

Ever and Annual Use of Prostate Cancer Screening in African American Men

American Journal of Men's Health
2017, Vol. 11(1) 99–107
© The Author(s) 2015
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1557988315596225
ajmh.sagepub.com



Chanita Hughes Halbert, PhD^{1,2}, Sebastiano Gattoni-Celli, MD^{1,2},
Stephen Savage, MD^{1,2}, Sandip M. Prasad, MD^{1,2}, Rick Kittles, PhD³,
Vanessa Briggs, MBA⁴, Ernestine Delmoo, MPH⁵, LaShanta J. Rice, PhD¹,
Melanie Jefferson, MPH¹, and Jerry C. Johnson, MD⁶

Abstract

Since prostate cancer continues to disproportionately affect African American men in terms of incidence, morbidity, and mortality, prostate-specific antigen (PSA) screening plays an important role in early detection, especially when men engage in informed decision making to accept or decline this test. The authors evaluated utilization of PSA testing among African American men based on factors that are important components of making informed decisions. Utilization of PSA testing was evaluated based on whether men had ever had PSA testing and PSA testing during the past year in a community-based sample of African American men ages 50 to 75 ($n = 132$). Overall, 64% of men ($n = 85$) reported that they had ever had a PSA test; the mean (SD) age for first use of PSA testing was 47.7 ($SD = 7.4$). The likelihood of ever having a PSA test increased significantly with physician communication (odds ratio [OR] = 14.2; 95% confidence interval [CI] = 4.20, 48.10; $p = .0001$) and with having an annual household income that was greater than \$20,000 (OR = 9.80; 95% CI = 3.15, 30.51; $p = .0001$). The odds of ever having a PSA test were also decreased with each unit increase in future temporal orientation (OR = 0.66; 95% CI = 0.47, 0.93; $p = .02$). Of the men who had ever had PSA testing, 57% were screened during the past year. Only health insurance status had a significant independent association with having annual PSA testing (OR = 5.10; 95% CI = 1.67, 15.60; $p = .004$). Different factors were associated significantly with ever having PSA testing and annual testing among African American men. African American men may not be making an informed decision about prostate cancer screening.

Keywords

PSA testing, health care utilization, health education

Introduction

As data have emerged about the efficacy of prostate-specific antigen (PSA) testing (Andriole et al., 2009; Schroder et al., 2009), screening guidelines have shifted from performance of annual screening starting at age 50 to informed decision making about whether or not to be screened based on men's preferences (American Cancer Society, 2014). Prostate cancer is a slow-growing disease, and data from epidemiological studies report that many men will die with prostate cancer rather than as a result of the disease. For instance, 233,000 men are expected to be diagnosed with this disease with only 35,000 dying of prostate cancer in 2014 (Ries et al., 2007; Siegel, Ma, Zou, & Jemal, 2014). Although the United States Preventive Services Task Force recommends against screening with the PSA test among all men (Moyer, 2012), results from observational studies and randomized trials report that PSA testing begins to show

a survival benefit after several years of follow-up (Andriole et al., 2009; Schroder et al., 2009). As a result, the emphasis of recommendations for prostate cancer screening is now on informed decision making based on patients' preferences. According to the United States Preventive Services Task Force, an informed decision is

¹Medical University of South Carolina, Charleston, SC, USA

²Ralph H. Johnson Veterans Administration Medical Center, Charleston, SC, USA

³University of Arizona, Tucson, AZ, USA

⁴Health Promotion Council of Southeastern Pennsylvania, Philadelphia, PA, USA

⁵Philadelphia Chapter, National Black Leadership Initiative on Cancer, Philadelphia, PA, USA

⁶University of Pennsylvania, Philadelphia, PA, USA

Corresponding Author:

Chanita Hughes Halbert, Medical University of South Carolina, 68 President Street, Suite BE103, Charleston, SC 29425, USA.
Email: hughesha@muscc.edu

one in which patients: (1) understood the condition or disease, the tests that are used to detect it, and their personal risk; (2) their preferences were considered during the decision-making process; and (3) they participated in making the decision at their desired level (Moyer, 2012). Thus, informed decisions are believed to occur when patients understand the disease and the clinical service being offered, including its possible benefits and risks, and when individuals have made a choice that is consistent with their beliefs, values, and preferences (Briss et al., 2004). The shift to informed decision making empowers men to be advocates for their own health in unprecedented ways. However, this role may be difficult, especially for African American men who have a greater risk of developing prostate cancer and a 2.5% higher death rate from this disease compared to White men (DeSantis, Naishadham, & Jemal, 2013). The results of previous research reports that African Americans have greater mistrust of the medical system and of health care providers (Halbert et al., 2009; Halbert, Armstrong, Gandy, & Shaker, 2006). Other research has identified that African Americans men have low health literacy and awareness about prostate cancer (Kilbridge et al., 2009; Wang et al., 2013). Furthermore, compared with Whites, African Americans have less effective communication with primary care providers (Cooper-Patrick et al., 1999) and are less likely to be asked about their preferences for cancer screening by health care providers (Zikmund-Fisher, Couper, & Fagerlin, 2012). However, discussions about screening may not be the only factor that is important to making decisions about prostate cancer screening, especially since these decisions should ultimately be based on men's preferences and understanding of risks.

