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Training Community Health Advisors in African-American churches: Do training outcomes predict performance?

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Abstract

Programs that utilize Community Health Advisors (CHAs) to promote cancer screening are effective in community settings. However, predictors of CHA performance are not well understood. From 2016 to 2018, we partnered with 9 African American churches in South Los Angeles and trained 49 CHAs to promote cancer screening in an effort to build capacity for health promotion in a low-resource community. This paper examines CHA characteristics and training outcomes in African American faith-based settings and explores the relationship of these variables to successful recruitment of participants by CHAs. Pre- and post-tests showed statistically significant increases in knowledge of colorectal cancer screening guidelines (4 items) and human subjects protection rules (5 items) and CHAs' perceived self-efficacy to perform specific tasks for the study (13 items, Cronbach's alpha > 0.90). There were no significant differences between active CHAs who recruited at least 10 participants (N=29) and inactive/less active CHAs (N=20) with respect to demographic characteristics and training outcomes. We report challenges and facilitators to recruitment from CHA debriefings at 12 months follow-up. Based on our findings, we make recommendations for future studies to move this field forward.

Introduction

Programs that utilize Community Health Workers or Community Health Advisors (CHAs) to promote cancer screening are effective in community and clinical settings (1–4), especially if CHAs are matched to participants on race or ethnicity (5). Trained CHAs can engage in one-on-one counseling, distribute print materials, and make reminder calls. All of these activities are evidence-based strategies to promote cancer screening (https://www.thecommunityguide.org/task-force, accessed 8/21/2018). In addition, CHAs can assist community members who experience problems in navigating the health care system due to a lack of health insurance by referring them to low cost programs. The navigator model was

initially developed for the African American community in Harlem (6, 7) and has been successfully used in African American and other communities to promote cancer screening and follow-up of abnormal test results (8–10).

African Americans experience significant cancer disparities. They are more likely to develop and die from cancer than any other racial or ethnic group. The death rate for cancer among African American males is 24% higher than among white males; for African American females, it is 14% higher than among white females. Leading causes of cancer death are lung, colorectal, breast and prostate cancer (11). In a previous survey of 800 parishioners of African American churches in South Los Angeles (12, 13), the majority of respondents stated that it would be very helpful (83%) or somewhat helpful (12%) to hear about cancer prevention and screening at church and 77% of respondents liked to receive information from trained peers. Based on these findings, we partnered with African American churches in South Los Angeles to promote cancer screening.

As part of the study, we built church capacity to promote screening by training CHAs to (1) recruit participants into the study and obtain informed consent; (2) conduct a baseline assessment with study participants to determine adherence to national cancer screening guidelines for breast, cervical, and colorectal cancer screening and discussion of the value of prostate cancer screening with a medical care provider; and (3) for participants who were non-adherent to at least one cancer screening guideline, promote cancer screening and encourage participants to discuss cancer screening with their medical care provider.

Training is a critical part of any CHA activities in research. It is mandatory that CHAs receive training on human subject protection rules because CHAs directly interact with study participants through recruitment and implementation of interventions. In addition, training enhances the fidelity of intervention implementation (14). Training is especially important if the intervention is implemented by a large number of CHAs at multiple locations and is not observed by the research team.

The purpose of this paper is to describe and evaluate the training of African American CHAs, based on pre- and post-tests that they completed. Prior evaluations of CHA training have assessed CHAs' knowledge regarding the health issue that is being addressed in the study and CHAs' perceived self-efficacy to perform the tasks required by the study protocol (15–17). However, it is not known whether any of the training outcomes can serve as predictors for CHA performance. This paper examines the characteristics and training outcomes of CHAs in African American faith-based settings and explores the relationship of these variables to successful recruitment of participants by CHAs. We focused on recruitment because it was the activity that was most directly under the control of the CHAs. We did not consider the implementation of counseling as an appropriate indicator of CHA performance because the activity was closely monitored by the research team. Receipt of cancer screening by participants also was not considered because it could be influenced by a large number of factors (18). Evaluation of CHA trainings and increased understanding of how training outcomes relate to CHA's ability to recruit study participants may be valuable for future CHA programs to promote cancer screening or welllness in churches and other community venues.

