Methods and Strategies to Recruit African Americans into Cancer Prevention Surveillance Studies

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Abstract

Objective: Recruitment of African Americans into health research studies is a major challenge. This report describes a study of different methods and strategies to recruit African Americans into a population-based assessment of cancer behavioral risk factors.

Methods: African Americans ages 18 to 70 years in North Carolina (n = 5,000) were randomly selected from the Department of Motor Vehicle rosters and assigned at random to one of five different recruitment strategies based on variations of approach letters (generic versus culturally sensitive) and inclusion, exclusion, or promise of a small incentive. Prospective participants were sent an 11-page questionnaire by mail but could complete it by telephone or Internet as well as by mail.

Results: The overall response rate was 17.5% (747 completed surveys of 4,276 delivered): 655, 84, and 8 by mail, Internet, and telephone, respectively. Among eligible respondents, response was significantly higher for incentive-based than nonincentive strategies; 23.9% for the generic letter plus incentive compared with 15.8% for the generic letter only (P < 0.001). The culturally sensitive letter had little effect on participation (15.8% for both the generic and culturally sensitive letters). The mean age of eligible respondents was 43.9 years, 41% were male, 37% were college graduates, and 75% were overweight/obese. There were no differences in respondent characteristics by assigned recruitment strategy. Conclusions: Incentive-based strategies yielded the highest survey responses, whereas a culturally sensitive letter did not appreciably increase participation among African Americans in North Carolina. This study adds to what is known about culturally sensitive recruitment strategies for African Americans and challenges their usefulness in survey-based studies. (Cancer Epidemiol Biomarkers Prev 2005;14(3):718–21)

Introduction

Although African Americans bear a disproportionate burden of chronic diseases, including many cancers (1), they are typically underrepresented in research, due, in part, to challenges in recruitment (2-4). Effective avenues and strategies for reaching African Americans include religious institutions, community networks, senior centers, and door-to-door canvassing (5). However, these methods alone may not be sufficient or appropriate for population-based surveillance activities that require random participant selection (6). In addition, in-person interviews, usually the most effective recruitment approach for minorities (7, 8), are generally cost-prohibitive when large and geographically diverse samples are needed (9). Mail surveys are economic but often yield low response rates; telephone interviews (e.g., random-digit-dialing) are associated with several potential biases in lower-income populations; and a perceived “digital-divide” has limited the number of Internet-based studies in African Americans (9-11). However, well-executed studies using these methods have achieved acceptable recruitment rates (12, 13).

Impediments to research involvement by African Americans can be grouped as cognitive, socioeconomic, cultural, and historical. Some may believe that studies are only for those with disease. A lack of cultural/ethnic identification with investigators and the legacy of projects in which African Americans perceive they were exploited (e.g., Tuskegee Syphilis study) may also hinder participation (3, 5, 14, 15). To our knowledge, there are few research reports addressing these barriers.

We examined several methods and strategies to recruit African Americans into a population-based assessment of cancer behavioral risk factors. Our objectives were to (a) determine the proportion of respondents who would complete an 11-page survey on the Internet or by telephone after first receiving the paper questionnaire by mail and (b) compare the effectiveness of five different recruitment strategies based on variations of approach (cover) letters and use of a small incentive.

Materials and Methods

Throughout the design of the study as described below, we adapted strategies that have been shown to increase survey response rates (16). The study was approved by the Institutional Review Board of the School of Public Health, University of North Carolina at Chapel Hill.

Survey Instrument. Using the PRECEED/PROCEED planning model as a guide (17), we designed an 11-page questionnaire focused on demographic, psychosocial, and behavioral factors related to cancer prevention. Questions were adapted from the Behavioral Risk Factor Surveillance System and other surveys (18, 19) and were modified as needed to be salient for African Americans. We pretested the questionnaire on a small sample (n = 13) and made necessary modifications. To facilitate optical scanning, all responses were categorical. The questionnaire was printed in black and pink color ink and designed to be attractive and interesting to potential respondents.

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Study Population. Eligible participants were African Americans, ages 18 to 70 years, residing in six contiguous North Carolina counties (three urban and three rural). Names and addresses for the sampling frame \( n = 50,000 \) were obtained from the Department of Motor Vehicle rosters. The Department of Motor Vehicle rosters contain more African Americans than do voter registration lists, suggesting that the former provide a more complete sample of African Americans \( 20 \). Addresses obtained from the Department of Motor Vehicle rosters were updated as needed through an electronic linkage to the National Change of Address system. Following the National Change of Address linkage, we deleted persons who had moved out of eligible counties or who could not be traced \( n = 9,432 \). Prospective participants \( n = 5,000 \) were selected by stratified random sampling from the remaining 40,568 persons. Each name had a known and equal probability of selection. Males were oversampled slightly (55% versus 45%) to attain an approximately equal sex distribution.

