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Perceptions of Prostate Cancer Fatalism and Screening Behavior Between United States-Born and Caribbean-Born Black Males

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Abstract

Cancer fatalism is believed to be a major barrier for cancer screening in Black males. Therefore, the purpose of this study was to compare perceptions of prostate cancer (CaP) fatalism and predictors of CaP screening with Prostate Specific Antigen (PSA) testing between U.S.-born and Caribbean-born Black males. The Powe Fatalism Inventory and the Personal Integrative Model of CaP Disparity Survey were used to collect the following data from males in South Florida. Multivariate logistic regression models were constructed to examine the statistically significant predictors of CaP screening. A total of 211 U.S.-born and Caribbean-born Black males between ages 39–75 were recruited. Nativity was not a significant predictor of CaP screening with PSA

testing within the last year (Odds ratio [OR] = 0.80, 95 % confidence interval [CI] = 0.26, 2.48, $p = 0.70$). Overall, higher levels of CaP fatalism were not a significant predictor of CaP screening with PSA testing within the last year (OR = 1.37, 95 % CI = 0.48, 3.91, $p = 0.56$). The study results suggest that nativity did not influence CaP screening with PSA testing. However, further studies are needed to evaluate the association between CaP screening behavior and levels of CaP fatalism.

Keywords

CaP; Nativity; Screening; Perception; Fatalism

Background

In 2012, an estimated 241,740 new cases of prostate cancer (CaP) were diagnosed among all males in the United States [1]. When compared to Caucasian males, Black males were more likely to be diagnosed with extraprostatic disease or to have tumors metastasized to distant lymph nodes [2]. The United States death rate for CaP was 2.4 times higher in Black males than in Caucasian males [3].

The causes of the racial differentials in CaP incidence and mortality between Black and Caucasian males are varied. Researchers have claimed that these differences reflect social and economic disparities rather than biological differences associated with race [3]. Factors contributing to the social and economic disparities include: inequalities in employment, wealth, income, education, housing, overall standards of living, barriers to high-quality health care, and racial discrimination [3]. Further, the recent controversy in CaP screening recommendation may continue to impact the incidence and mortality of CaP for Black males [4-9] although, the results of the two largest randomized controlled trials of CaP screening found conflicting results in the reduction of prostate cancer mortality [9-12].

Cancer Fatalism and Prostate Cancer Prevention Behavior

In exploring perceptions of CaP screening among Blacks, Allen and colleagues discerned that Black males perceive cancer as a death sentence and hospitals as places where you go to die [13]. This perception can be described as cancer fatalism. Cancer fatalism is the belief that death is inevitable following a diagnosis of cancer, and is a major barrier to cancer detection and control [14].

In philosophical analysis of cancer fatalism among Blacks, it was proposed that cancer fatalism results from complex psychological cycles characterized by perceptions of: hopelessness, worthlessness, powerless, and social despair [14]. Further, many social economic factors can also impact the development of cancer fatalism, including: poverty, lack of knowledge about the disease process, fear of hospitals, distrust towards health care providers, and a fear of being used as a guinea pig [14]. Memories of incidents including the Tuskegee Syphilis Experiment undoubtedly add to the sense of fear and mistrust of traditional health care that persists among many Black males [15]. However, poverty, racism, discrimination, unemployment, and inadequate access to healthcare maybe factors that support the fundamental assumptions underlying fatalistic attitudes towards cancer [14].

Further, the universal experience of *angst* and *nihilism* are two other distinct philosophical factors that might actually converge to shape the presence of fatalism among Black males [16]. *Angst* is defined as profound existential feeling of fear, dread, despair, and hopelessness about the challenges of life in the present and thoughts about the future [16]. Whereas, *nihilism* is defined as the experience of coping with feelings associated with meaninglessness, hopelessness, and despair [16]. However, while neither of these factors can be viewed as causing fatalism, they are essential to understanding the presence of fatalism among some Black males [16].