Methods

Church and CHA recruitment

Community-partnered participatory research principles guided the partnership building and community-academic collaboration necessary to conduct this study (19, 20). This research effort leveraged strong ties to African American Christian churches in South Los Angeles of one of the authors (ALW) to identify and invite potential church partners to participate in the study. Once identified, the research team met with the church pastor to introduce the study and to discuss the details of participating. Each participating church received a $2,000 stipend.

After agreeing to join the study, each church leader identified and recruited 5 (and in one larger church 9) individuals from the church to serve as CHA. Each CHA was asked to recruit at least 10 individuals to participate in the study, totaling a minimum of 50 study participants from each church. CHAs received up to $500 stipends to incentivize their participation in two training sessions and their efforts to promote cancer screening.

CHA training

Each CHA completed 8 hours of training at their respective churches, divided into two 4-hour workshops. During Training Session #1, the research team introduced the CHAs to the aims of the study, the patient navigator approach, the general cancer etiology, cancer risk factors and cancer health disparities in the African American community and in South Los Angeles. The first training also covered the national cancer screening guidelines and the utility of employing evidence-based strategies to promote cancer screening.

Training Session #2 explained the study protocols for recruiting participants, including: how to conduct baseline assessments to determine study eligibility (age 50 – 75 and being non-adherent to at least one of the U.S. Preventive Task Force recommended screening guidelines for breast, cervical or colorectal cancer or informed decision-making for prostate cancer); how to provide barrier counseling for screening tests that were overdue; how to make reminder calls and how to refer participants without health insurance to low-cost or free screening programs. This part of the training used demonstration and role-play.

Training session #2 also informed CHAs about the regulations for protection of research participants, followed by a discussion of scenarios that CHAs may encounter while conducting study activities that require actions in accordance with human subject rules. This part of the training explained how to obtain informed consent, the need for confidentiality of all collected information, the voluntary nature of participation in the study and the right of individuals to withdraw from the study at any time.

After completion of the training, the research team conducted debriefing sessions with CHAs at each church every 6–8 weeks to answer questions, to collect completed study documents, and to provide CHAs with additional study materials, as needed.

Assessment instruments

CHAs completed pre- and post-tests immediately before and after the training that assessed demographic characteristics, relationship to the church, time available for this study, knowledge of colorectal cancer screening guidelines (4 items), knowledge of human subjects rules (5 items, adapted from (21)) and perceived self-efficacy (using a 13 items scale that was developed in a previous study (16). Items of the self-efficacy scale asked CHAs to rate their level of confidence or their comfort level in approaching other members of their church to discuss the project, recruit them, conduct a baseline assessment, explain cancer screening tests, provide counseling and perform other tasks (1=very uncomfortable or very low confidence to 10=very comfortable or very high confidence).

Each church was enrolled in the study for 12 months. During that time period, CHAs completed a 1-page baseline assessment for each participant they recruited, and the number of participants recruited (measured by the number of completed baseline assessments) was tallied for each CHA. At the final study meeting and celebration at each church, a 12-month debriefing survey assessed facilitators and challenges CHAs experienced during the study.

This study was approved by the University of California Los Angeles Institutional Review Board and all CHAs and study participants provided informed consent.

Statistical analysis

Analyses were conducted using SAS 9.4. Two knowledge scores were developed by adding the number of correct responses for colorectal cancer screening guidelines (range 0–4) and human subjects rules (range 0–5). A perceived self-efficacy score was developed by averaging the responses to 13 self-efficacy items. The perceived efficacy scale had a Cronbach's alpha > 0.90, suggesting that the items had high internal consistency. CHA knowledge and perceived efficacy at pre- and post-test were compared using McNemar's test for categorical variables and the non-parametric Wilcoxon signed rank test for continuous variables. CHAs were classified as active if they recruited 10 or more participants or as inactive/less active if they recruited fewer than 10 participants. Active and inactive/less active CHAs were compared using Wilcoxon two-sample tests for continuous variables and chi-square tests for categorical variables. We also explored bivariate relationships between CHA baseline characteristics, knowledge scores, perceived self-efficacy scores and number of participants recruited using Spearman correlations for continuous variables and Wilcoxon two-sample or Kruskal-Wallis tests for categorical variables. To characterize the degree to which the recruitment success of CHAs clustered by church, we computed the intraclass correlation (ICC) using a linear mixed model with a random intercept for church.

