

**What Media Works Best  
to Improve Cancer Screening Behaviors  
among African Americans?  
A Systematic Review  
of Effective Cancer Education Media Interventions**

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**Statement of the Research Problem**

Over the last 30 years African Americans compared to other races have recorded the highest cancer incidence and fatality rates in the United States (ACS, 2012; Jemal, et al., 2009). Although the cancer incidence and mortality rates have been falling steadily across races in the last 10 years, African Americans are still disproportionately estimated to have 18 percent higher incidence and 36 percent higher mortality rates than whites (ACS, 2009).

Consequently, to address the triad of cancer mortality, burden, and disparity among African Americans relative to other races, empirical evidence show that culturally sensitive, literacy appropriate, and community-based cancer education media interventions (CEMIs) reduce the disparities among African Americans (ACS, 2009; Kelley, 2004; Price & Everett, 1996; Taylor, et al., 2006; Weinrich, et al., 1998). However, despite the promise that these findings demonstrate there are no synthesized evidence in extant literature that identifies the CEMIs that works best and are/is most effective for African Americans.

**Research Background**

A review of the literature indicates that the use of culturally appropriate and community-based CEMIs significantly improve cancer knowledge, early diagnosis, and encourage cancer screening behaviors among African American men and women, respectively (Kelley, 2004; Price & Everett, 1996; Taylor, et al., 2006; Weinrich, et al., 1998). Moreover, cancer education intervention has been deployed through different

types of media to reach African Americans. For instance, print and video media have been used to educate African American men about the importance of prostate cancer screening (Campbell, et al., 2004; Friedman & Hoffman-Goetz, 2006; Taylor, et al., 2006). In addition, computer kiosks in beauty salons (Alcaraz, et al., 2009; Kreuter, et al., 2008), mailed educational materials (Earp, et al., 2002; Kidder, 2008) and the combination of pamphlets, culturally appropriate video, and interactive computer media (Champion, et al., 2006; Partin, et al., 2004) have shown to be effective in enlightening African American women on the importance of regular mammography. Similarly, telephone counseling has been used to improve colorectal cancer screening behaviors (Dietrich, et al., 2006; Ford, et al., 2004).

Despite the benefits of these different CEMIs literature suggests that majority of the available CEMIs are culturally inappropriate and insensitive to the literacy levels of African Americans (Eiser & Ellis, 2007; Kreuter, et al., 2003). In this regard the CEMI materials were considered literacy inappropriate if the educational media are not between the recommended mean reading skills of third and ninth grade ( Davis, Williams, Marin, Parker, & Glass, 2002; Kilbridge, et al., 2009).

The inverse relationship between low educational attainment, low literacy levels, and the inability to read cancer education materials are well documented in the literature (Paskett, Tatum, Wilson, Dignan, & Velez, 1996; Taylor, et al., 2006; Thurman, et al., 2009; Wolff, et al., 2003). In addition, there is an established negative correlation between different levels of health literacy and the importance of cancer education among African Americans (Friedman & Hoffman-Goetz, 2008; Mabiso, Williams, Todem, & Templin, 2010). It is important to note that the inverse relationship between low literacy levels and cancer education knowledge is a common denominator across all races in the United States (Thurman, et al., 2009; Wolff, et al., 2003).

Even in this era of web-based health information access, much of the online health information does not factor in the low literacy levels of African Americans (Birru & Steinman, 2004). Incontrovertibly, inadequate health literacy abilities can affect low rates of screening practices, particularly for African Americans (Davis, et al., 2001). Given the low literacy rates and high cancer burden among African Americans, more research efforts are imperative to better understand, design, and evaluate culturally and literacy appropriate CEMIs for African Americans from a research informed or evidence-based practice perspective.

