of the unscreened population completed screening by fecal immunochemical testing or colonoscopy within a year.

However, despite the equal screening opportunities provided by this systematic approach, and without the barrier of lack of insurance coverage, screening completion rates were lower among KPCO's African-American members. Fifty-six percent of African Americans remained unscreened after the outreach compared with 48.5% of whites. This disparity raised concern and inspired additional efforts to increase engagement among African Americans. This article describes formative work to test the hypothesis that a linguistically congruent “black” voice on IVR calls might result in increased completion of the calls and ultimately increase screening rates.

IVR has the potential to accommodate racial/ethnic tailoring by language preference and cultural fit while bypassing issues of literacy. However, there are few studies looking at its use in minority populations, and no known studies have targeted African-American populations. Previous linguistic work suggests that the African-American voice itself is distinctive and therefore could be used to facilitate a culturally appropriate intervention.

Karen Albright, PhD, is an Assistant Professor in the Department of Community and Behavioral Health at the University of Colorado, Anschutz Medical Campus in Aurora. E-mail: karen.albright@ucdenver.edu. Terri Richardson, MD, is the Physician Lead at the Kaiser Permanente Colorado African American Center of Excellence in Denver. E-mail: terri.richardson@kp.org. Karin L Kempe, MD, MPH, is the former Medical Director of Clinical Prevention Services in the Department of Population Care and Prevention Services at Kaiser Permanente Colorado in Denver. E-mail: karinkempe@comcast.net. Kristin Wallace, MPH, is a Project Manager in the Department of Population and Prevention Services at Kaiser Permanente Colorado in Denver. E-mail: kristin.b.wallace@kp.org.

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Henderson has described the complex, rich, powerful, and subtle linguistic heritage of African Americans. Although there is very little vocal variation between African Americans and whites and the vocal cords of these two groups are highly comparable, the literature suggests that individuals can discern race from scant vocal information. Thus, “sounding black” is influenced by society, history, experience, and culture. As the linguist John McWhorter has argued, “Most Americans, and especially black ones, can almost always tell that a person is black even on the phone, and even when the speaker is using standard English sentences.” This “knowing” is based on inflection, cadence, intonation, tone, and variation in pitch and rhythm. We hypothesized that linguistic congruence would lead to increased willingness of African-American Health Plan members to accept and complete an IVR outreach call and subsequently complete colorectal cancer screening.

This formative study evaluated the use of a racially congruent voice in IVR calls as a strategy to increase acceptance of the call and to engender trust in the message. The original evaluation of the KPCO colorectal cancer screening outreach program did not examine IVR completion by race/ethnicity. However, only 17% of all those contacted by IVR completed the call, which provided educational information about the importance of screening, screening options, information on how to request a colonoscopy, and, if low-risk status was confirmed, the offer of a mailed fecal immunochemical testing kit. As with all KPCO IVR calls, the message was delivered in a young white woman’s voice. The 17% rate of IVR completion was comparable with that seen for KPCO programs supporting other preventive services such as mammography. However, it was lower than the rate of 40% or more seen in clinical trials and chronic disease programs at KPCO that use IVR to facilitate a prearranged care plan and provide direct links to clinical staff.

Other interventions to promote colorectal cancer screening using IVR that addressed readiness without making screening easier have failed, whereas calls that facilitated completion of a mailed test or of a colonoscopy have improved screening rates. We are not aware of any other initiatives attempting to tailor IVR outreach by linguistic congruence to promote the acceptability and effectiveness of automated calls, although a systematic review of 40 studies showed benefits of IVR in increasing adherence to process of care.