Results

Between June 2016 and August 2017, we conducted trainings with 11 churches. Two churches with a combined total of 8 CHAs dropped out during the CHA training and did not conduct any study activities. In addition, three CHAs from active churches dropped out during the training and did not complete post-tests. Therefore, this analysis includes 9 churches out of 11 churches that initially agreed to participate, and a total of 49 CHAs who

completed pre- and post-tests during the training and had the opportunity to recruit study participants out of 60 CHAs who initially volunteered for this role. A subsample of 29 CHAs (23 active and 6 inactive/less active) completed a 12-month debriefing survey at the end of the study.

CHA baseline characteristics

Forty-nine CHAs from 9 churches (4–8 per church) ranged in age from 49 to 82 years with a median age of 63 years (see Table 1). More than 80% were female, 55% had completed college and 54% had a professional background in a health-related field. Length of the church membership ranged from less than 1 year to 58 years with two-thirds of the sample being church members for 10 years or longer. CHAs stated they would be able to dedicate, on average, 13 hours per months to this study and that they would be able to approach, on average, 26 church members to inform them about the study. CHAs recruited between 0 and 113 participants over a 12-month period: 5 CHAs did not recruit anybody; 15 CHAs recruited 1–9 participants; 13 CHAs recruited 10–15 participants; 16 CHAs recruited > 15 participants. Thus, 29 out of 49 CHAs (59%) reached their recruitment goal. Using a more conservative estimate, 29 out of 60 CHAs who initially volunteered (48%) reached their recruitment goal. As shown in Table 1, there were no statistically significant differences between active CHAs who recruited at least 10 participants and inactive/less active CHAs with respect to demographic or other baseline characteristics.

CHAs' knowledge of colorectal cancer screening guidelines and human subjects protection rules

At pre-test, knowledge of colorectal cancer screening guidelines ranged from 39% of CHAs who knew that colonoscopy is recommended every 10 years to 61% who knew that screening should start at age 50 (see Table 2). At post-test, there was a statistically significant increase in knowledge for all four knowledge items and in the overall knowledge score in the total sample. CHAs' knowledge of the rules for the protection of research subjects was high at pre-test. There was a statistically significant increase in knowledge for one out of five knowledge questions and in the total knowledge score in the total sample. Improvements in knowledge scores for colorectal cancer screening guidelines and human subjects protection rules were not significantly different for active versus less active/inactive CHAs (data not shown).

CHAs' perceived self-efficacy to perform specific tasks for the study

At pre-test, CHAs had high perceived self-efficacy to perform study tasks, with average rating between 8.1 and 9.3 on a scale from 1 (very uncomfortable) to 10 (very comfortable; see Table 3). Perceived self-efficacy was highest (9) for general skills such as issuing reminders, passing out print materials, keeping records and being able to handle rejections. For skills specific to the study protocol such as promoting screening and obtaining consent, perceived self-efficacy at pre-test was slightly lower but still surprisingly high. From pre- to post-test, there was a statistically significant increase in perceived self-efficacy for performing 10 out of 13 study tasks and in the overall self-efficacy score. However, the increases were not significantly different for active and inactive/less active CHAs.

CHAs' enthusiasm about their role as CHAs increased significantly from an average of 9.2 to 9.7 (p<0.05), with no differences in increase between active and inactive/less active CHAs (data not shown).