Patients' preferences are the result of the knowledge, experiences, and beliefs that they have within a particular health care context (Brennan & Strombom, 1998). Studies report that these factors vary considerably among African American men with regard to prostate cancer. For instance, African American men are likely to have had some exposure to prostate cancer through a relative's diagnosis because they have a two to three times increased risk of developing prostate cancer compared with White men. While national data identifies that most men ages 45 and older (69%) report that health care providers have discussed PSA screening with them (National Cancer Institute [NCI], 2005), only 8% reported that providers informed them that no one is sure of the benefits of PSA screening and that they could choose whether or not to have this type of screening (29%; NCI, 2011). Consistent with this report, findings from qualitative research identifies that limited information about prostate cancer, family involvement, and trust in health care providers were important to PSA screening decisions among African American men (Jones, Steeves, & Williams, 2010). At the

same time, recent research has demonstrated that knowledge about screening recommendations may contribute to small changes in utilization of PSA testing (Prasad, Drazer, Huo, Hu, & Eggener, 2012).

Decision-making aids are now being developed and evaluated in clinic and community settings to facilitate informed decisions about prostate cancer screening according to patients' preferences (Lepore et al., 2012; Taylor et al., 2013); therefore, it is important to identify factors with significant independent associations on screening use so that interventions target the most important factors, especially among African American men. Recent research has reported that African American men have diverse experiences in obtaining information about prostate cancer screening and that social factors are important to screening decisions in this population (Dean et al., 2014; Ross et al., 2011). The current study examined the use of PSA screening in a community-based sample of African American men and evaluated the association between PSA testing and knowledge, experiences, beliefs, and social factors. Men were enrolled into this study after ACS recommendations for prostate cancer screening were changed in 2008; thus, the authors were particularly interested in characterizing the extent to which men were knowledgeable about these recommendations and if this knowledge was associated with their participation in PSA testing.

Materials and Method

Study Population

Eligible participants were African American residents in the Philadelphia, PA, metropolitan area who were ages 50 to 75 ($n = 132$). Participants were recruited to participate in a study that examined the effects of community-based navigation for cancer control on breast, prostate, and colorectal cancer as they relate to psychosocial and behavioral outcomes (Halbert, Briggs, et al., 2014). For this reason, the age range of participants was selected based on the traditional age range for most cancer screenings. Both men and women were eligible to participate in the study, but only men were included in the present analysis of prostate cancer screening. Men who self-reported a personal history of prostate cancer and those who reported experiencing symptoms of these diseases were not eligible for participation in the study. Data were collected from November 2009 through August 2012. The majority of participants (77%) were enrolled from 2009 to 2011.

Procedures

All study procedures were approved by the institutional review boards at the University of Pennsylvania and the

Medical University of South Carolina. Participants were recruited to participate in the study by self-referrals from newspaper and radio advertisements, and flyers at community organizations located in the Philadelphia, PA, area. Recruitment materials described the study as a research program that provided information on how to obtain screening for breast, prostate, and colorectal cancer. Those individuals interested in participating were directed to contact the study line. This approach was used to ensure that a community-based sample of African American residents was reached in the Philadelphia metropolitan area. Previous research has reported that these strategies are effective at enrolling a demographically representative study population from the target community (Halbert et al., 2010). Following referral, a screening interview was completed to determine eligibility. Eligible individuals completed a structured baseline telephone interview to obtain socioeconomic characteristics, health care experiences, beliefs about prostate cancer, and prostate cancer screening. At the end of the baseline telephone interview, eligible participants were invited to participate in a navigation program that is described in detail elsewhere. Acceptance rates for the navigation program were 76%; these rates did not differ by gender (Halbert, Briggs, et al., 2014).