Study Design

Completion Methods. Respondents could complete surveys by mail, Internet, or telephone. All prospective participants were sent questionnaires by mail, but an enclosed approach letter and questionnaire cover page provided information on how to participate by telephone or Internet instead. Thus, respondents selected their preferred completion method.

Recruitment Strategies. Potential participants were randomly allocated to one of five different recruitment strategies \( 1,000 \) per group) based on variations of approach letters and use of a small incentive.

The generic approach letter stated the purpose of the study, assured participants of confidentiality, and presented the principal investigator as a researcher but did not make a direct appeal to African Americans.

The culturally sensitive letter was similar to the generic version but was designed to increase respondents’ ethnic/cultural identification with the study by including the principal investigator’s picture to identify her as African American. The letter also noted the paucity of information on health issues specific to African Americans and stressed the potential benefit of participation to others.

The culturally sensitive letter plus promise of incentive consisted of the culturally sensitive letter plus the promise of an incentive (60-minute prepaid telephone calling card worth US$3.60) upon receipt of the completed survey.

The generic letter plus incentive group received the generic letter plus the incentive.

The culturally sensitive letter plus incentive group received the incentive and the culturally sensitive letter.

Survey Procedures. Following methods pioneered by Dillman \( 21 \), we sent prospective participants postcards about the upcoming mailing, followed by packets containing an approach letter, fact sheet, paper questionnaire, addressed postage-paid return envelope, and/or the incentive. The approach letter and questionnaire cover page included instructions for completing the survey by Internet or telephone. All questionnaire packets were mailed on the same day by first-class mail. A reminder letter was sent 2 to 3 weeks later with a toll-free number to call for a replacement questionnaire or to complete the survey by telephone and the URL for the survey web site. Finally, all respondents received a “thank you” note with a delayed incentive for those not assigned to the incentive groups. Except for the telephone surveys, all study activities were coordinated by Pearson NCS \( \text{Columbia, PA} \). Telephone interviews took ~30 minutes, were recorded on paper questionnaires by UNC research staff, and returned to Pearson NCS for scanning. Internet-completed surveys were downloaded by Pearson NCS and cross-checked against paper and telephone questionnaires to eliminate duplicates.

Statistical Analyses. The overall response rate was computed as the total number of respondents divided by the number of delivered mailings. Proportions of respondents completing surveys by each method were computed as the number of completed surveys per method divided by the total number of delivered and returned questionnaires. Strategy response rates were calculated as the number of completed surveys per strategy divided by the total number of returned questionnaires for that strategy. We computed descriptive statistics (means and percentages) for various demographic and lifestyle characteristics and used \( \chi^2 \) tests to compare their distributions across recruitment strategies. Fisher’s Exact tests were used for pairwise statistical comparisons. Item completion rates were calculated as the number or proportion of missing responses for the overall sample and per survey completion method. Statistical significance was set at \( P < 0.05 \). Analyses were conducted using SAS 8.2 \( \text{SAS Institute, Inc., Cary, NC} \).

Results

Table 1 gives response rates by completion methods and recruitment strategies: 14% of the surveys were undeliverable; thus, the denominator for the overall response rate calculation is \( 4,276 \). We received 747 completed surveys, 655 by mail, 84 by Internet, and 8 by telephone, yielding an overall response rate of 17.5%. After excluding respondents who were age ineligible \( n = 51 \) and questionnaires that did not pass quality control checks \( n = 38 \), the final analytic data set included 658 persons. Response rates to the different methods did not differ appreciably when analyses were restricted to eligible participants (Table 1).

As shown in Table 2, among eligible respondents, response rates to generic and culturally sensitive letters plus incentives (23.9% and 25.1%) were significantly higher \( (P < 0.001) \) than those response rates to the three nonincentive strategies: 15.8%, 15.8%, and 19.4% for the generic, culturally sensitive, and culturally sensitive letter plus promise of an incentive, respectively.