Exploratory analyses

We did not find any significant relationships between CHAs' demographic characteristics, knowledge scores, perceived self-efficacy and number of recruited participants. The ICC for number of participants recruited was zero, indicated that there was negligible variation in the mean number of participants recruited per CHA from church to church and that variation in the number recruited was due entirely to variation at the CHA level. Consistent with this, we did not find any church-level variables that predicted the number of participants recruited per CHA (data not shown).

Challenges and facilitators to recruitment reported at CHA debriefings at the end of the study

Based on 12-month follow-up debriefings, active CHAs tended to recruit participants by phone and often approached friends, family members and work colleagues in addition to church members. Many inactive/less active CHAs approached only church members and mainly in-person. Six active CHAs stated that they did not encounter any challenges. Other CHAs reported the following challenges: identifying age-eligible participants who were non-adherent to at least one screening test (N=9); convincing people, especially men, to participate (N=5) and "the initial approach (N=4)." Barriers that were brought up once included: difficult to get people's phone number; distrust and fear of doctors and medical clinics; and making reminder calls to participants who were not following up with their doctors.

CHAs reported the following facilitators to recruitment: many participants were receptive to the counseling information and appreciated the information that the CHAs provided; and CHAs found it very satisfying that they were able to help church members, family, friends and the community by giving and sharing information and by encouraging them to comply with cancer screening guidelines. One CHA summed it up by saying "*Each person I talked to … I felt I was really doing something.*" Other benefits of serving as CHA were meeting new people and partnering with two well-known academic institutions.

Discussion

Our findings suggest that African American churches are interested in promoting cancer screening and able to identify volunteers to serve as CHAs. Training of these CHAs was successful in increasing their knowledge and perceived self-efficacy to perform study responsibilities, but these training outcomes did not predict subsequent performance with respect to recruitment yields. Based on our findings, we make recommendations for future studies that include CHA-led interventions.

Recommendation 1: Train plenty of CHAs to allow for drop-out and low performance

Only about half of the CHAs who participated in the training and who were enthusiastic to serve as CHAs achieved the recruitment goal of 10 participants during the 12-month period. This proportion of active CHAs is similar to other studies to promote cancer screening in which 50% (22), 62% (23), and 47% to 89% (24) of trained CHAs implemented program components. Based on these findings, we recommend to estimate recruitment and program implementation by CHAs very conservatively and to always recruit and train additional CHAs to allow for drop-out and low performance either due to personal reasons or due to challenges and barriers that CHAs may encounter.

Recommendation 2: Everyone can be trained to serve as CHA

Similar to another study (25), African American CHAs in our study with a wide range of educational and professional background achieved similar training outcomes with respect to improved knowledge and increased perceived self-efficacy to perform study tasks. In addition, recruitment yields were not related to CHAs' demographic characteristics. This suggests that church volunteers with or without a college degree or a health professional background can successfully complete the training and serve as CHA. In contrast to our findings, a prostate cancer education study in predominantly Black barbershops found that barbers with at least some college education performed significantly better in increasing clients' knowledge than those with a lower level of education (26). Based on this finding, the authors suggest to prioritize limited educational resources for barbers with at least some college education. Yu and colleagues found younger and employed Chinese American lay health advisors had significantly higher self-efficacy (17). Since few studies have evaluated CHA trainings and very few have explored predictors of CHA performance (26), differences in findings have to be interpreted with caution and more studies are warranted.

Recommendation 3: Explore which CHA characteristics predict performance

CHA training evaluations frequently assess CHAs' knowledge and perceived self-efficacy (15–17, 24, 26). Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave (27). Therefore, many theoretical health behavior models consider self-efficacy as a predictor of subsequent behavior (18, 28, 29). However, in contrast to health behavior theory, in our study, self-efficacy (and knowledge) were not associated with subsequent behavior with respect to recruitment.

One possible explanation for this finding is the lack of variation in self-efficacy at pre-test. In our sample of African American CHAs, perceived self-efficacy was higher than expected, even for several study-specific tasks that had not been explained at the time of the pre-test (e.g., how to do a baseline assessment). This high level of self-efficacy may be due to selection bias: CHAs were identified by the pastors or by leaders of health ministries, presumably because they had successfully volunteered in the past for other tasks at the church. They may have received positive social feedback on past performances which may have increased their own self-efficacy appraisal (27).