Measures

Validated items from national surveys to evaluate socioeconomic characteristics (e.g., income, marital status, education, and employment status) and health care variables (Centers for Disease Control and Prevention, 2014) were used. Health care variables included health insurance status and the participant's usual source of medical care (doctor's office vs. other settings). The authors measured preferences about prostate cancer screening in terms of health care experiences and beliefs about prostate cancer (e.g., perceived risk, perceived control, thoughts about developing prostate cancer) using items from national surveys and previous research (Halbert et al., 2011; NCI, 2014). To measure perceived risk, men were asked how likely it was they would develop prostate cancer at some point in the future (1 = *very low* to 5 = *very high*). This item was recoded into low (very low, somewhat low, moderate) and high (somewhat high, very high) perceived risk of developing prostate cancer. Men were asked how often they thought about their risk of developing prostate cancer during the past month (1 = *not at all/rarely*, 2 = *a little*, 3 = *a moderate amount*, 4 = *a lot*) and how much control they had over whether they develop this disease (1 = *none*, 2 = *a little*, 3 = *a moderate amount*, 4 = *a lot*). The authors also measured cultural values about health care using the future temporal orientation scale developed by Lukwago, Kreuter, Bucholtz,

Holt, and Clark (2001). The future temporal orientation measures the extent to which individuals value planning for the future (e.g., the choices I have made in life clearly show that I think about the future) and making health care decisions based on future outcomes (e.g., I often think about how my actions today will affect my health when I am older). This scale had acceptable internal consistency in the current sample (Cronbach's $\alpha = .65$). Last, perceptions of neighborhood support and cohesion (Cohen, Finch, Bower, & Sastry, 2006; Sampson, Raudenbush, & Earls, 1997) was evaluated using an 8-item Likert-type collective efficacy scale that measures social capital or the extent to which individuals in a neighborhood trust and help others. This instrument has been used in a number of studies to evaluate social capital in racially diverse samples and had good internal consistency in the current sample (Cronbach's $\alpha = .78$).

Knowledge and experiences related to prostate cancer were measured in terms of how much men had heard or read about screening for prostate cancer (1 = *almost nothing*, 2 = *a little bit*, 3 = *a fair amount*, 4 = *a lot*) and if a health care provider had ever talked with them about having prostate cancer screening (yes or no) using items from previous research (Hughes et al., 1997). Men were also asked at what age men should start talking to their health care provider about having their PSA checked (1 = *0-29*, 2 = *30-39*, 3 = *age 40*, 4 = *older than 40*, 5 = *when a doctor/health care provider says to*, no age given, 6 = *do not know*). Responses to each item were categorized as having correct (older than 40) or incorrect knowledge (0-29, 30-39, age 40, no age, or do not know) based on the 2008 American Cancer Society guidelines for prostate cancer screening. The knowledge and experience items were adapted from the Health Interview National Trends Survey (HINTS; NCI, 2003, 2005).

The outcome variable was utilization of PSA testing. Specifically, men were asked if they had ever had a PSA test (yes or no) and those who responded "yes" were asked to provide the month and year of their last screening test. Two variables were created to measure utilization of PSA testing. The first variable measured if men had ever had PSA testing and the second variable captured use of PSA testing during the past year. To determine annual use of PSA testing, the authors calculated the amount of time between the completion date for the baseline telephone interview and the date men reported that their last PSA test was obtained. The denominator for ever having PSA testing was the total sample of men ($n = 132$). Since men who have never had a PSA test also would not have had one during the past year, the denominator for annual PSA only included those who reported prior screening. Similar methods have been used to characterize annual cancer screening in previous reports (Lerman et al., 2000).

Table 1. Sample Characteristics and Bivariate Analysis of PSA Screening ($n = 132$).

Variable	Level	n (%)	Ever PSA		Annual PSA	
			% Yes	χ^2	% Yes	χ^2
Age	Screened, mean (SD)	Mean = 57	57.7 (4.9)	-2.10 _(t)	58.2 (5.2)	-1.03 _(t)
	Not screened, mean (SD)	$SD = 5.0$	55.8 (5.1)		57.1 (4.4)	
Marital status	Married	28 (21%)	75%	1.98	57%	0.00
	Not married	104 (79%)	60%		57%	
Education level	\geq Some college	65 (49%)	74%	5.77*	58%	0.06
	\leq High school	67 (51%)	54%		56%	
Employment status	Employed	36 (27%)	75%	2.72 [†]	41%	4.37*
	Not employed	96 (73%)	59%		65%	
Income level	$>$ \$20,000	71 (55%)	77%	13.9***	56%	0.06
	\leq \$20,000	59 (45%)	46%		59%	
Health insurance	Yes	93 (70%)	67%	1.25	67%	10.86***
	No	39 (30%)	56%		27%	
HCP communication about PSA	Yes	89 (69%)	79%	28.2***	57%	0.21
	No	40 (31%)	30%		50%	
Knowledge about PC screening recommendation	Correct	48 (36%)	54%	2.92 [†]	50%	0.78
	Incorrect	84 (64%)	69%		60%	
Exposure to PC information	A fair amount/a lot	97 (73%)	70%	6.61**	62%	3.11 [†]
	Almost nothing	35 (27%)	46%		38%	
Perceived risk of PC	Higher/much higher risk	37 (28%)	59%	0.29	64%	0.49
	Same/lower risk	93 (72%)	64%		55%	
Control over PC	Moderate amount/a lot	70 (54%)	64%	0.01	51%	1.22
	A little/none at all	60 (46%)	63%		63%	
Thoughts about PC	Moderate amount/a lot	31 (23%)	64%	0.01	50%	0.55
	A little/not at all	101 (77%)	63%		59%	
Future temporal orientation	Screened, mean (SD)	Mean = 3.3	14.2 (1.8)	1.80 [†] _(t)	3.2 (0.61)	1.58 _(t)
	Not screened, mean (SD)	$SD = 0.60$	14.8 (1.7)		3.4 (0.49)	
Collective efficacy	Screened, mean (SD)	Mean = 14.5	3.3 (0.57)	-0.11 _(t)	14.5 (1.6)	-1.41 _(t)
	Not screened, mean (SD)	$SD = 1.8$	3.3 (0.62)		13.9 (2.1)	