Methods

Data Collection

A qualitative approach was deemed most appropriate for assessing members’ preferred recorded voice for colorectal cancer screening outreach calls, exploring the factors influencing those preferences, and investigating barriers to following colorectal cancer screening recommendations. To validate the hypothesis and to assess unanticipated negative consequences of using an African-American voice in outreach calls, a community discussion group was first conducted with 16 members of the local community. Fourteen participants self-identified as African American, one as African, and one as Caribbean American. Participants validated the project’s intention, reported that they did not view linguistic congruence efforts as stereotyping, and applauded the desire to customize care. Feedback from this group was then used to develop a formal focus group protocol. In April through June 2012, 6 focus groups were conducted with self-identified African-American KPCO members. Potential participants were identified by KPCO’s self-reported “Race, Ethnicity, and Language Preference” dataset and the current colorectal cancer outreach protocol. Participants were recruited through mailed letters that described the study and provided the opportunity to opt out. Those who had a valid address and phone number and who did not opt out were then contacted by the focus group facilitator to discuss participation in a focus group. Of 259 letters mailed across 4 waves of recruitment, 49 potential participants were scheduled, and 33 participants (12.7% of the initial recruitment effort) ultimately took part in a focus group. All participants received a reminder letter or phone call before participation. The current colorectal cancer outreach program did not examine IVR completion and was comparable with that seen for KPCO. Participants were invited to request a colonoscopy, and, if low-risk status was confirmed, the offer of a mailed fecal immunochemical testing kit. As with all KPCO IVR calls, the message was delivered in a young white woman’s voice. The 17% rate of IVR completion was comparable with that seen for KPCO programs supporting other preventive services such as mammography. However, it was lower than the rate of 40% or more seen in clinical trials and chronic disease programs at KPCO that use IVR to facilitate a prearranged care plan and provide direct links to clinical staff.

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Voice 1 was a white woman in her early 30s; this voice is currently used in standard KPCO IVR protocols. Voice 2 was a lightly accented Latina woman in her early 30s. Voice 3 and 4 were African-American women. Three African-American voices were recorded in an attempt to cover the continuum of African-American speech. Given that all the speakers read from a standard script, the usual morphosyntactic cues (ie, sentence formation, tense, pronunciation) to racial identity were removed. However, Voices 3 and 4 shared some distinctive features. Voice 5, that of a woman in her mid-50s, was deeper and demonstrated some of the characteristic African-American dialectical features such as the dropping of end consonants and a wider range of intonation. Voice 4, that of a woman in her late 40s, was similar to Voice 3 but was raspier and had a slight southern drawl, with some vowels lengthened. Voice 5, that of
a woman in her mid-40s, had a deeper tone, but otherwise had voice qualities similar to non-African-American voices.

Each focus group lasted approximately 1.5 hours. Four of the 6 focus groups were digitally recorded and then transcribed verbatim by a professional transcriptionist. For the remaining groups, detailed notes were taken during the focus groups by 2 African-American observers not employed by KPCO. Participants were compensated for their time with a $30 gift card to a local grocery store. This study was approved by the KPCO institutional review board.

Data Analysis
The analysis of the focus group data involved an iterative, inductive, and deductive toolkit of analytical strategies, drawing particularly on qualitative content methods of analysis and reflexive team analysis. Analysis of the focus group transcripts and notes began with repeated readings to achieve immersion and was followed by initial coding using an emergent rather than a priori approach, to emphasize respondent perspectives and de-emphasize team member specifications. The qualitative data analysis software (ATLAS.ti Version 6.0, Scientific Software Development GmbH, Berlin, Germany) was used for data organization and management during analysis. Words, sentences, and paragraphs were treated as coding units or “meaning units.”

After initial coding was completed, the resulting set of codes was applied to the transcripts and notes, code categories were developed, and emergent themes were identified. The preliminary results of the analysis process were reviewed by members of the research team to assess their evocativeness, thoroughness, and comprehensiveness. Throughout the analysis, new findings were continually compared with the rest of the data to establish new codes, themes, or patterns.

Results
Thirty-three African-American KPCO members participated in 1 of 6 focus groups (n = 5, 5, 4, 6, 6, and 7). Focus group participants ranged in age from 50 to 76 years (median = 58 years). Women comprised 60% of participants. Most participants resided in Denver or the neighboring city of Aurora, CO. More than half (61%) had been KPCO members for a decade or longer (range = 2 to 39 years). There was wide variety in participants’ educational attainment, with most (78%) reporting at least some college or technical school. All participants were employed; occupations ranged from manual laborers to administrators. All rated their health as at least fair; 66.7% rated it as good or excellent. Although nearly all (97%) reported compliance with recommended screenings, more than 50% reported never having completed colon screening. Eighty-two percent indicated that telephone calls were their preferred method of contact.