Our limited qualitative results suggest the importance of the recruitment approach (phone versus face to face) and the size of the CHAs' social network. A combination of factors or additional factors that we observed but did not systematically assess may have contributed to differences in recruitment yields. For example, several of our low performing CHAs developed health problems or had family members with health problems during the study, which made recruitment a low priority for them. Some of our top recruiters had an outgoing personality, were involved in many different clubs and activities, or had a professional background in sales. One of the top recruiters was a community activist who had founded a non-profit organization in South Los Angeles to promote prostate cancer screening. Another top recruiter was a retired nurse who was able to dedicate 40 hours per month for study activities. Several top recruiters had a long-standing friendship with one of the investigators. Prior research showed that an ongoing partnership between academic and community institutions can positively affect study outcomes (30). A personal relationship between members of the academic team and CHAs may similarly influence CHAs' performance.

In studies in which CHAs are the recruiters or the interventionists, both meeting recruitment goals and the effectiveness of the intervention depend on CHA performance. When selecting volunteers for helping with recruitment, those with a large social network may be best suited. Individuals who are less enthusiastic about recruitment can support other activities such as study record keeping, organizing materials and events, coordinating the logistics etc. This allows engaged persons with different personalities to serve as a CHA and is in line with the community-based participatory research approach. Since it would be helpful to understand which CHA characteristics should be considered when selecting CHAs, we recommend to continue to explore which CHA characteristics predict performance.

Limitations

This study included a convenience sample of 9 churches and 49 CHAs, which may not be representative of African American churches and CHAs in South Los Angeles. In addition, the small sample size limited our statistical power. There was also very little variation with respect to church-level characteristics that might predict recruitment (e.g., all churches had a health ministry).

Conclusions

This study contributes to the literature on the training of CHAs to promote health in faith-based settings. It examines the important issue of CHA performance, which is not well understood. Based on our findings, we make recommendations for future studies to move this field forward.

Acknowledgements

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Table 1:

Baseline characteristics of 49 CHAs from 9 churches by CHA level of activity

Characteristics	All CHAs (N=49)		Active CHAs* (N=29)		Inactive/less active CHAs (N=20)		p
Age							NS
(mean ± std) (range)	64 ± 7 (49–82)		64 ± 8 (49–77)		63 ± 7 (54–82)		
Length of church membership							NS
(mean ± std) (range)	17 ± 15 (<1–58)		19 ± 15 (<1–50)		14 ± 14 (<1–58)		
Hours per month available for this research project							NS
(mean ± std) (range)	13 ± 11 (1–60)		15 ± 13 (1–60)		11 ± 7 (2–25)		
Number of church members able to approach							NS
(mean ± std) (range)	26 ± 34 (2–200)		30 ± 42 (2–200)		20 ± 14 (3–50)		
	N	%	N	%	N	%	
Gender							NS
Men	8	16%	6	21%	2	10%	
Women	41	84%	23	79%	18	90%	
Level of education							NS
High school/some college	22	45%	12	41%	10	50%	
At least 4 years of college	27	55%	17	59%	10	50%	
Has professional background in health-related field							NS
Yes	26	54%	16	55%	10	53%	
No	22	46%	13	45%	9	47%	
Currently employed part- or full-time							NS
Yes	20	43%	11	38%	9	50%	
No	27	57%	18	62%	9	50%	
Cancer survivor							NS
Yes	8	17%	6	21%	2	11%	
No	40	83%	23	79%	17	89%	
Ever had a colonoscopy							NS
Yes	43	93%	25	96%	18	90%	
No	3	7%	1	4%	2	10%	
Ever did a stool blood test							NS
Yes	30	64%	17	63%	13	65%	
No	17	36%	10	37%	7	35%	

Active CHAs have recruited at least 10 participants during a 1 year time period.

P-values are from Wilcoxon two-sample tests for continuous variables and chi-square tests categorical variables.