Note. PSA = prostate-specific antigen; SD = standard deviation; HCP = health care provider; PC = prostate cancer.

[†] $p < .10$. ** $p < .05$.

Data Analysis

First, descriptive statistics were generated to characterize men in terms of socioeconomic characteristics, health care experiences, beliefs about prostate cancer, and prostate cancer screening. Next, chi-square tests of association and t tests were used to evaluate the bivariate relationship between these variables and utilization of PSA testing. Logistic regression analysis was then used to identify factors having significant independent associations with PSA utilization. Separate models were generated for ever having a PSA test and having a PSA test during the past year. Factors that had a bivariate association of $p < .10$ with each screening variable were included in the regression model for each type of screening.

Results

The characteristics of the current study sample are reported in Table 1. Overall, most men were not married

(79%), 49% had some college education or were college graduates, 73% were not employed, and 55% had an annual household income that was greater than \$20,000. The mean (SD) age was 57 (5.0). In terms of health care variables, 70% had health insurance coverage and 86% had a usual source of medical care. In terms of knowledge and health care experiences related to prostate cancer, most men (64%) did not know the recommended age for men to start discussing prostate cancer screening with their health care provider, but 69% had discussed prostate cancer screening with a health care provider. Seventy-three percent of men reported that they had heard or read a lot or a fair amount about prostate cancer. Only 28% of men reported that they were at high or higher risk of developing prostate cancer compared to other men their age and 54% believed that they had a lot or a moderate amount of control over developing this disease. Twenty-three percent of men reported that they had thought about developing prostate cancer a lot or a moderate amount.

Table 2. Multivariate Logistic Regression Model of PSA Testing.

Variable	Level	OR	95% CI	p Value
Ever use PSA				
Education	≥Some college	3.37	[1.20, 9.43]	.02
	≤High school			
Employed	Employed	2.47	[0.71, 8.60]	.16
	Not employed			
Income	>\$20,000	9.80	[3.15, 30.51]	.0001
	≤\$20,000			
Knowledge about PC screening recommendation	Correct	0.57	[0.20, 1.62]	.29
	Incorrect			
HCP communication about PSA	Yes	14.2	[4.20, 48.10]	.0001
	No			
Exposure to PC Information	A fair amount/a lot	2.69	[0.81, 8.94]	.11
	Almost nothing			
Future temporal orientation	***	0.66	[0.47, 0.93]	.02
Annual PSA				
Employment status	Not employed	1.90	[0.68, 5.32]	.22
	Employed			
Health insurance	Yes	5.10	[1.67, 15.60]	.004
	No			
Exposure to PC Information	A fair amount/a lot	2.51	[0.74, 8.52]	.14
	Almost nothing			

Note. PSA = prostate-specific antigen; OR = odds ratio; CI = confidence interval; PC = prostate cancer; HCP = health care providers.

Overall, 64% of men (out of 132) reported that they had ever had a PSA test. The mean (*SD*) age that men had their first PSA test was 47.7 (*SD* = 7.4). Variables associated significantly with ever having a PSA test included having at least some college education and an annual household income that was greater than \$20,000. In addition, communication with a health care provider about screening and having a fair amount or a lot of exposure to information about screening were also associated significantly with ever having had a PSA test. Men who had incorrect knowledge about prostate cancer screening guidelines (69%) were more likely to have ever had a PSA test compared with those with correct knowledge (54%; $\chi^2 = 2.92$, $p = 0.09$). Men who received PSA screening had lower levels of future temporal orientation compared with those who had not been screened, but this association was not statistically significant in the bivariate analysis.

