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Rise Up, Get Tested, and Live: an Arts-Based Colorectal Cancer Educational Program in a Faith-Based Setting

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Abstract

Engaging community members in efforts to reduce cancer-related health disparities through community mini-grant programs has been shown to have meaningful impact. A predominantly African-American church in South Carolina was awarded a community mini-grant to increase awareness about colorectal cancer (CRC) screening among disproportionally high-risk African-American communities through culturally appropriate arts-based cancer education. The church's pastor, health and wellness ministry, and drama ministry created a theatrical production called *Rise Up, Get Tested, and Live*. Over 100 attendees viewed the play. A pre/post-test evaluation design assessed the effectiveness of the production in increasing participants' knowledge about CRC and examined their intentions to be screened. Results showed increased knowledge about CRC, increased awareness and understanding about the importance of CRC screening, and favorable intentions about CRC screening. Findings suggest that arts-based cancer education may be an effective tool for the dissemination of information about CRC screening.

Keywords Colorectal cancer · Screening · Theater · African American · Education

Background

Colorectal cancer (CRC) is the third most commonly diagnosed cancer and the second leading cause of cancer death among both men and women in the USA [1, 2]. In 2017, it is estimated that 135,430 people will be diagnosed and 50,260 will die from CRC, representing 8% of all new cancer cases in the country [2]. Despite the decrease in total CRC incidence and mortality over the past decade, rates remain highest among African Americans [1–3]. African Americans are 20% more likely to be diagnosed and 200% more likely to die from CRC compared with other demographic groups [2]. Evidence suggests that the racial disparity for CRC may be attributable, in part, to disproportionate screening rates [3, 4].

CRC screening is effective for early detection and is widely endorsed for the average-risk adult beginning at age 50 [3–5]. Colonoscopy is often promoted as the "gold standard" of screening tests used to significantly reduce CRC rates across the country [6]. Yet national adherence to colonoscopy screening continues to be suboptimal, especially for African Americans. Only 59% of African-American adults 50 years or older meet the United States Preventive Services Task Force (USPSTF) CRC screening recommendation [5]. This

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is likely due to existing knowledge gaps and barriers such as negative attitudes, social pressures, and difficulties understanding health information and accessing care [6, 7]. As a result, African Americans are being diagnosed later, often during advanced stages of CRC, leading to significantly lower survival rates [8, 9]. In South Carolina, CRC incidence and mortality rates are consistent with national data. About 40% of South Carolina's African-American communities are disproportionally at risk for developing CRC because they reside in significantly underserved, rural areas where access to preventive services such as cancer screenings is limited [10].

South Carolina Cancer Prevention and Control Research Network and the Community Health Intervention Program Mini-Grants

The South Carolina Cancer Prevention and Control Research Network (SC-CPCRN), funded by the Centers for Disease Control and Prevention and National Cancer Institute, has the goal of improving public health and reducing the burden of cancer by advancing the dissemination and implementation of evidence-based programs in underserved communities [11, 12]. Through the implementation of the 2016–2017 Community Health Intervention Program (CHIP), SC-CPCRN awarded a $5000 mini-grant to Trinity Baptist Church (TBC) to develop, implement, and evaluate the effectiveness of an arts-based education program in increasing CRC awareness, knowledge, and screening intention in an underserved African-American community. TBC had 12 months to complete their project working closely with SC-CPCRN investigators and staff to capture vital evaluation information [11, 12].

Mini-grants are an increasingly common tool for engaging high-risk communities in evidence-based interventions that promote capacity and sustainability [12, 13]. Mini-grants can provide training, enhance communication, and promote outreach in an attempt to bridge the gap between research and practice [12, 13]. Together, with technical assistance from SC-CPCRN, TBC developed a play that promoted evidence-based CRC information to increase screenings and positive health outcomes among African-American communities in South Carolina.