In a cross-sectional quantitative survey study of 2,864 multiethnic Black male participants in Florida, Odedina and colleagues [17] found that CaP fatalism was different by ethnic groups. United States born Black males reported less cancer fatalism compared to Caribbean-born Black males. However, the authors did not report mean differences in cancer fatalism by nativity. Therefore, with the limited studies on CaP fatalism, more research is needed to clarify the impact of cultural beliefs such as cancer fatalism on prostate cancer prevention and early detection [17].

Prostate Cancer Burden and with-Group Difference Among Black Males

Within-group differences among Black males as it relates to CaP burden and risk factors are a research area that has been over-looked and under-studied [18]. Further, although the United States Census routinely refers to all Black males as “African–American” males; however, Black males are increasingly becoming a heterogeneous group that includes men who are either English-speaking Caribbean or African men from the continent of Africa [19]. Further, disparities in the incidence and outcomes of CaP are characteristic of the global pattern of CaP, with men of African descent suffering disproportionately from the disease [20]. Thus, as the percentage of Caribbean-born and African-born Black males in the United States increases, particularly in metropolitan centers, the factors associated with the risk of these group developing CaP must be clearly identified to better understand and address CaP disparities among Black males [19]. In addition, U.S.-born and Caribbean-born Black males have a higher risk of developing, and are more likely to die from CaP; however, it is not clear whether this knowledge is incorporated into assessments of the benefits and harms of screening and treatment as perceived by the target population [21].

Gonzalez and colleagues [22] investigated racial and ethnic barriers to PSA screening in White, U.S.-born Black, and Caribbean-born Black males, paying special attention to the initiation of PSA screening and continuity with annual testing. White males had undergone the greatest number of PSA tests, had the lowest frequency of never having undergone a PSA test, and the highest frequency of annual testing [22]. In comparison, Black males had the highest frequency of never having been tested [22]. The authors assert that while Caribbean-born Black males are not less likely than White males to undergo initial PSA screening. However, they are much less likely to continue with annual PSA testing.

Few studies have examined the differences between U.S.-born and Caribbean-born Black males relative to CaP. In addition, limited studies have explored the association between CaP fatalism and screening behavior. The purpose of this study was to compare perceptions of CaP fatalism and predictors of CaP screening with Prostate Specific Antigen (PSA)

testing between U.S.-born and Caribbean-born African-American males. The research questions for this study were as follow: (1) What are the associations between nativity, perceptions of CaP fatalism, and CaP screening with PSA testing within the last year? (2) What are the strongest predictors of PSA testing within the last year and do these predictors vary by perceptions of CaP fatalism and nativity?

Theoretical Framework

The Powe Fatalism Model (PFM) provided the conceptual quantitative framework for this study. The PFM was originally developed to explain factors associated with individual's decision to participate in fecal occult blood testing for colorectal cancer [23]. The PFM propose that an individual will participate in cancer screening depending on the likelihood of intervening variables, such as knowledge of cancer, perceptions of cancer fatalism, and general demographic influences such as race, age, gender, education, and income [23].

The original PFM was modified for this study by retaining the general influences, intervening variables, and outcome subscales. However, the general influences subscale was modified to include personal factors (e.g. nativity, age, general health, income, education, marital status, and health care access) and acculturation (e.g. the process of learning that occurs when individuals from a different cultural background are exposed to a prolonged, continuous, first-hand contact with a new culture) [24].

Methods

Data Collection

Primary data was collected from senior centers, community/faith organizations, and health fairs between January 2012 to March 2012, in Palm Beach, Broward, and Miami-Dade Counties—South Florida. The Institutional Review Board at Howard University approved the research protocol. Details of the procedures, risk, and benefit of the study were presented to each participant at the time consent was obtained. The study questionnaire, institutional review board approval, and recruitment flyer/letter were mailed to directors of senior centers, pastors, community/faith sponsors of health fairs, barbershops, and other predominantly African-American and Caribbean organizations in South Florida, to recruit potential participants, and provide onsite space for data collection.

Caribbean-born and U.S.-born Black males who self-identified as English speaking between the ages of 39–75 years old were included in this study. The age inclusion requirement was based The American Urological Association prostate-specific antigen screening 2009 best practice, and The American Cancer Society 2009 CaP screening recommendation. However, males less than 40 years old were included in this study, to document demographic characteristics of pre-prostate cancer screening males. Participants were selected based on the study inclusion/exclusion criteria, and provided a \$15 gift card for completing the study questionnaire.