In terms of annual PSA, 58% (out of 84 men who had a prior PSA test) of men reported that they had undergone screening during the past year. Unemployed men were significantly more likely than employed men to have had a PSA test during the previous year. Men who had health insurance were also more likely than uninsured men to have an annual PSA test. Men who had some college education and those who had greater incomes were significantly more likely to have had a PSA test during the past

year compared to men who had a high school education or less and those with incomes less than \$20,000. Men who had greater exposure to information about prostate cancer screening were also more likely to have had PSA testing during the past year.

The results of the multivariate logistic regression model of ever having PSA testing and annual screening are reported in Table 2. The likelihood of ever having a PSA test was increased significantly with communication with a health care provider (odds ratio [OR] = 14.2; 95% confidence interval [CI] = 4.20, 48.10; $p = .0001$) and having an annual household income that was greater than \$20,000 (OR = 9.80; 95% CI = 3.15, 30.51; $p = .0001$). The odds of ever having a PSA test were also decreased with each unit increase in future temporal orientation (OR = 0.66; 95% CI = 0.47, 0.93; $p = .02$). Only health insurance status had a significant independent association with having annual PSA testing. Men who were insured were about five times more likely to have had PSA testing during the previous year compared with men who were uninsured (OR = 5.10; 95% CI = 1.67, 15.60; $p = .004$).

Discussion

Guidelines for prostate cancer screening changed in 2008 from a recommendation to have annual screening starting at age 50 to having a discussion with a health care

provider about the option of screening and the benefits and risks of PSA testing (Moyer, 2012; Qaseem, Barry, Denberg, Owens, & Shekelle, 2013; Smith, Cokkinides, & Brawley, 2009). PSA screening has a Grade D recommendation from the U.S. Preventive Services Task Force (Moyer, 2012) and for this reason, most professional organizations recommend that men discuss the benefits, limitations, and risks of screening with a health care provider to make an informed decision about screening (American Cancer Society, 2014). Because African American men have a 1 in 5 lifetime risk of developing prostate cancer and African American race continues to be a risk factor for this disease, PSA screening may still be beneficial, especially if men have discussed the benefits and harms of screening with a health care provider. This study examined PSA testing among African American men from two perspectives based on their knowledge about current screening recommendations and communication with health care providers about screening: ever having had a PSA test and PSA testing during the previous year. The authors identified that 64% of men had ever had a PSA and among those men, 57% had been tested during the previous year.

Different factors had significant independent associations with ever having a PSA testing and annual testing. Specifically, education, income, and health care provider communication were associated significantly with ever having been screened. Men who had at least some college education and those with incomes greater than \$20,000 were more likely to have ever had screening compared to those with less education and income. The authors also identified that greater levels of future temporal orientation were associated with a decreased likelihood of ever having had a PSA test. Temporal orientation reflects the extent to which one's cognitive focus is on past, present, or future outcomes (McGrath & Tschan, 2004); future temporal orientation has been positively associated with greater concerns about the potential negative impact of genetic testing for inherited breast cancer risk on family members (Edwards et al., 2008). Being diagnosed with prostate cancer and exposure to potential side effects of surgical or radiation treatment is a potential consequence of PSA testing that could also impact family members. Men with greater levels of future temporal orientation may have been less likely to have PSA screening because of these concerns.

Men who had discussed prostate cancer screening with a health care provider also had a greater likelihood of ever having been tested compared to those who had not discussed this type of testing. This finding is consistent with the effects of provider communication on utilization of other types of cancer screening (Kelly, Dickinson, Degraffinreid, Tatum, & Paskett, 2007); it is noteworthy that 69% of men in the current study had discussed PSA testing with a provider. But health care provider communication was not associated with annual PSA testing. This

may be because once prostate cancer screening is discussed there may not be a need or preference to discuss the benefits and harms of screening during subsequent visits. Additional research is needed to characterize patient-provider communications about prostate cancer among African American men in order to understand how complex issues about prostate cancer and PSA testing are discussed and determine the impact of positively and negatively valenced discussions on screening decisions. It is also important to determine if patients and providers discuss the benefits, limitations, and risks of screening during each physical examination when testing might be offered.