Furthermore, there's still a gap in literature to know which CEMIs work best for the different types of cancer screening practices among African Americans (Champion, et al., 2006; Lowe, Barg, & Bernstein, 1995; Miller, Kimberly, Case, & Wofford, 2005; Viswanath, 2005). A better understanding about how to identify and apply evidence-based CEMIs could improve screening practices and significantly reduce cancer burden and disparity among African Americans.

## Research Questions

Therefore, the purpose of this study was to conduct a research synthesis that systematically and methodologically identified, examined, and evaluated studies that focused on CEMIs for African Americans. Moreover the current study attempted to identify, evaluate, tabulate, and assess the overall quality of studies focusing on effective CEMIs for African Americans in extant literature. To this end, the following research questions guided the current study:

- 1) What are the characteristics of the variables (dependent, independent and study descriptors) used in investigating the effectiveness cancer education media interventions? (The *dependent variable* is improving cancer screening and the *independent variable* is type of cancer education media. Potential descriptor variables include: Type of cancer screenings, screening settings, tailored or targeted messages, research designs, theoretical constructs, and publication source to mention but a few).
- 2) What cancer education media intervention efforts are effective among African Americans for different outcomes such as: (i) improving cancer screening, and (ii) improving cancer knowledge?
- 3) What is the study quality of existing literature focusing on cancer education intervention for African Americans?

## Methodology

To provide answers to these research questions, a systematic review of studies published between January 1980 and December 2010 on cancer education media intervention among African Americans was conducted. A systematic literature search was conducted using 10 computerized databases and gray literatures. Inclusion and exclusion criteria include: studies published between January 1980 and December 2010, randomized controlled trials, quasi-experimental non-equivalent comparison group research designs, and studies that were culturally and literacy sensitive. The *Community Guide* data extraction form, the *EPHPP* quantitative quality assessment tool and the *PRISMA* flowchart were used for this study.

## Results

Out of 179 publications identified through the database searches, only 41 met the inclusion criteria. The total number of respondents across the eligible studies was 12,764. The dependent variables were obtaining screening, knowledge intention and attitudes (KIA). The independent variables were type of cancer education media (e.g. print, TV,

and multiple media). Study descriptors were also identified (e.g. research designs and theoretical framework). Overall, multiple media (N=16) was the mostly used cancer education media followed by print (N=12), audio visual (N=8), computer-based (N=3), web-based (N=1) and telephone (N=1) respectively. The following type of cancer screening practices was observed: Breast (N=17), colorectal (N=10), prostate (N=9), cervical (N=3), breast and cervical (N=2). The most effective cancer education media among African Americans was multiple media. The study revealed that culturally sensitive, and literacy appropriate cancer education media interventions are effective and therefore, reduces cancer incidence, mortality and disparities among African Americans.

Furthermore, the study revealed preferred and widely used settings such as church-based setting (N=16), hospital/clinics (N=13) and community-based organizations (N=12). Studies that focused on breast screening were most effective, followed by colorectal, prostate, cervical and breast and cervical respectively. Moreover, study quality assessment revealed that 13 breast cancer screening studies, eight prostate cancer screening studies and three colorectal and cervical cancer screenings were found to be strongly rated. Only one study was strongly rated for breast and cervical cancer screening.

## **Utility for Social Work Practice**

Findings of this study clearly highlighted the roles and influences played by different healthcare professionals in cancer education and screening interventions. Studies have shown that certain healthcare professionals can influence the outcome of cancer education media interventions (Sung et. al., 1997; Russell et al., 2010). Some of the healthcare professions identified in this systematic review are: physicians, nurses, community health workers (CHWs), public health educators (PHEs), community health advisors (CHAs), health educators (HEs) and gastroenterologists.

