

Physician-Patient Discussions about Prostate-Specific Antigen Test Use among African-American Men

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The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the funding agency.

Background: The purpose of this study was to examine the associations between physician-patient discussions, demographic and health-related variables, and PSA test use. Of the previous studies that examined physician-patient discussions about PSA test use, none focused on African-American men.

Methods: Using a sample of African-American men (N=739) aged ≥ 40 years who had participated in the National Health Interview Survey (NHIS) 2000, we assessed demographic, health status and other variables related to two PSA test use outcomes: 1) had a PSA test within the past year, and 2) had ≥ 3 PSA tests within the past five years.

Results: More than three-fourths (76.6%) of our sample reported that their doctors had discussed with them the advantages and disadvantages of the PSA test before administering it. The bivariate analysis showed a number of variables positively associated with PSA test use including men aged ≥ 50 , having health insurance coverage and having participated in physician-patient discussions about the test.

Discussion: Despite the high percentage of men who had discussions with their doctor, there was a large number of men who had neither heard of nor undergone a PSA test. More efforts should be made by the healthcare community to promote prostate cancer screening education and physician-patient discussions.

Key words: physician-patient discussions ■ PSA test ■ prostate cancer ■ men's health

INTRODUCTION

During 2005, an estimated 230,090 men will be diagnosed with prostate cancer, and 30,350 men are expected to die from the disease.¹ African-American men are disproportionately affected by this disease, and the mortality rate for prostate cancer is more than twice as high for African-American men than for white men (70.4 vs. 28.8/100,000).¹

Various health organizations, including the American Cancer Society and the American Urological Association, have recommended that physicians offer prostate-specific antigen (PSA) testing and the digital rectal examination (DRE) to all male patients aged ≥ 50 years.² Recommendations have also been made to offer the PSA test at even earlier ages to patients of high-risk populations, which include African-American men and men with positive family histories of prostate cancer.¹ Many health organizations also suggest that physicians discuss with their male patients the benefits and limitations of the PSA test.²

The U.S. Preventive Services Task Force (USPSTF) has concluded, however, that there is insufficient evidence to determine whether prostate cancer screening will actually reduce mortality among men with prostate cancer.³ As a result, public health agencies and other health-related organizations are developing health education materials and decision-making tools to promote physician-patient discussions about the potential benefits and risks of prostate cancer screening and to encourage patients to make informed decisions about their own healthcare.⁴⁻⁶

The lack of consensus on prostate cancer screening recommendations may be a contributing factor to the inconsistency in physicians' attitudes and recommendations to patients concerning the PSA test.⁷ Consequently, studies have begun examining whether doctors discuss with their patients the advantages and disadvantages of undergoing prostate cancer screening.⁸⁻⁹ Studies have also examined physicians' views regarding the effectiveness of the PSA for prostate cancer screening and whether they recommend the test to their patients at risk for prostate cancer.^{7,9} Results from other

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studies found that between 50% and 93% of all primary care physicians recommended prostate cancer screening using the PSA test to their patients.⁸⁻¹⁰ In a national study, urologists in contrast with primary care physicians did not consider the PSA test to be controversial,^{7,11} and almost all the surveyed urologists reported that they recommended PSA testing as part of their routine examination for men aged 50–70 years old.⁷ In another national study, 80% of primary care physicians supported PSA testing for asymptomatic men aged ≥50 years, and 72% of the physicians stated that they were aware that the PSA test had both advantages and disadvantages.¹¹ None of the results from these studies were stratified by race. Additionally, none of the studies addressed the benefits and risks of PSA testing among African-American men.

The purpose of this descriptive study was to examine the association between physician–patient discus-

sions about PSA testing and PSA test use among non-Hispanic, African-American men aged ≥40 years using the National Health Interview Survey (NHIS) 2000 data. We also analyzed the associations between demographic, health-related and perceived risk variables with patient outcome variables. Two main points of interest in this study were whether physicians discussed with their patients both the advantages and disadvantages of the PSA test and the relationship of such a discussion with two patient outcome variables: 1) had a PSA test within the past year, and 2) had ≥3 PSA tests within the past five years.