Measures

The Personal Integrative Model of Prostate Cancer Disparity (PIPCaD) Survey [18] and The Powe Fatalism Inventory [23] were adapted and modified for this study. The development of the PIPCaD Survey has been described previously [18]. Modifying the original PIPCaD Survey, was conducted by retaining the CaP early detection behavior, attitude towards CaP detection and prevention, knowledge of CaP, and acculturation subscales, and adding a perception of CaP treatment subscale, as defined as, the degree to which respondents perceived some treatments for CaP can make it harder for men to control their urine, and can cause problems with a man's ability to have sex [25]. This variable was assessed with two items, using a 5-point Likert-type scale anchored by (1) strongly disagree and (5) strongly agree.

The Powe Fatalism Inventory is a 15-item questionnaire based on the Powe Fatalism Model. The questions were designed to assess the following four attributes of fatalism (1) inevitability of death, (2) pessimism, (3) fear, and (4) predetermination [23]. The Powe Fatalism Inventory was modified from a binary scale (yes or no) to a 5-point Likert-type scale anchored by (1) strongly disagree to (5) strongly agree.

Analyses

Demographic characteristics were summarized in proportion and means. The reliability of the modified Powe Fatalism Inventory, and the modified PIPCaD Survey were evaluated by calculating Cronbach's Alpha coefficients. CaP knowledge, acculturation, CaP fatalism, spirituality, and perceptions of CaP treatments scores were summed from the modified Powe Fatalism Inventory, and the modified PIPCaD Survey for each participant.

Independent sample t tests were conducted to compare CaP knowledge scores, perception of CaP treatment and fatalism scores of U.S.-born and Caribbean-born African-American males. Multivariate logistic regression models were constructed to examine statistically significant predictors of CaP screening with PSA testing within the last year between U.S.-born and Caribbean-born Black males after adjusting for confounding variables. Data analyses were conducted using statistical package SPSS 19 (International Business Machine Corp., Armonk, New York).

Results

A total of 211 males participated in the study (Table 1). Of the 211 participants, 117 (56 %) were U.S.-born Black males and 94 (44 %) were Caribbean-born Black males. A total of 97 (84 %) U.S.-born Black males compared to 74 (81 %) Caribbean-born Black males reported having public or private health insurance. Fifty (43 %) U.S.-born Black males compared to 34 (37 %) Caribbean-born Black males were recommended CaP screening with PSA testing within the last year.

Perceptions of CaP Fatalism

CaP fatalism scores are reported in Table 2. Caribbean-born Black males reported higher CaP fatalism scores compared to U.S.-born Black males, 35.78 (SD = 10.43) versus 32.30

(SD = 11.10), respectively, $p < 0.02$. However, U.S.-born Black males reported higher spirituality, perception of CaP treatment, and knowledge scores (e.g. 13.38 (SD = 2.65); 7.37 (SD = 1.86); and 5.51 (SD = 1.86), respectively, $p > 0.05$), compared to Caribbean-born Black males (e.g. 13.06 (SD = 2.63); 7.11 (SD = 1.50); 5.27 (SD = 2.01), respectively, $p > 0.05$).

Reliability Estimates of the Modified Powe Fatalism Inventory and the Modified PIPCaD Survey

The reliability estimates of the modified Powe Fatalism Inventory and the modified PIPCaD Survey are reported in Table 3. The Cronbach's alpha for the CaP fatalism scale was 0.91. The reliability estimates for the acculturation scale was 0.49, the spirituality scale was 0.87, and the perception of CaP treatment scale was 0.73.

Adjusted Predictors of CaP Screening with PSA Testing

The results of the multivariate logistic regression are presented in Table 4. Age, education, spirituality, access to public or private health insurance, and doctors' recommendation of CaP screening with PSA testing were statistical significant predictors of CaP screening with PSA within the last year. Of significant predictors, U.S.-born and Caribbean-born Black males with low spirituality scores were less likely to screen for CaP with PSA testing within the last year (OR = 0.17, 95 % CI = 0.06, 0.54, $p < 0.05$) compared to males with high spirituality scores. Further, compared to U.S.-born and Caribbean-born Black males without a doctors' recommendation of CaP screening with PSA testing, males with a doctors' recommendation were more likely to screen for CaP with PSA testing within the last year (OR = 14.76, 95 % CI = 4.59, 47.41, $p < 0.05$).