Table 1. Proportions choosing different survey completion methods and response rates to various recruitment strategies among African Americans in North Carolina

<table>
<thead>
<tr>
<th>Method</th>
<th>No. surveys mailed</th>
<th>Denominator</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mail</td>
<td>5,000</td>
<td>5,000</td>
<td>100</td>
</tr>
<tr>
<td>Undeliverable surveys</td>
<td>724</td>
<td>5,000</td>
<td>14.5</td>
</tr>
<tr>
<td>Persons reached by mailing</td>
<td>4,276</td>
<td>5,000</td>
<td>85.5</td>
</tr>
<tr>
<td>Returned surveys</td>
<td>747</td>
<td>4,276</td>
<td>17.5</td>
</tr>
<tr>
<td>Eligible returned surveys</td>
<td>658</td>
<td>4,276</td>
<td>15.4</td>
</tr>
<tr>
<td>Survey completion method:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportions choosing the method among those reached by the mailing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mail</td>
<td>655</td>
<td>4,276</td>
<td>15.3</td>
</tr>
<tr>
<td>Internet (Web)</td>
<td>84</td>
<td>4,276</td>
<td>2.0</td>
</tr>
<tr>
<td>Telephone</td>
<td>8</td>
<td>4,276</td>
<td>0.2</td>
</tr>
<tr>
<td>Survey completion method:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportions choosing the method among all respondents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mail</td>
<td>655</td>
<td>747</td>
<td>87.7</td>
</tr>
<tr>
<td>Internet (Web)</td>
<td>84</td>
<td>747</td>
<td>11.2</td>
</tr>
<tr>
<td>Telephone</td>
<td>8</td>
<td>747</td>
<td>1.1</td>
</tr>
<tr>
<td>Survey completion method:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportions choosing the method among all eligible respondents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mail</td>
<td>568</td>
<td>658</td>
<td>86.3</td>
</tr>
<tr>
<td>Internet (Web)</td>
<td>83</td>
<td>658</td>
<td>12.6</td>
</tr>
<tr>
<td>Telephone</td>
<td>7</td>
<td>658</td>
<td>1.1</td>
</tr>
</tbody>
</table>

*No. reached by mailing = no. surveys mailed – no. undeliverable surveys.
† Total no. surveys returned by respondents, regardless of eligibility.
‡ Includes age-eligible respondents and questionnaires that passed quality control checks.
incentive groups, respectively. Responses to various strategies did not differ across the three methods of survey completion but were highest for mailed surveys when incentives were included (data not shown).

The mean age of eligible respondents was 43.9 years (11.6 SD) years, 41% were male, 37% were college graduates/had advanced degrees, 56% were married, 75% were overweight/obese, 29% were physically inactive, 82% were from urban counties, and 78% reported having easy access to the Internet. Fifty-four percent indicated that they completed the survey after receiving reminder letters. There were no differences across assigned recruitment strategies by participant characteristics, including age, sex, education, marital status, body mass index, and physical activity (data not shown).

As shown in Table 3, the mean number of missing items in the overall sample was 6.8, and 15.2% of respondents had no missing data. The median number of missing items was highest for telephone (6.0), then mail (3.0), and Internet (2.0), \(P < 0.05\).

### Discussion

The majority of persons who responded chose to do so via mail; the most effective recruitment strategies included incentives. The overall response rate, whereas relatively low (17.5%), is comparable to contemporary studies of mailed questionnaires and within the range obtained for Internet surveys but lower than for most telephone surveys (7, 9, 10, 22). We are not aware of any studies that have simultaneously examined these strategies and methods to which we can compare our results. A recent review noted this gap (23).

Recruitment strategies were designed to address some impediments to African Americans’ participation in research studies. Not unexpectedly, incentive-based strategies, including the promise of an incentive, yielded the highest responses, regardless of approach letter. Many, but not all studies, have similarly shown that both monetary and nonmonetary incentives increase study participation across various participant subgroups (16, 21, 24, 25). Incentives were equally effective across all demographic subgroups, in contrast to other investigations that have reported greater effectiveness of incentives in some demographic groups (25, 26). Nonetheless, we note that some studies have also found that factors such as altruism, personal satisfaction, and learning about diet and health are much stronger motivations for participation than incentives (27, 28). Although some reports have suggested that cultural similarities between research staff and prospective participants enhance recruitment (5, 29, 30), the response rate for the culturally sensitive letter was not appreciably higher than for the generic letter in this study (15.8% for each). It is possible that the cultural appeal of the letter was too subtle, compared with in-person contacts, to have a substantial effect. It was not surprising that the majority of participants chose to complete mailed surveys, rather than choose another method. Whereas relatively few respondents (11%) chose the Internet, its increasing popularity makes it a potentially attractive recruitment modality (21, 23), and recent data indicate that African Americans across all socioeconomic groups now use the Internet for health information (11, 31). It is encouraging that completion rates for Internet and mailed surveys were satisfactory (Table 3) because accurate completion of self-administered questionnaires is an important issue. However, completion rates for Internet surveys may be confounded by higher education and literacy among those respondents. One reason for low usage of the telephone in this study may be the fact that participants were required to make a telephone call to schedule a time to complete the survey. Telephone surveys may have important limitations, particularly selection bias; however, other successful telephone-based studies with high African American representation (12, 13, 32) suggest that the telephone is a viable recruitment method for this population.