Across all the included studies, a social worker was referred to only once as part of in an interdisciplinary team that administered cancer education media intervention to a community. This suggests that social workers are grossly under-represented among healthcare professionals who conduct cancer education intervention, research, and screenings practices among minority groups like African Americans. Therefore implications for social work will be highlighted in relation to maximizing the underutilized potential and competencies of social workers in their role as cancer educators. This finding is in sharp contrast to social workers' recognition by the National Cancer Institute (NCI) as professionals who can bring a unique milieu of intervention skills that encapsulate a holistic contribution (i.e. the environmental, biopsychosocial, and spiritual assessments) to cancer prevention (National Cancer Institute, 2002).

Another implication concerns the application of the study's findings to the emerging role of preventive social work intervention compared to the classical focus on remedial social work interventions. That is, the systematic review suggests that (a) effective media interventions for cancer screening exist which suggest (b) that this could be a cost-effective approach resulting in savings to society and a reduction of cancer burden in African Americans. Further, this study highlighted the role of health literacy in designing interventions to reach African Americans.

Moreover, the implication of this study for social workers is that social workers are usually well-versed in cultural competency and familiar with the concepts and importance of prevention education. The findings of this study also indicated the interdisciplinary and collaborative roles that different health care professionals play in the cancer prevention continuum. Addition study implication for social workers is that social workers who work in the hospitals or in community-based organizations collaborate with other professionals in prevention interventions. Social workers have the competencies to provide mental health assessment and could help with identifying persons who might meet exclusion criteria. Further, social workers could contribute to cancer prevention education by reducing fear, apprehension, and this would be a significant contribution to the cancer prevention education spectrum.

### **How this Research addresses the theme of “Seek Justice”**

This study clearly underscores tailored and targeted cancer health communication as one of the many avenues to address health disparities or social injustices that African Americans face with regards to cancer incidence in the U.S. Scholars have articulated over the years that prevention-driven research and educational interventions are mechanisms to achieve social justice in the society (Albee, 1996; Albee & Ryan-Finn, 1993; Kenny, Horne, Orpinas, & Reese, 2009; Prilleltensky, 2001). In defining social justice from a prevention perspective, Prilleltensky (2001) posited that social justice encompasses making efforts to empower a disadvantaged group on how to live healthy, develop a wellness mindset, and acquire life skills or competencies needed to participate in the society. This research therefore addresses the theme of “Seek Justice”.

In the same vein, Albee and Ryan-Finn (1993) and Kenny et al., (2009) affirmed that developing the self-efficacy, social support network, self-esteem, coping skills, and other health-related competencies of the underprivileged, which are essential to preventive health, is social justice. Kenny et al., particularly emphasized access to educational resources, and building on cultural strengths as another way that can progress toward social justice. These postulations therefore, underline the importance of cancer education interventions as a social justice strategy. This is so because cancer education intervention addresses the social injustice African Americans experienced over the years

with regards to: being denied access to healthcare (Davis, et al., 1998), preferential recommendation of cancer screening to whites, instead of blacks by health professionals (Benkert & Peters, 2005; Lees, Wortley, & Coughlin, 2005).