Table 2:

CHA's knowledge of colorectal cancer screening guidelines and human subjects protection rules at pre- and post-test (N=49)

Knowledge of	% Correct		
	Before the training	After the training	p
Colorectal Cancer Screening Guidelines			
Screening should start at age 50	61%	92%	**<0.0001**
Stool blood test is recommended annually	57%	92%	**<0.0001**
Sigmoidoscopy is recommended every 5 years	53%	71%	**0.05**
Colonoscopy is recommended every 10 years	39%	73%	**<0.0001**
Knowledge score on colorectal cancer screening guidelines (Mean, Std Dev)	2.10 ± 1.07	3.29 ± 0.84	**<0.0001**
Human Subjects Protection Rules			
A participant can end her participation in a study at any time without any negative consequences or explanations. *(True)*	100%	98%	NS
A casual conversation about a study participant with someone other than the investigator is a breach of confidentiality. *(True)*	90%	98%	NS
A person may withdraw from the study only if he/she provides written documentation. *(False)*	90%	90%	NS
You may tell your family who is in the study as long as you don't tell what the participant said. *(False)*	82%	100%	**<0.005**
You have just completed an assessment with Ms. Jones. Ms. Curious has seen a flyer about the "African American Churches Promoting Cancer Screening Study" and she asks you if Ms. Jones is part of the study. What would be the most appropriate response? (Multiple choice with 4 responses)	86%	88%	NS
Knowledge score on human subjects protection rules (Mean, Std Dev)	4.47 ± 0.74	4.73 + 0.60	**<0.05**

P-values are from McNemar's tests for categorical variables and non-parametric Wilcoxon signed rank tests for continuous variables.

Table 3:

CHA's perceived self-efficacy to perform specific tasks for the study (N=49) (Scoring on each item from 1=very low to 10=very high)

	Average comfort level or level of confidence			
	Before the training	**After the training**	**Difference (post minus pre-test)**	**P**
Level of Confidence				
Ability to convince church members to obtain cancer screening tests	8.1 ± 1.7	9.1 ±1.0	1.0 ±1.4	**< 0.0001**
Being able to handle rejections (people saying they are not interested in joining the study).	9.0 ± 1.8	9.3 ± 1.1	0.3 ± 1.4	0.11
Being able to answer participant's questions and/or respond to barriers to cancer screening.	8.2 ± 1.9	9.1 ±1.2	0.9 ± 1.4	**<0.0001**
Comfort level in.....				
Approaching other members of your church to discuss this project	8.6 ± 1.7	9.3 ± 1.0	0.7 ± 1.4	**<0.001**
Screening potential study participants for eligibility	8.5 ± 1.8	9.2 ± 1.0	0.8 ± 1.6	**0.001**
Obtaining consent to participate in the study	8.4 ± 1.7	9.3 ± 0.9	0.9 ± 1.6	**<0.001**
Conducting a baseline assessment of their screening history	8.4 ± 1.9	9.3 ± 0.9	0.9 ± 1.6	**<0.001**
Passing out print information on cancer screening tests	9.3 ±1.5	9.7 ± 0.7	0.4 ±1.5	0.09
Conducting an education session with a church member	8.5 ± 1.8	9.0 ± 1.2	0.5 ± 1.4	**<0.05**
Explaining how to collect a stool sample to test for colorectal cancer	8.7 ± 2.0	9.3 ± 1.2	0.6 ± 1.8	**<0.05**
Reminding participant to complete cancer screening	9.0 ± 1.6	9.6 ± 0.7	0.5 ± 1.5	**<0.05**
Referring participant to a low cost screening program	8.8 ±1.8	9.3 ±1.0	0.4 ±1.7	0.06
Keeping a record of contacts with participant	9.0 ± 1.7	9.5 ±0.8	0.6 ±1.6	**<0.05**
SELF EFFICACY SCORE (13 items)	8.7 ± 1.5	9.3 ± 0.8	0.7 ± 1.2	**<0.001**

P-values are from paired t-tests.