Our study has several strengths. To our knowledge, this is the first study to use multiple recruitment strategies and completion methods, including the Internet, in African Americans. The sample was population-based, as the Department of Motor Vehicle listings have been shown to provide an almost complete sampling of African Americans in North Carolina (20). In addition, respondents were distributed across various demographic strata.

We also acknowledge some limitations. First, the low response rate (17.5%) and large number of undeliverable mailings limit generalizability. Second, we had no data to compare responders to nonresponders with regard to demographic characteristics. Finally, we cannot determine which method(s) would have yielded the highest response had participants not been permitted to select their preferred completion method.

In summary, whereas it is important to include ethnic minorities in research studies to address health disparities, African Americans have been traditionally underrepresented, due, in part, to impediments to recruitment. In this study of

### Table 2. Response rates to different recruitment strategies among African Americans in North Carolina (n = 658)

<table>
<thead>
<tr>
<th>Method and Strategies to Recruit African Americans</th>
<th>Survey completion rate: response rate among all eligible respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic approach letter</td>
<td>104 (15.8%)</td>
</tr>
<tr>
<td>Culturally sensitive approach letter</td>
<td>104 (15.8%)</td>
</tr>
<tr>
<td>Culturally sensitive approach letter plus promise of an incentive</td>
<td>128 (19.4%)</td>
</tr>
<tr>
<td>Culturally sensitive approach letter plus incentive</td>
<td>157 (23.9%)</td>
</tr>
</tbody>
</table>

*Response rates (%) with different superscripts (a, b, c, and d) are statistically different from each other at \(P < 0.001\), whereas response rates with the same superscripts are not statistically different from each other, based on pairwise statistical comparisons using Fisher’s exact test.

### Table 3. Proportion of missing items on the questionnaire, by survey completion method among African Americans in North Carolina (n = 658)

<table>
<thead>
<tr>
<th>Completion rate*†</th>
<th>Mean no. missing items</th>
<th>Median no. missing items</th>
<th>0-5 missing items, n (%)</th>
<th>≥6 missing items, n (%)</th>
<th>(P^†)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All (n = 658)</td>
<td>6.8</td>
<td>3.0</td>
<td>426 (64.7)</td>
<td>232 (35.3)</td>
<td>0.05</td>
</tr>
<tr>
<td>Mail (n = 568)</td>
<td>7.0</td>
<td>3.0</td>
<td>361 (63.6)</td>
<td>207 (36.4)</td>
<td></td>
</tr>
<tr>
<td>Internet (n = 83)</td>
<td>4.1</td>
<td>2.0</td>
<td>62 (74.7)</td>
<td>21 (25.3)</td>
<td></td>
</tr>
<tr>
<td>Telephone (n = 7)</td>
<td>24.2</td>
<td>6.0</td>
<td>3 (42.9)</td>
<td>4 (57.1)</td>
<td></td>
</tr>
</tbody>
</table>

*100% completion rate based on answering all 160 items (males) or 161 items (females) on the questionnaire.
†No. missing items ranged from 0 (15.2%) to 132 (1%); 60% of the sample had fewer than five missing items.
‡\(P\) comparing the proportions of missing items (0-5 versus ≥6) among survey completion methods.
African Americans in North Carolina, incentive-based strategies yielded the highest responses to a survey of cancer risk behaviors whereas a culturally sensitive approach letter had little additional effect on recruitment. Of interest in future studies is whether a larger incentive might lead to greater participation. Although the response rate was low, our study contributes to understanding approaches for obtaining research data from African Americans. The data also add to what is known about culturally sensitive recruitment strategies for this population and call into question the need to use them in survey-based studies.

Acknowledgments
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