Health insurance status was the only variable that had a significant independent association with annual PSA testing. This is likely because insurance coverage provides the financial resources to pay for the costs of testing and to cover expenses for office visits. Although knowledge about current screening recommendations was not associated with either annual PSA testing or ever having this type of screening, it is notable that many men in the current study were not aware of the new guideline. Only about one third of participants knew that men should start discussing PSA screening with a health care provider when they are older than age 40. At the same time, 73% of men had a lot or a fair amount of exposure to information about prostate cancer. Several studies have examined African American men's knowledge about prostate cancer risk factors and screening (Cormier, Kwan, Reid, & Litwin, 2002; Demark-Wahnefried et al., 1995; Ross et al., 2011), but additional research is needed to characterize men's sources of information about this disease and the quality of information they receive. Being employed provides individuals with greater access to health care; therefore, the authors did not anticipate observing an inverse relationship between employment and annual PSA testing. However, this finding makes sense given concentrated community-based efforts to increase screening among African Americans without insurance especially among men when guidelines recommended the PSA test (Smith et al., 2001). It could be that unemployed men are screened through community-based programs, but additional research is needed to determine the types of settings in which men are screened for prostate cancer.

In considering the results of this study, some limitations should be noted. First, PSA testing was evaluated based on self-report in one community-based sample of 132 African American men who were residents in an urban, metropolitan area. Self-reported test utilization may not accurately reflect actual screening, especially for PSA testing. It is important for future studies to verify self-reported screening information with medical records in larger samples of African American men. Utilization of prostate cancer screening should also be examined among

African American men who live in rural areas. There may be a different pattern of PSA screening in rural areas because these regions have fewer primary care providers and hospitals (Liu, 2007). Likewise, it is also important to determine if African American men are screened in primary care settings or as part of health fairs and other community-based strategies. Since this was a cross-sectional analysis of prostate cancer screening, it is not possible to determine causality with respect to the factors that had significant independent associations with PSA testing. The minimum age of participants was 50, which may have limited the size of the current sample.

Despite these potential limitations, the current study sheds new light on factors that are associated with PSA testing among African American men. The current study is important because African American men continue to be at greater risk for developing prostate cancer; screening may still be beneficial in this population despite data from randomized trials among European men that report conflicting results (Schroder et al., 2009). Overall, 60% of men had ever had PSA testing and of those who had prior screening, slightly more than half had been screened during the previous year. The current findings on annual PSA testing suggest that African American men may not be making an informed decision about screening based on their preferences. None of the knowledge, experiences, or beliefs assessed were associated significantly with annual PSA testing. Furthermore, most men had incorrect knowledge about screening guidelines. This may be because the guidelines were recently changed or because this information is not disseminated effectively using existing channels. Recently, the authors reported that African Americans are likely to complete a community-based risk education program if they had limited exposure to information about risk factors for chronic disease (Halbert, Bellamy, et al., 2014). Community-based programs may be an effective strategy for ensuring that men have correct knowledge about prostate cancer screening guidelines and for preparing African American men to effectively discuss the potential benefits and harms of screening with providers.

Acknowledgments

We would like to thank Benita Weathers, MPH, for project management, Aliya Collier, BA, for data management, Stacey Brown, MSW, for data collection and administration, and Brenda Bryant, BA, for community outreach and relations. We are very appreciative to all the women and men who participated in this research.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by Grant No. R01CA100254 from the National Cancer Institute and Grant No. R24MD001594 from the National Institute on Minority Health and Health Disparities, and CIN 13-410, Veterans Health Administration, Charleston Health Equity and Rural Outreach Innovation Center.

References

- American Cancer Society. (2014). *Guidelines for the early detection of cancer*. Retrieved from <http://www.cancer.org/healthy/findcancerearly/cancerscreeningguidelines/american-cancer-society-guidelines-for-the-early-detection-of-cancer>
- Andriole, G. L., Crawford, E. D., Grubb, R. L., III, Buys, S. S., Chia, D., Church, T. R., . . . Berg, C. D. (2009). Mortality results from a randomized prostate-cancer screening trial. *New England Journal of Medicine*, *360*, 1310-1319. doi:10.1056/NEJMoa0810696
- Brennan, P. F., & Strombom, I. (1998). Improving health care by understanding patient preferences: The role of computer technology. *Journal of the American Medicine and Informatics Association*, *5*, 257-262.
- Briss, P., Rimer, B., Reilley, B., Coates, R. C., Lee, N. C., Mullen, P., . . . Lawrence, R. (2004). Promoting informed decisions about cancer screening in communities and healthcare systems. *American Journal of Preventive Medicine*, *26*, 67-80.
- Centers for Disease Control and Prevention. (2014). *Behavioral Risk Factor Surveillance System survey data*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Retrieved from <http://www.cdc.gov/brfss/>
- Cohen, D. A., Finch, B. K., Bower, A., & Sastry, N. (2006). Collective efficacy and obesity: The potential influence of social factors on health. *Social Science & Medicine*, *62*, 769-778.
- Cooper-Patrick, L., Gallo, J. J., Gonzales, J. J., Vu, H. T., Powe, N. R., Nelson, C., & Ford, D. E. (1999). Race, gender, and partnership in the patient-physician relationship. *Journal of the American Medical Association*, *282*, 583-589.
- Cormier, L., Kwan, L., Reid, K., & Litwin, M. S. (2002). Knowledge and beliefs among brothers and sons of men with prostate cancer. *Urology*, *59*, 895-900.
- Dean, L. T., Subramanian, S. V., Williams, D. R., Armstrong, K., Zubrinsky Charles, C., & Kawachi, I. (2014). Getting Black men to undergo prostate cancer screening: The role of social capital. *American Journal of Men's Health*, *9*, 385-396.
- Demark-Wahnefried, W., Strigo, T., Catoe, K., Conaway, M., Brunetti, M., Rimer, B. K., & Robertson, C. N. (1995). Knowledge, beliefs, and prior screening behavior among Blacks and Whites reporting for prostate cancer screening. *Urology*, *46*, 346-351.
- DeSantis, C., Naishadham, D., & Jemal, A. (2013). Cancer statistics for African Americans, 2013. *CA Cancer Journal for Clinicians*, *63*, 151-166.