Preferences for Voices
Without being told the race/ethnicity of each speaker, participants in each of the focus groups overwhelmingly preferred the voices of the African-American speakers (Voices 3-5) over the non-African-American speakers (Voices 1-2). Of the African-American voices, Voices 3 and 4 were particularly favored. Noting that it “sounded African American,” participants described Voice 3 as having a “motherly, concerned tone” that was “soft but strong.” They liked that she “did not rush” through the message, and was effective at getting their attention and explaining clearly the point of the call. The clarity of her tone also was viewed as favorable, as was the fact that she had a “familiar sounding voice” that “sounded mature.” Respondents described this voice as the most personable, noting that they favored her tone and pitch. Voice 3 was also considered the most motivating to action and was perceived as the most trustworthy of the voices. Participants described this voice as concerned, mature, professional, and caring, with a personable tone. She “spoke with authority” but “talked to me, not at me.” One respondent mentioned that she thought Voice 3 “sounded like my mother.” Voice 4 was preferred second to Voice 3, but it was nonetheless viewed very favorably by participants. Also recognizable to participants as African American, Voice 4 was described as trustworthy, with a “comfortable sounding” voice that “sounded as if she was interested.” One respondent described Voice 4 as “clear with the right tone.” Another said, “I liked the tone in her voice; she was specific, like she had empathy for me.” Participants described this speaker as personable, joyful, pleasant, professional, sympathetic, and relatable, emphasizing that the voice sounded familiar, as if they were “talking to someone I know.” Participants in all but one of the focus groups reported that Voice 4 would be the most effective at motivating them to continue listening to the message. As one participant put it, “there were more highs and lows in her voice—it kept me interested.” Others commented that receiving a message delivered by this voice “would make me think about calling my doctor to get more information” and “would make me ask more questions.”

Although the remaining African-American voice (Voice 5) was considered a distant third choice by most participants, it was preferred by the participants in one focus group. These participants credited Voice 5 with sounding professional, sincere, and honest. Some also mentioned that this voice spoke with emphasis and sounded positive, which they viewed favorably. Because of this, these participants indicated that this voice motivated them most to continue to listen to the message. These respondents described the voice as sounding sincere and caring, with both concern and some urgency in her voice. Interestingly, many of the explanations about why they liked Voice 5 focused especially on the content of the message, despite the fact that message content was the same across all the recorded voices. Participants credited this voice with emphasizing the positive and noting that colon cancer is not a death sentence; they liked that this voice gave information but did not create fear. However, some participants noted that this voice also “sounded rushed” and thus was not as pleasant to listen to.

In contrast to the African-American voices, participants in all focus groups overwhelmingly disliked the non-African-American voices (Voices 1 and 2). Voice 1, that of a young white woman, was described as “sounding like a teenager” and “feeling like a telemarketer.” This voice was critiqued for sounding too
high pitched, too scripted, and too fast, as if the speaker had “zero sincerity” and was “like a machine.” Voice 2, that of the lightly accented Latina, was also described as sounding like a machine, overly rehearsed, with an unpleasant tone. Some respondents also complained that they could not understand some of what she was saying and, somewhat conversely, that she sounded overly rehearsed rather than authentic. Overall, Voices 1 and 2 were considered the least motivating to listen to by participants. Indeed, a few respondents volunteered that these voices “would have made me hang up” on listening to them.

In sum, participants across all groups reported that if they were designing an outgoing automated call system specifically for African Americans, they would prefer either Voice 3 or 4, with Voice 5 as a third, but distant, possibility. Voice 3 in particular was singled out for praise, with participants reporting that its recognizability as an African-American voice “automatically puts you at ease” and that it was effective “to hear the African-American voice.” This voice was perceived as sounding caring, creditable, calm, clear, and informative. It was also praised for not rushing through the script, instead pausing periodically so “you were able to think.”

Preferences for Voice Qualities and Message Content

Beyond a critique of individual voices, focus group participants also indicated a number of voice qualities that participants deemed important for automated messages. Above all, participants emphasized that voices used in these messages should sound trustworthy and sincere. As one put it, the voice should “make me believe you know what you’re saying.” In addition, voices should sound joyful and positive, yet also mature and reliable. Participants emphasized that voices should sound personable, warm, and conversational in order to make people want to listen to them. The importance of “getting away from being scripted” was also noted. In the words of one participant, the message should “sound like you know what you are talking about; you can’t just read something.” To motivate listeners to continue listening, participants also emphasized the importance of explaining clearly and immediately the purpose of the call and the fact that the call is for the listener’s, rather than the caller’s, benefit (ie, that the caller does not want anything from the listener other than to improve the listener’s health).