However, nativity, acculturation, CaP fatalism, and CaP knowledge were not statistically significant in predicting of CaP screening with PSA testing within the last year (OR = 0.80, 95 % CI = 0.26, 2.48, $p = 0.70$; OR = 1.27, 95 % CI = 0.46, 3.49; OR = 1.37, 95 % CI = 0.48, 3.91; OR = 0.59, 95 % CI = 0.20, 1.79, $p > 0.05$ respectively).

Discussion

This study has several important findings. First, the modified Powe Fatalism Inventory and the Personal Integrative Model of Prostate Cancer Disparity Survey was found to be reliable in measuring study variables. The internal consistency of modified Powe Fatalism Inventory, and the modified PIPCaD survey was similar to other large primary data collection studies. The Cronbach's alpha for the CaP fatalism scale in the current study was 0.91 (Table 3). Powe [23] found in analyses of a sample of 192 (61 % Blacks and 78 % females) participants Cronbach's alpha ranging from 0.84 to 0.89, for the Powe Fatalism Inventory. In another primary data collection study, Odedina and colleagues [18] evaluated of the PIPCaD survey in a sample of 3,400 males. The study was conducted to investigate CaP differences among (1) U.S.-born, (2) African-born, and (3) Caribbean-born Black males concerning CaP risk reduction and early detection behaviors. The authors reported Cronbach's alpha for the PIPCaD survey variables ranging from 0.71 to 0.94 [18].

Second, the current study did not find a statistically significant difference in CaP knowledge and nativity (5.52 vs. 5.27 for U.S.-born and Caribbean-born Black males, $t = 0.88$; $df = 206$; $p = 0.38$). Magnus [19] also reported no significant differences in CaP knowledge levels by nativity. The mean CaP knowledge for U.S.-born Black, English-speaking Caribbean, Haitian-American, and African men was 71.2, 69.9, 66.4, and 63.0, respectively [19]. However, Magnus noted two main study limitations. First, the convenience sample of the study may not be representative of the population of Black males in the United States, and the results may not be generalized to all Black males. Second, only the face validity of the questionnaire was evaluated and more extensive reliability and validity assessments of the instrument were not undertaken. The current study improved on the research methods and design used by Magnus [19] by incorporating the Powe Fatalism Model as the conceptual framework for the development of the survey instrument, and an extensive reliability and validity assessments of the current study instrument was conducted.

Third, in the current study, U.S.-born and Caribbean-born Black males had a statistically difference in CaP fatalism scores. This was similar to the finding reported by Odedina and colleagues [17] who found U.S.-born Black males reported less cancer fatalism compared to Caribbean-born Black males. In another study, Powe [23] reported that there was a prevailing fatalistic attitude among the sample as indicated by the fatalism scores. In particular, the mean fatalism score for the sample was 10.0 out of a possible maximum score of 15 indicating a high degree of fatalism. Blacks had a mean fatalism score above the mean ($x = 10.9$); whereas, in contrast, White participants had a mean fatalism score below the sample mean ($x = 8.8$) [23]. Further, this difference was significantly significant $t(105.1) = 4.3$, $p = 0.001$ [23]. However, this study compared Black to White participants, and the study had a very small sample of Black males.

Fourth, in terms of CaP screening with PSA testing within the last year; age, education, spirituality, access to public or private health insurance were statistical significant predictors but CaP fatalism and knowledge of CaP were not. Further, doctors' recommendation of CaP screening with PSA testing within the last year was the strongest predictor of CaP screening with PSA. Gonzalez and colleagues [22] in a study of U.S.-born Black and Caribbean-born Black males, also found males without physician involvement, compared to males with physician involvement were less likely to screen for CaP annually. However, the authors noted that because their data was correlational, the issue of causality remains unclear.