- Edwards, T. A., Thompson, H. S., Kwate, N. O., Brown, K., McGovern, M. M., Forman, A., . . . Valdimarsdottir, H. B. (2008). Association between temporal orientation and attitudes about BRCA1/2 testing among women of African descent with family histories of breast cancer. *Patient Education and Counseling, 72*, 276-282. doi:10.1016/j.pec.2008.03.021
- Halbert, C. H., Armstrong, K., Gandy, O. H., Jr., & Shaker, L. (2006). Racial differences in trust in health care providers. *Archives of Internal Medicine, 166*, 896-901.
- Halbert, C. H., Barg, F. K., Guerra, C. E., Shea, J. A., Armstrong, K., Ferguson, M., . . . Troxel, A. B. (2011). Cultural, economic, and psychological predictors of colonoscopy in a national sample. *Journal of General Internal Medicine, 26*, 1311-1316.
- Halbert, C. H., Bellamy, S., Briggs, V., Bowman, M., Delmoor, E., Johnson, J. C., . . . Weathers, B. (2014). Intervention completion rates among African Americans in a randomized effectiveness trial for diet and physical activity changes. *Cancer Epidemiology, Biomarkers, and Prevention, 23*, 1306-1313.
- Halbert, C. H., Briggs, V., Bowman, M., Bryant, B., Bryant, D. C., Delmoor, E., . . . Weathers, B. (2014). Acceptance of a community-based navigator program for cancer control among urban African Americans. *Health Education Research, 29*, 97-108.
- Halbert, C. H., Kumanyika, S., Bowman, M., Bellamy, S. L., Briggs, V., Brown, S., . . . Weathers, B. (2010). Participation rates and representativeness of African Americans recruited to a health promotion program. *Health Education Research, 25*, 6-13.
- Halbert, C. H., Weathers, B., Delmoor, E., Mahler, B., Coyne, J., Thompson, H. S., . . . Lee, D. (2009). Racial differences in medical mistrust among men diagnosed with prostate cancer. *Cancer, 115*, 2553-2561.
- Hughes, C., Gomez-Caminero, A., Benkendorf, J., Kerner, J., Isaacs, C., Barter, J., & Lerman, C. (1997). Ethnic differences in knowledge and attitudes about BRCA1 testing in women at increased risk. *Patient Education and Counseling, 32*, 51-62.
- Jones, R. A., Steeves, R., & Williams, I. (2010). Family and friend interactions among African-American men deciding whether or not to have a prostate cancer screening. *Urologic Nursing, 30*, 189-193.
- Kelly, K. M., Dickinson, S. L., Degraffinreid, C. R., Tatum, C. M., & Paskett, E. D. (2007). Colorectal cancer screening in 3 racial groups. *American Journal of Health Behavior, 31*, 502-513.
- Kilbridge, K. L., Fraser, G., Krahn, M., Nelson, E. M., Conaway, M., Bashore, R., . . . Connors, A. F. (2009). Lack of comprehension of common prostate cancer terms in an underserved population. *Journal of Clinical Oncology, 27*, 2015-2021.
- Lepore, S. J., Wolf, R. L., Basch, C. E., Godfrey, M., McGinty, E., Shmukler, C., . . . Weinrich, S. (2012). Informed decision making about prostate cancer testing in predominantly immigrant black men: A randomized controlled trial. *Annals of Behavioral Medicine, 44*, 320-330.
- Lerman, C., Hughes, C., Croyle, R. T., Main, D., Durham, C., Snyder, C., . . . Lynch, H. T. (2000). Prophylactic surgery decisions and surveillance practices one year following BRCA1/2 testing. *Preventive Medicine, 31*, 75-80.
- Liu, J. J. (2007). Health professional shortage and health status and health care access. *Journal of Health Care for the Poor and Underserved, 18*, 590-598.
- Lukwago, S. N., Kreuter, M. W., Bucholtz, D. C., Holt, C. L., & Clark, E. M. (2001). Development and validation of brief scales to measure collectivism, religiosity, racial pride, and time orientation in urban African American women. *Family and Community Health, 24*(3), 63-71.
- McGrath, J. E., & Tschann, F. (2004). *Temporal matters in social psychology: Examining the role of time in the lives of groups and individuals*. Washington, DC: American Psychological Association.
- Moyer, V. A. (2012). Screening for prostate cancer: U.S. Preventive Services Task Force recommendation statement. *Annals of Internal Medicine, 157*, 120-134.
- National Cancer Institute. (2003). *Health information national trends survey 2003 (HINTS 2003): Main study interview instrument—English*. Retrieved from http://hints.cancer.gov/docs/Instruments/HINTS_2003_final_report.pdf
- National Cancer Institute. (2005). *Patient-provider communication*. Retrieved from http://hints.cancer.gov/question-details.aspx?PK_Cycle=2&qid=793
- National Cancer Institute. (2011). *Prostate cancer*. Retrieved from http://hints.cancer.gov/question-details.aspx?PK_Cycle=4&qid=1110
- National Cancer Institute. (2014). *Health information national trends survey*. Retrieved from <http://hints.cancer.gov/>
- Prasad, S. M., Drazer, M. W., Huo, D., Hu, J. C., & Eggener, S. E. (2012). 2008 US Preventive Services Task Force recommendations and prostate cancer screening rates. *Journal of the American Medical Association, 307*, 1692-1694.
- Qaseem, A., Barry, M. J., Denberg, T. D., Owens, D. K., & Shekelle, P. (2013). Screening for prostate cancer: A guidance statement from the Clinical Guidelines Committee of the American College of Physicians. *Annals of Internal Medicine, 158*, 761-769.
- Ries, L. A. G., Melbert, D., Krapcho, M., Mariotto, A., Miller, B. A., Feuer, E. J., . . . Edwards, B. K. (2007). *SEER cancer statistics review, 1975-2004*. Bethesda, MD: National Cancer Institute.
- Ross, L., Dark, T., Orom, H., Underwood, W., III, Anderson-Lewis, C., Johnson, J., & Erwin, D. O. (2011). Patterns of information behavior and prostate cancer knowledge among African-American men. *Journal of Cancer Education, 26*, 708-716.
- Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277*, 918-924.
- Schroder, F. H., Hugosson, J., Roobol, M. J., Tammela, T. L., Ciatto, S., Nelen, V., . . . Auvinen, A. (2009). Screening and prostate-cancer mortality in a randomized European study. *New England Journal of Medicine, 360*, 1320-1328. doi:10.1056/NEJMoa0810084