When asked about designing messages specifically for African Americans, participants emphasized that messages should state clearly why this issue matters to African Americans specifically, noting that it is crucial to make the content particularly relevant for this population. Some participants suggested providing statistics on colon cancer among African Americans to appropriately contextualize the issue. At the same time, participants emphasized that “you need positives in the messages”; being “too negative” was viewed as ineffective. Participants suggested talking about success stories in the African-American community to emphasize that “we can be helped.” Whereas the ideal message should provide information, it should not create fear, according to participants. For example, some participants suggested that it would be helpful for the message to “tell us this procedure is not painful.” Above all, the voices used in the message should not “talk down” to listeners. As one participant put it, “don’t treat us like we don’t know and can’t be taught.”

Discussion

The strategy of using a familiar voice to reach a specific demographic group is not uncommon in the marketing of commercial products and services. However, there is a paucity of evidence in the literature validating linguistic congruence to promote health behaviors. We designed a formative study to investigate the impact of a linguistically congruent voice in KPCO’s IVR program to support a reduction in the colorectal cancer screening disparity gap for African-American members. Our aim was to reduce morbidity and mortality in this high-risk population. To increase the effectiveness of IVRs designed to promote screening, 6 focus groups were conducted with 33 African-American KPCO members. The purpose of the project was to determine any differential effect of voices heard during prerecorded automated calls about colorectal cancer screening.

Overall, the African-American voices, particularly Voices 3 and 4, were strongly preferred by focus group participants. Participants reported that Voices 3 and 4 would most motivate them to continue to listen to the automated message, whereas Voices 1 and 2 “would have made me hang up.” Most participants considered Voices 3 and 4 to be most trustworthy, in part because they were recognizable as African-American voices, a fact that was described as “automatically putting you at ease.” Though most participants indicated a general dislike of automated phone calls, participants across all focus groups emphasized the effectiveness of using recognizable African-American voices when designing outgoing automated calls for African Americans, because such voices engendered trust among listeners. Participants also indicated that automated messages should provide immediate clarity of purpose; explain why the issue is relevant to African Americans specifically; avoid “sounding scripted”; emphasize that the call is for the listener’s benefit only (ie, is not asking anything of them); sound personable, warm, trustworthy, and positive in tone; and not “talk down” to or create fear among listeners.

These data suggest that establishing consonance between African-American populations and the voices used in the automated calls designed to reach them may increase the effectiveness of outreach efforts. Therefore, such efforts may ultimately improve both the services to and the health outcomes of African-American Kaiser Permanente members. Because such a strategy may also have implications for other programs and other racial and ethnic groups, future research should examine the effect of linguistic congruence in other settings and with other populations. Resources should also be devoted to investigating how these findings may vary across regions of the country and by the age, sex, and accent of the recorded voice.

This study has several limitations. As with most qualitative work, the small sample size makes it impossible to determine the representativeness of the findings. African Americans are a heterogeneous population, with different dialects and social experiences, and the perspectives of these particular participants may not be generalizable to the larger population. In addition, although participants clearly preferred the African-American
voices and explained their preferences in part because of perceived linguistic congruence, the age difference between the non-African-American voices and the preferred African-American voices may be a confounding factor. Future work should examine linguistic congruence with the age of speaker held constant. Finally, this study was formatted in design, building on previous work suggesting that African-American voices are recognizable to the African-American population and may be capitalized on in developing culturally appropriate interventions.

We do not know if increasing completion of the IVR outreach calls will lead to increased screening rates for this population. Thus, the next steps for the current project involve the integration of Voice 3, the most preferred voice in this study, into the current colorectal cancer outreach protocol. The effect of these linguistically congruent outreach calls will then be assessed by analyzing members’ willingness to initiate and complete the call, their satisfaction with the outreach process, and the impact on subsequent completion of screening by fecal immunochemical testing or colonoscopy.

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

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