Arts-Based Cancer Education and Health Promotion

Theater is an innovative strategy for educating high-risk populations about diseases such as cancer and HIV/AIDS [14, 15]. Emerging evidence suggests that theater as an educational tool allows for active learning, exploration of attitudes and values, and emphasizes self-empowerment [15, 16]. Through story-telling, theater is a creative way to communicate important health messages that are both culturally appropriate and context sensitive [16, 17]. The effectiveness of stories through theater is that the strategy not only transmits knowledge but establishes a context for information to be linked to behavior. Thereby it can decrease fear, reduce counter arguing, highlight and overcome the forces of resistance, and increase social motivation to change behavior [18].

Theater as a tool to educate African-American communities about cancer-related issues is an effective means of eliciting health conscious behavioral change and increasing positive health outcomes [19]. A study conducted by Cameron et al. on prostate cancer among southern African-American men found theater to be effective in increasing prostate cancer knowledge, the likelihood of men engaging in healthier behaviors, and reporting of prostate screening [14]. Another study found theater to be effective in educating African-American women about breast cancer. After viewing the play, participants reported having increased empathy and understanding of the disease [16]. Theater has also proven to be effective in increasing HIV/AIDS knowledge and encouraging healthier sexual behavior among young African Americans [19].

The purpose of the current study was to evaluate the effectiveness of an arts-based education program in increasing CRC awareness, knowledge, and screening intention in an underserved urban African-American community. Community and partner engagement was the main strategy guiding the development and implementation of the mini-grant program and the play itself [11, 12, 20]. TBC worked collaboratively through monthly in-person and telephone meetings with American Cancer Society partners and SC-CPCRN liaisons on the application process and play creation and evaluation. Relevant concepts of story and liturgical drama served as the basis for the construction of the play presented by TBC. Story, a universal construct, is derived from many disciplines, including religion, psychoanalysis, and anthropology in which story is the means of connecting individuals and igniting processes for change [21]. Further, story is a commonly used tool in many faith traditions and especially those associated with the African-American culture and its churches [22, 23]. Liturgical drama is a concept similar to story with origins in the medieval church to celebrate special Christian events including the birth of Christ and Easter but is used today in multiple faith-based ministries [24].

Methods

Participants and Setting

Attendance for the play was enhanced through an ambitious advertising campaign utilizing radio, television, newspapers, bulletins, and social media. Flyers and posters were distributed to churches, neighborhood associations, colleges, and community centers. Youth members of the church also went door-to-door. The advertisements highlighted that the play, *Rise Up,*

Get Tested, and Live was about CRC, free of charge, and family friendly.

The play was held once on Friday, April 21, 2017, in the sanctuary of TBC in Richland County, Columbia, South Carolina. Curtains opened at 7:00 p.m. and the play ran approximately one hour and a half. Food and refreshments were available after the performance and playgoers were encouraged to visit a booth where they could make an appointment to schedule a CRC screening.

Play Design

TBC and SC-CPCRN liaisons convened to develop the play, *Rise Up, Get Tested, and Live*. The narrative of the play focused on the importance of CRC screenings, early detection, and healthy lifestyle behaviors. TBC invited members from the local community to be cast members in the production as a way to promote collaboration and engagement.

Key elements of the play curriculum included age- and race-specific guidelines for CRC screening, various screening modalities and associated benefits and risks, the biological process for CRC development, and two CRC survivors witnessing about the importance of CRC screening.

Play Procedures and Data Collection

In an effort to assess the impact of theater on knowledge, awareness, and screening intentions among the playgoers, a pre-post survey was distributed. Upon arriving at the church, playgoers were asked to complete a pre-test consisting of 11 items, including 2 demographics questions (age and sex; insurance and access to care information were not collected), 2 items measuring CRC communication with a physician, and 7 question items measuring knowledge and awareness. No identifying information was collected from participants. Items related to knowledge were presented with the possible answers of True, False, or Don't Know. The knowledge items asked for responses to statements including, "People with colon cancer always have signs or symptoms before learning they have colon cancer," "Colon cancer usually develops over a period of several years," "African Americans should start colon cancer screening at age 45," and "For people who aren't African American, colon cancer screening should start at age 50."