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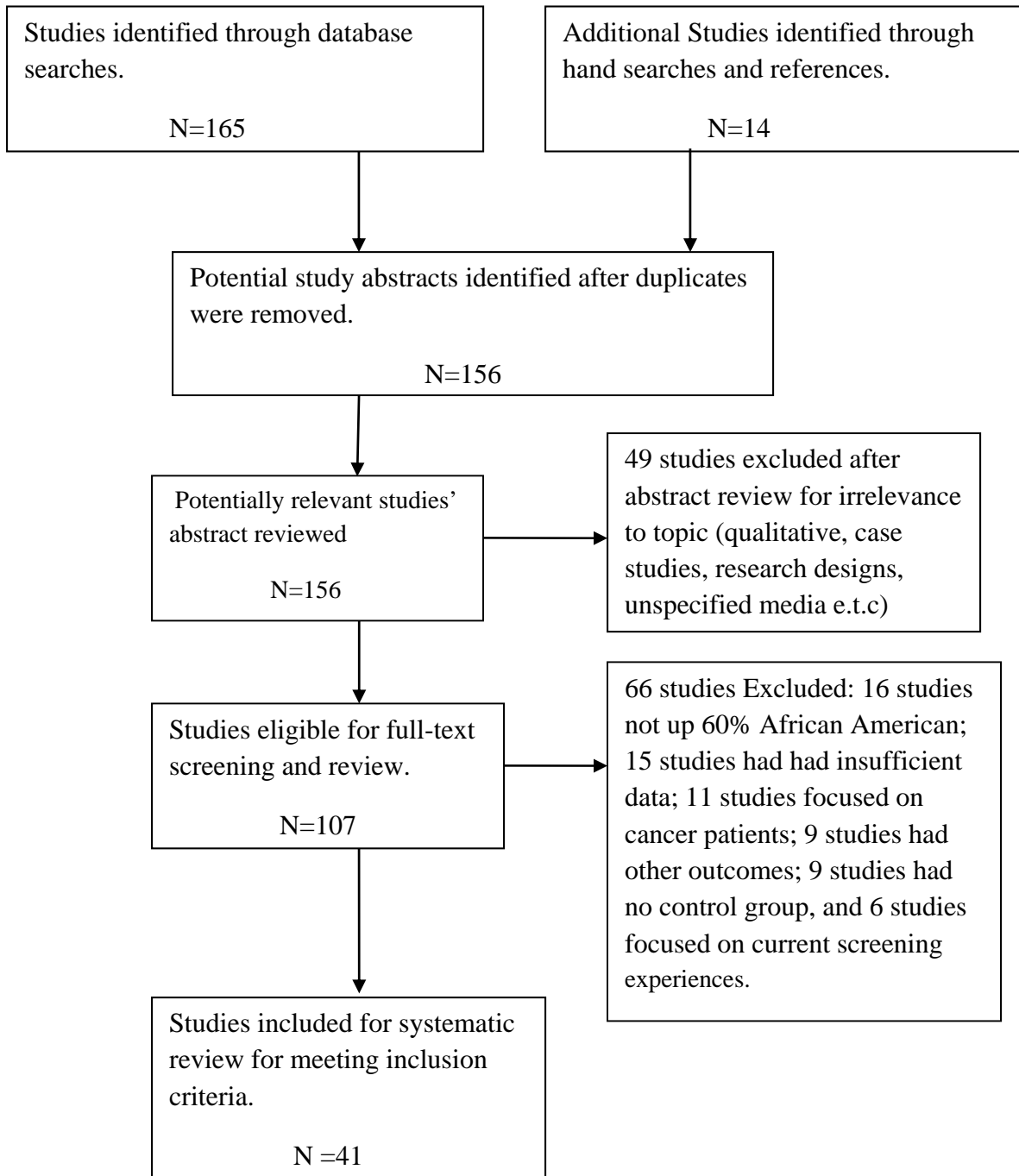


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Figure 1. PRISMA Flow Diagram for Studies Screening and Inclusion Process



Q1: Table 1 *Dependent Variable (Primary and Secondary Outcomes) (N=41)*

<b>Outcome</b>	<b>Common theme</b>	<b>Number of Studies</b>	<b>%</b>
Primary	Obtain screening	41	100
Secondary	Knowledge, Intention, Attitude (KIA)	41	100

Q1: Table 2 *Types of Media Interventions used in Study Sample (N=41) (IV)*

<b>Type of Media</b>	<b>Number of Studies</b>	<b>%</b>
Mass Media	16	39
Printed	12	29
Audio-Visuals	8	20
Computer-Based	3	7
Web-based	1	2
Telephone	1	2

Q1: Table 3 *Distribution of Eligible Studies by Cancer Screening Types (N=41)*

<b>Type of Cancer and Screening</b>	<b>Number of Studies</b>	<b>%</b>
Breast (Mammography, BSE, CBE)	17	42
Colorectal (Colonoscopy, FT, FOBT)	10	24
Prostate (DRE, PSA)	9	22
Cervical (Pap smear)	3	7
Breast and Cervical	2	5