- Siegel, R., Ma, J., Zou, Z., & Jemal, A. (2014). Cancer statistics, 2014. *CA Cancer Journal for Clinicians*, *64*, 9-29.
- Smith, R. A., Cokkinides, V., & Brawley, O. W. (2009). Cancer screening in the United States, 2009: A review of current American Cancer Society guidelines and issues in cancer screening. *CA Cancer Journal for Clinicians*, *59*, 27-41.
- Smith, R. A., von Eschenbach, A. C., Wender, R., Levin, B., Byers, T., Rothenberger, D., . . . Eyre, H. (2001). American Cancer Society guidelines for the early detection of cancer: Update of early detection guidelines for prostate, colorectal, and endometrial cancer. *CA Cancer Journal for Clinicians*, *51*, 38-75.
- Taylor, K. L., Williams, R. M., Davis, K., Luta, G., Penek, S., Barry, S., . . . Miller, E. (2013). Decision making in prostate cancer screening using decision aids vs usual care: A randomized clinical trial. *JAMA Internal Medicine*, *173*, 1704-1712.
- Wang, D. S., Jani, A. B., Tai, C. G., Sesay, M., Lee, D. K., Goodman, M., . . . Master, V. A. (2013). Severe lack of comprehension of common prostate health terms among low-income inner-city men. *Cancer*, *119*, 3204-3211. doi:10.1002/cncr.28186
- Zikmund-Fisher, B. J., Couper, M. P., & Fagerlin, A. (2012). Disparities in patient reports of communications to inform decision making in the DECISIONS survey. *Patient Education and Counseling*, *87*, 198-205.