Following the production, playgoers were asked to complete a post-survey. The post-test had 6 items related to CRC knowledge and intentions regarding shared decision-making with a health care provider and actions around screening. Health behavior statements included: "I will talk to my health care provider about colon cancer in the next three months," "I will talk to others about colon cancer in the next three months," "I will talk to my doctor about getting screened for colon cancer in the next three months," and "I will get screened for colon cancer in the next three months." Screening intention questions were not asked on the pre-test. The focus of survey question and the play content was on colonoscopy given this is the gold standard for CRC screening and it was the focus and interest of the mini-grantees in their grant application and in the content of the performance.

Playgoers were informed that their participation enabled them to be placed into a raffle to win a $50, $25, or $10 gift card. The surveys took participants about 20 minutes to complete. Once they completed the post-survey they were asked to remain seated for a discussion with a local gastroenterologist and his team about CRC screenings. This opportunity allowed audience members to ask any remaining questions related to CRC and a better understanding of CRC screening procedures. This discussion lasted 20 to 25 minutes.

Data Analysis

Descriptive statistics were used to generate frequencies, percentages, means, and standard deviations as appropriate for the pre- and post-test surveys. To investigate the impact of the performance, paired t tests were run to assess differences for each item related to knowledge and awareness. For the 7 knowledge items administered, a correct response was given a score of 1 and an incorrect, missing, or "I do not know" responses were given a score of 0. The total test score (range 0–7) was calculated by sum of scores of the 11 knowledge questions. SAS 9.4 was used for analysis and statistical significance was set at $p < 0.05$.

Results

Over 100 African-American community members attended the play ($n = 110$). Of the attendees, 96 voluntarily completed pre-test surveys and 110 completed post-tests. Some playgoers arrived late and did not complete the pre-test. Approximately 72% of the play attendees were female; 63% were aged 45 or older (see Table 1 for additional demographics).

Survey results demonstrated significant increases in knowledge following the production ($p \leq 0.001$). In particular, at pre-test, 78.1% of participants reported that CRC was preventable as compared to 93.6% on the post-survey. Moreover, there was an increase in knowledge related to CRC screening recommendations. Only 37.5% of attendees responded correctly on the pre-test survey regarding CRC screening age compared with over 64% on the post-survey ($p \leq 0.001$). In addition, 75.0% of participants who took the pre-test indicated that a colonoscopy is the best test to check for polyps in the colon and rectum. This increased to 94.5% on the post-test ($p \leq 0.001$; see Table 2).

As a result of viewing the play, attendees also reported their intentions to engage in certain actions within the next three months. Specifically, 81.8% of play attendees reported that

Table 1 Pre-test demographic characteristics ($N = 97$)

	N (%) or mean ± standard deviation
Age	
< 45	25 (25.8%)
≥45	70 (75.2%)
No response	2 (2.1%)
Mean age	53.9 ± 16.2 (range 14–86)
Sex	
Male	26 (26.8%)
Female	70 (72.2%)
No response	1 (1.4%)

they would talk to others about CRC, 78.2% of play attendees indicated they would talk to a health care provider about CRC in general, 64.5% stated they would speak with their health care provider specifically about CRC screening, and 59.1% specified that they had intentions to be screened. Finally, 86.4% indicated they will continue to be screened for CRC as advised by their health care provider (see Table 3).

Discussion

The community-developed and implemented play, *Rise Up, Get Tested, and Live*, was successful at improving CRC knowledge and motivating attendees to engage in healthy behavior change around CRC screening. CRC affects African Americans at disproportionate rates. Thus, there is a need to develop more innovative, community-based educational interventions to encourage preventive screenings.

