



Discordance in perceived risk and epidemiological outcomes of prostate cancer among African American men

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ABSTRACT

As guidelines for prostate cancer screening have changed from an annual screening recommendation starting at age 50 to discussing the benefits and harms of screening with health care providers, it is necessary to examine other types of factors that are important to prostate cancer screening decisions among African American men. Perceived risk of developing cancer has been shown to predict cancer control behaviors and is lower among African Americans. We characterized perceived risk of developing prostate cancer among African American men from November 2009 to 2011 and evaluated the relationship between prostate cancer risk perceptions and sociodemographic characteristics, health care experiences, and knowledge and exposure to health information about cancer. Chi square tests and logistic regression were employed to determine independent associations. Overall, men did not believe they were at increased risk of developing prostate cancer; they believed their risk was equivalent to or lower than men the same age. Perceived risk of prostate cancer was associated with income (OR = 0.59, 95% CI = 0.26, 1.34, $p = 0.03$), hypertension (OR = 2.68, 95% CI = 1.17, 6.16, $p = 0.02$), and beliefs about the association between race and cancer risk (OR = 2.54, 95% CI = 1.24, 5.20, $p = 0.01$). Clinic and community-based approaches to improve prostate cancer risk comprehension among African American men are needed to reduce the discordance between perceived risk and epidemiological data on prostate cancer risk factors. Risk education interventions that are developed for African American men may need to integrate information about susceptibility for multiple diseases as well as address strategies for risk reduction and prevention, and chronic disease management.

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1. Introduction

Prostate cancer continues to disproportionately affect African American men in terms of morbidity and mortality. Several studies have examined knowledge, attitudes, and beliefs about prostate cancer screening (Steele et al., 2000; Forrester-Anderson, 2005; Blocker et al., 2006) and recent research has evaluated the effects of interventions that focus on enhancing informed decision-making about screening among African American men (Volk et al., 2007; Costanza et al., 2011).

This work has been important, but as guidelines for prostate cancer screening have changed from a recommendation to have annual screening to discussing the benefits and harms of screening with health care providers (Moyer, 2012), it is necessary to examine other types of factors that are important to prostate cancer screening decisions among African American men.

Perceived risk of developing cancer reflects the extent to which individuals believe that they are likely to develop disease (Gellman and Turner, 2013). Prior studies have shown that African American men may not believe that they are at increased risk for developing prostate cancer (Shavers et al., 2009), despite epidemiological data showing that they have a two to three times increased risk of developing and

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dying from this disease (Gann, 2002; Bloom et al., 2006). Similar findings have been reported from qualitative studies, but this research also had a focus on early detection (Clarke-Tasker and Wade, 2001) and was conducted several years ago. Furthermore, since African American men are likely to die from other chronic conditions (e.g., diabetes and hypertension), the presence of these conditions may be important to what they believe about their risk of developing prostate cancer.

Recent work has shown that men who have diabetes are more likely to be screened for prostate cancer (Sanderson et al., 2013). African American men also have the highest rates of hypertension (Flack et al., 2015); hypertension is the most common comorbid disease among cancer patients (Piccirillo et al., 2004). Understanding prostate cancer risk perceptions within the context of other chronic conditions is important among African American men to identify factors that may impede or promote informed decision making about screening among these men.

The purpose of this study was to characterize perceived risk of developing prostate cancer among African American men. This is an important area of investigation because inaccurate risk perception may reduce the likelihood of initiating discussions about screening with providers or may reduce comprehension of the information that is provided about the benefits and harms of screening. Previous research shows that sociodemographic characteristics, health care experiences, and knowledge and exposure to health information about cancer is associated with perceived risk of developing cancer among African Americans (Katapodi et al., 2004; Halbert et al., 2014; Rice et al., 2015). Based upon this association, we evaluated the independent associations between these factors and prostate cancer risk perceptions among African American men and determined if beliefs about susceptibility differed based on men's personal history with a chronic condition.