Q1: Table 4. *Publication Source of the Included Study (N=41)*

<b>Source of Studies</b>	<b>Number of Studies</b>	<b>%</b>
Published Articles	37	90
Unpublished Dissertation	4	10

Q1: Table 5 *Theoretical Framework Application across Study Sample*

<b>Theory or Model</b>	<b>Number in Studies</b>	<b>%</b>
Health Belief Model (HBM)	7	17
Powe Fatalism Model (PFM)	5	12
Social Cognitive Theory (SCT)	3	7
Preventive Health Model (PHM)	2	5
Transtheoretical Model (TTM)	1	2
Elaboration Likelihood Model (ELM)	1	2
Behavior Change Theory (BCT)	1	2
Persuasive Health Message Framework (PHMF)	1	2
HBM in combination with any above	11	27
Other combinations without HBM	5	12
Unreported theoretical framework (Not Available)	5	12

Q1: Table 6 *Type of Message Delivery Approach (N=41)*

<b>Type of Message</b>	<b>Number of Studies</b>	<b>%</b>
Tailored	20	49
Targeted	18	44
Tailored & Targeted	3	7

Q1: Table 7 *Study Settings of Eligible Studies (N=41)*

<b>Study Setting</b>	<b>Number of Studies</b>	<b>%</b>
Religious-based	16	39
Hospital/Clinical	13	32
Community-Organizations	12	29

Q1: Table 8 *Type of Cancer Screening and Most Frequently Used Education Media*

Type of Cancer	Specific Type of Screening	Most Utilized Media (# of Studies)
Breast	i. Mammography	i. Multiple Media (6) ii. Audio Visual (4) iii. Print (2)
	ii. Breast Self-Examination (BSE)	i. Multiple Media (2)
	iii. Clinical Breast Examination (CBE)	i. None
	iv. Mammography, BSE & CBE	i. Multiple Media (3)
Cervical	i. Pap Smear (PS)	i. Multiple Media (3)
Colorectal	i. Fecal Occult Blood Test (FOBT)	i. Multiple Media (2) ii. Audio Visual (2) iii. Print (1)
	ii. Flexible Sigmoidoscopy (FLSG)	i. Print (1)
	iii. Colonoscopy (COLO)	i. Multiple Media (1) ii. Print (1)
	iv. Combination of FOBT, FLSG & COLO	i. Telephone (1) ii. Computer-Based (1)
Prostate	Digital Rectal Examination (DRE) & Prostate Specific Antigen (PSA) (Combined)	i. Print (4) ii. Multiple Media (2) iii. Audio Visual (1) iv. Computer Based (1) v. Web-Based (1)

Q2: Table 9 Summary: *Effective and Ineffective Studies by Cancer Screening Types (N=41)*

<b>Cancer Screening (# of Studies)</b>	<b>Effective Studies</b>	<b>Ineffective</b>
Breast (17)	13	4
Colorectal (10)	10	-
Prostate (9)	5	4
Cervical (3)	3	-
Breast and Cervical (2)	1	1

Q3: Table 10 Summary of Study Quality by Cancer Screening Types (N=41)

<b>Cancer Screening (# of Studies)</b>	<b>Strong</b>	<b>Moderate</b>	<b>Weak</b>
Breast (17)	13	4	-
Colorectal (10)	3	5	2
Prostate (9)	8	1	-
Cervical (3)	3	-	-
Breast and Cervical (2)	1	-	1

Note:

The EPHPP *Quality Assessment Tool for Quantitative Studies* quality of each study is based global rating based on the ratings of 6 out of the 8 components was used to rank each study's overall quality. The 6 components were: *selection bias, study design, confounders, blinding, data collection methods, withdrawals and drop-outs.*