Those who attended the play reported an increase in overall knowledge and awareness about CRC and screening. Playgoers indicated that, after seeing the play, they had intentions to engage in behaviors such as discussing CRC with their doctor and scheduling routine CRC screenings. These findings are consistent with previous studies demonstrating the use of theater as an educational tool for improving knowledge about cancer and the benefits of cancer screening among targeted populations. Cueva proposed the use of Readers' Theater as a cancer education strategy [25]. This involved having participants read aloud scripted conversations containing key messages related to cancer screening with the goal of stimulating dialog around possible solutions to cancer screening barriers. Another example is Rustveld's Forum Theater (FT) program. The study explored the effectiveness of FT in being able to raise awareness about CRC and cervical cancer screening among African-American, Hispanic, and Vietnamese populations [26]. Findings suggested that FT was an effective method for disseminating cancer screening information to ethnically and linguistically diverse populations.

This study has limitations. First, the sample size was relatively small with only 110 participants who attended the play. Second, we do not have data as to whether intention to be screened increased following play attendance since screening intention was not asked on the pre-test. Third, the current study did not follow up with playgoers to assess actual

Table 2 Correct responses to colorectal cancer knowledge questions in pre-and post-tests

	Pre-test ($n = 96$)* N (%)	Post-test ($n = 110$) N (%)	p value
Mean number of correct responses (mean ± SD)	4.4 ± 2.0	5.5 ± 1.0	< 0.001[a]
Survey item			
People with colon cancer always have signs or symptoms before learning they have colon cancer.	56 (58.3%)	63 (57.3%)	0.878[b]
Colon cancer usually develops over a period of several years.	57 (59.4%)	101 (91.8%)	< 0.001[b]
There are ways to stop colon cancer from developing.	75 (78.1%)	103 (93.6%)	0.001[b]
Colon cancer can start as a polyp, which is a small growth found in the colon.	69 (71.9%)	109 (99.1%)	< 0.001[b]
African-Americans should start colon cancer screening at age 45.	55 (57.3%)	55 (50.0%)	0.295[b]
For people who aren't African American, colon cancer screening should start at age 50.	36 (37.5%)	71 (64.6%)	< 0.001[b]
A colonoscopy is the best test to check for polyps in the colon and rectum.	72 (75.0%)	104 (94.6%)	< 0.001[b]

*One attendee did not respond to the survey items

[a] Chi-square test

[b] t test

Table 3 Post-test only responses to questions about colorectal cancer screening intentions ($n = 110$)

Survey item	Yes	No
I will read the materials and handouts to learn more about colon cancer in the next three months.	88 (80.0%)	22 (20.0%)
I will talk to my health care provider about colon cancer in the next three months.	86 (78.2%)	24 (21.8%)
I will talk to others about colon cancer in the next three months.	90 (81.8%)	20 (18.2%)
I will get screened for colon cancer in the next three months.	65 (59.1%)	45 (40.9%)
I will talk to my doctor about getting screened for colon cancer in the next three months.	71 (64.5%)	39 (35.4%)
I will continue to be screened for colon cancer as advised by my health care provider.	95 (86.4%)	15 (13.6%)

screening behaviors. Finally, we did not assess attendees' satisfaction with the method of information delivery and preferences for receiving CRC screening information. The main strength of theater as a cancer education tool is the informal and entertaining atmosphere, which helps to lessen feelings of discomfort or embarrassment associated with asking questions related to CRC and the benefits of screening [26]. The context that plays offer to health messages may also help participants better integrate new information into their life view. Another strength of the play production was the in-person question and answer session at the end of the play where audience members had the opportunity to engage with a local gastroenterologist and his team about CRC prevention and CRC screening procedures and follow-up with any post-play questions.

In conclusion, our findings suggest that theater may be an effective strategy to disseminate CRC education and screening information to disproportionally high-risk communities. The play, *Rise Up, Get Tested, and Live*, was a community-based theatrical approach to raising awareness about CRC and CRC screening. The play was found to be persuasive in increasing CRC knowledge among play attendees, as well as increasing intentions to get screened for CRC. Future studies should include a formal follow-up to determine whether playgoers are actually more likely to seek and obtain CRC screening following an arts-based educational program.

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