2. Methods

2.1. Sample characteristics

This analysis is based on a larger sample that was involved in a health promotion intervention (Halbert et al., 2014). This study was conducted as part of an academic-community partnership that was established to address the health priorities and concerns of African American residents in an urban city (Halbert et al., 2014; Weathers et al., 2011). Eligible participants were individuals who self-identified as being African American, were ages 18–75, and were current residents in the Philadelphia, PA metropolitan area. Men below the age of 45 were included because African American men have a higher risk of prostate cancer (Merrill and Brawley, 1997) and prevalence of comorbid diseases (Go et al., 2014) below this age. In addition, research shows that undiagnosed prostate cancer is prevalent among men outside of the traditional age range for screening (e.g., 30 and 80 or above) (Jahn et al., 2015). Thirty-four percent of men in our study were under age 45. Residency was determined by self-report using zip code. Health status was obtained through self-report data. Individuals with a personal history of cancer and those who had ever had a heart attack, stroke, or heart disease were not eligible for participation. Women represented 57% and men made up 43% of study participants; a total of 198 men were included in this report. This study was approved by the Institutional Review Boards at the University of Pennsylvania and the Medical University of South Carolina.

2.2. Procedures

Participants were recruited into the study through self-referrals from community-based resources (Halbert et al., 2010; Halbert et al., 2014). Following self-referral, a screening interview was completed to determine eligibility; those who were eligible and provided verbal consent for enrollment completed a baseline telephone interview. The baseline telephone interview was a 30-minute structured survey. This interview was conducted by research assistants at the University of

Pennsylvania. At the end of the baseline telephone interview, participants were invited to attend a risk education intervention that focused on motivating changes in diet and physical activity. Those who accepted this invitation were randomized to one of two study arms: integrated risk education (INT) or disease-specific risk education (DSE). Detailed information about the interventions has been reported previously (Halbert et al., 2012). This report focuses on perceived risk reported at baseline prior to the intervention delivery because our primary outcomes were changes in dietary behaviors and physical activity.

2.3. Measures

2.3.1. Sociodemographic characteristics

Age, marital status, education (1 = 8 years or less, 2 = some high school, 3 = high school graduate, 4 = some college, and 5 = college graduate or beyond), employment status, and income were obtained by self-report using items from our previous research (Halbert et al., 2012). We re-coded these items into dichotomous variables based on the distribution of responses.

2.3.2. Family and medical history

Participants were asked if they had any first-degree relatives who had been diagnosed with cancer (yes or no). We also asked participants if they had ever been diagnosed with diabetes or hypertension (yes or no).

2.3.3. Health care resources

Participants were asked if they had health insurance coverage (yes or no) and where they usually received medical care (doctor's office versus other types of places).

2.3.4. Exposure to cancer information

We adapted an item from our previous research to examine exposure to information about cancer (Hughes et al., 1997). Specifically, participants were asked to indicate how much they had heard or read about cancer in African Americans (1 = almost nothing, 2 = a little bit, 3 = a fair amount, and 4 = a lot). Responses to this item were re-coded as almost nothing/a little bit versus a fair amount/a lot. We also asked men if they received health information from community resources (yes or no). Lastly, participants were also asked to indicate how much being a particular race or ethnicity and having a family history of cancer increases a person's chances of getting cancer (1 = a lot, 2 = a little, 3 = not at all, or do not know/no opinion). Since family history and African American race are established risk factors for prostate cancer and African American men have a 1 in 6 chance of developing this disease (American Cancer Society [ACS], 2016), we re-coded responses to these questions as a lot versus a little/not at all/do not know or no opinion.

2.3.5. Prostate cancer risk perception

We used one item to evaluate perceived risk of developing prostate cancer. Specifically, men were asked what their chances of getting prostate cancer were compared to other men their age (1 = much lower, 2 = lower, 3 = same, 4 = higher, and 5 = much higher). This item has been validated in prior reports (Lerman et al., 1995) and has been used to measure breast cancer risk perceptions in African American women (Hughes et al., 1996). As in previous research (Hughes et al., 1996), we re-coded prostate cancer risk perceptions into a dichotomous variable (much/little lower/same risk versus much/little higher risk) to identify men who had heightened perceived risk of developing this disease.

2.4. Data analysis

First, we generated descriptive statistics to characterize the study sample in terms of sociodemographics, medical history, health care

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