Study Limitations

Several study limitations may have affected the interpretation of the study results. First, a cross-sectional research design was used to investigate the main outcome. Therefore, the research design may not reflect causation. Second, a non-probability sample was utilized in this study and therefore may not be representative of U.S.-born and Caribbean-born Black males in South Florida. Third, participants self identified as U.S.-born and Caribbean-born Black males. It is possible that some males who were born in the United State to Caribbean parents may have been included in the sample as U.S.-born without taking into account the interaction of the parent's nativity. Fourth, because data on screening was assessed retrospectively, it possible that error in recall may have impacted reporting of PSA screening

within the last year. Finally, a total of 227 participants completed the quantitative survey instrument; one male who self-identified as African-born was excluded from data analyses and 15 males were also excluded from data analyses because of missing responses.

New Contribution to the Literature

This study provides important implications for future research in the area of CaP fatalism, nativity, and providers' recommendation of CaP screening. Given, the recent controversy in CaP screening recommendation and the inconsistency in recommendations for CaP screening, males were more likely to screen for CaP if they received screening recommendations. Therefore, balancing the need to reduce over-treatment, over-diagnosis, and mortality with the consistency of CaP screening recommendations will continue to be critical.

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Table 1

Demographic characteristics of the participants (n = 211)

Demographics	U.S.-born Black males n = 117 frequency (%)	Caribbean-born Black males n = 94 frequency (%)
Education		
Less than high school	6 (5.3)	18 (19.4)
High school degree	23 (24.8)	22 (23.7)
Some college training	27 (23.9)	21 (22.6)
College degree	29 (25.7)	25 (26.9)
Postgraduate	23 (20.4)	7 (7.5)
Income		
\$0–\$19,999	16 (14.3)	18 (21.2)
\$20,000–\$39,999	27 (24.1)	21 (24.7)
\$40,000–\$59,999	18 (16.1)	22 (25.9)
\$60,000–\$79,999	14 (12.5)	8 (9.4)
\$80,000–\$99,999	12 (10.7)	11 (12.9)
\$100,000 or above	25 (22.3)	5 (5.9)
Age		
Less than 40 years	21 (18.6)	16 (17.2)
40–49 years	17 (15.0)	28 (30.1)
50–59 years	28 (24.8)	24 (25.8)
60–69 years	29 (25.7)	22 (23.7)
70–79 years	18 (15.9)	3 (3.2)
General health		
Excellent	17 (15.2)	14 (15.2)
Very good	42 (37.5)	31 (33.7)
Good	33 (29.5)	25 (27.2)
Fair	20 (17.9)	22 (23.9)
Marital status		
Single	26 (22.8)	19 (20.7)
Married	74 (64.9)	63 (68.5)
Divorced	9 (7.9)	6 (6.5)
Widowed	5 (4.4)	4 (4.3)
Employment status		
Full-time	59 (52.7)	71 (78.0)
Part-time	8 (7.1)	4 (4.4)
Retired	39 (34.8)	11 (12.1)
Unemployed	6 (5.4)	5 (5.5)
Public or private health insurance		
No	19 (16.4)	17 (18.7)
Yes	97 (83.6)	74 (81.3)

Demographics	U.S.-born Black males n = 117 frequency (%)	Caribbean-born Black males n = 94 frequency (%)
Prostate cancer fatalism		
Low	68 (65.4)	36 (34.6)
High	18 (47.4)	20 (52.6)
Prostate cancer knowledge		
Low	53 (56.4)	41 (43.6)
High	61 (54.5)	51 (45.5)
Spirituality		
Low	47 (48.5)	50 (51.5)
High	68 (54.5)	44 (39.3)
Acculturation		
Low	64 (57.1)	48 (42.9)
High	51 (54.3)	43 (45.7)
Regular physician		
No	18 (15.4)	14 (15.2)
Yes	99 (84.6)	78 (84.8)
Doctor recommended prostate cancer screening with prostate specific antigen (PSA) within the last year		
No	66 (56.9)	59 (63.4)
Yes	50 (43.1)	34 (36.6)
Where were participants given the survey?		
Fort Lauderdale barbershops	6 (5.1)	16 (17.0)
Fort Lauderdale churches	5 (4.3)	37 (39.4)
Miami churches	69 (59.0)	24 (20.5)
Palm Beach churches	24 (20.5)	0 (0.0)
Prostate cancer events	3 (2.6)	7 (7.4)
Community or social events	9 (7.7)	24 (25.5)
Other	1 (0.9)	3 (3.2)

Table 2

Prostate cancer fatalism, acculturation, spirituality, perceptions of prostate cancer treatments, and knowledge scores (n = 211)

Variables	U.S.-born Black males n = 117 mean (SD)	Caribbean-born Black males n = 94 mean (SD)	p-value ^a
Prostate cancer fatalism score	32.30 (11.10)	35.78 (10.43)	0.02*
Acculturation score	14.87 (2.75)	15.20 (2.78)	0.40
Spirituality score	13.38 (2.65)	13.06 (2.63)	0.28
Perception of prostate cancer treatment score	7.37 (1.86)	7.11 (1.50)	0.38
Prostate cancer knowledge score	5.51 (1.86)	5.27 (2.01)	0.38

^aIndependent sample *t* test

* $p < 0.05$

Table 3

Reliability estimates of the modified powe inventory and the modified personal integrative model of prostate cancer disparity survey (n = 211)

Construct	Cronbach's alpha original researchers ^a	Original researchers sample size ^a	Cronbach's alpha (current study)
Prostate cancer fatalism	0.84–0.89	192	0.91
Acculturation	0.71	3,400	0.49
Spirituality	0.91	3,400	0.87
Perception of prostate cancer treatment	0.61	142	0.73

^aReferences [16-18, 23, 24]

Table 4

Adjusted predictors of prostate cancer screening with prostate specific antigen (PSA) test within the last year (n = 211)

Variables	Adjusted odds ratio (95 % CI)
Nativity	
Caribbean-born	0.80 (0.26, 2.48)
U.S.-born	1 (reference)
Age	
Less than 40 years	0.04 (0.004, 0.42) *
40–49 years	1.19 (0.29, 4.93)
50–59 years	1 (reference)
60–69 years	1.87 (0.40, 8.75)
70–79 years	0.20 (0.02, 2.22)
General health	
Excellent	1.33 (0.30, 5.88)
Very good	1 (reference)
Good	1.13 (0.27, 4.71)
Fair	0.26 (0.06, 1.15)
Income	
\$0–\$19,999	0.58 (0.08, 4.29)
\$20,000–\$39,999	1 (reference)
\$40,000–\$59,999	0.29 (0.06, 1.45)
\$60,000–\$79,999	1.52 (0.27, 8.70)
\$80,000–\$99,999	2.05 (0.32, 13.02)
\$100,000 or above	0.73 (0.10, 5.30)
Education	
Less than high school	0.07 (0.007, 0.72) *
High school degree	0.45 (0.10, 2.09)
Some college training	0.73 (0.18, 2.94)
College degree	1 (reference)
Postgraduate	0.42 (0.08, 2.16)
Marital status	
Single	1.52 (0.37, 6.30)
Married	1 (reference)
Divorced	1.62 (0.21, 12.50)
Widowed	0.04 (0.00, 1.24)
Prostate cancer fatalism	
Low	1 (reference)
High	1.37 (0.48, 3.91)
Perception of prostate cancer treatment	
Low	1 (reference)

Variables	Adjusted odds ratio (95 % CI)
High	1.51 (0.53, 4.34)
Prostate cancer knowledge	
Low	0.59 (0.20, 1.79)
High	1 (reference)
Spirituality	
Low	0.17 (0.06, 0.54)*
High	1 (reference)
Acculturation	
Low	1 (reference)
High	1.27 (0.46, 3.49)
Public or private health insurance	
No	0.07 (0.007, 0.66)*
Yes	1 (reference)
Regular Physician	
No	0.64 (0.05, 8.36)
Yes	1 (reference)
Doctor recommended prostate cancer screening with prostate specific antigen (PSA) test within the last year	
No	1 (reference)
Yes	14.76 (4.59, 47.41)*

* $p < 0.05$