METHODS

Data

The NHIS is a secondary data source that is conducted annually by the National Center for Health

Table 1. Characteristics of non-Hispanic black men aged ≥40, NHIS 2000 survey

Sociodemographics	N	%^a	Health Status	N	%^a
<i>Age, Years</i>	739		<i>Health Insurance</i>	733	
40–49		39.5	Not covered		16.8
50–64		39.0	Covered		83.2
≥65		21.5	<i>Reported Health Status</i>	737	
<i>Education</i>	731		Excellent		19.4
< High-school graduate		30.8	Very good		25.9
High-school graduate		30.0	Good		30.9
Some college/tech school		24.4	Fair or poor		23.8
College grad		14.8	<i>Family History of Prostate Cancer</i>	731	
<i>Family Income as % Poverty Threshold</i>	739		Yes		6.3
<200%		30.5	No		93.7
200-299%		15.6	<i>Had Colorectal Screening^c</i>	730	
300-399%		9.7	Yes		24.1
400-499%		7.7	No		75.9
500%+		15.8	Perceived Risk		
Unknown		20.7	<i>Perceived risk of Getting Cancer</i>	739	
<i>Region</i>	739		Low		69.0
Northeast		16.2	Medium		23.7
Midwest		17.1	High		7.3
South		57.9	<i>Perceived Amount of Cancer in Your Family</i>	739	
West		8.8	Low		78.2
<i>Reside in Metropolitan Statistical Area</i>	739		Medium		16.2
Non-MSA		14.2	High		5.6
MSA		85.8	Physicians Discussions of Advantages and Disadvantages of PSA Test		
<i>Marital Status</i>	737			301	
Married/living with partner		49.4	Yes		76.6
Widowed		8.5	No		23.4
Divorced or separated		25.8			
Never married		16.3			

a: Adjusted for the NHIS sampling methods and weighted to the U.S. Census 2000; b: Excluding men who had not heard of the test or had missing information; c: Fecal occult blood test in the past year or sigmoidoscopy, proctoscopy or colonoscopy in last five years

Statistics to monitor the health of the U.S. population.¹¹ Data for the NHIS 2000 were collected during in-person interviews of approximately 36,000 households. The survey consisted of questions on basic health, demographics and other health-related topical supplements. The cancer control module included questions on cancer prevention and control. Both African-American and Hispanic populations were oversampled to allow for more precise estimates. More details of the overall study methods are available in the NHIS 2000 Survey Description.¹²

Study Population

The cancer control module for the NHIS 2000 sample adult population included 6,796 men aged ≥40 years of which 765 were non-Hispanic African Americans. Of this number, 26 were excluded because they

reported that they had prostate cancer, leaving a total of 739 participants (Table 1). The NHIS 2000 survey adult sample response rate was 72.1%.¹²

Data Collection

The NHIS survey asked questions specifically related to PSA test use, including “Have you ever heard of a PSA or prostate-specific antigen test?” and, if so, “Have you ever had a PSA test?” For participants who responded positively to the second question, they were then asked when they had their most recent PSA test and how many PSA tests they had within the past five years. From those questions, we created two PSA test measures (dependent variables) to indicate the following: 1) whether they had a PSA test within the past year, and 2) whether they had ≥3 tests within the previous five years (to indicate more

Table 2. Percentage of non-Hispanic black men^e aged ≥40 who had a PSA test in the past year or 3+ PSA tests in the last five years by population subgroups

	Had Any PSA Test in the Past Year				Had ≥3 PSA Tests in the Past Five Years			
	N	% ^a	CI ^b	P Value ^c	N	% ^a	CI ^b	P Value ^c
All	718	30.8	26.6–35.4		710	18.8	15.2–23.1	
Sociodemographics								
<i>Age, Years</i>								
40–49	285	16.9	12.5–22.6	ref	285	7.4	5.0–10.9	ref
50–64	286	36.6	29.4–44.4	0.0000	282	25.5	18.6–33.8	0.0000
65+	147	45.2	35.1–55.7	0.0000	143	36.7	26.4–48.4	0.0000
<i>Education</i>								
< High-school graduate	231	26.6	20.1–34.4	ref	229	19.7	13.9–27.1	ref
High-school graduate	219	20.4	15.0–27.2	0.2052	218	13.8	9.2–20.1	0.1811
Some college/tech school	173	42.2	33.5–51.5	0.0046	169	22.0	14.9–31.3	0.6404
College grad	112	29.3	20.0–40.6	0.6618	111	25.6	17.1–36.6	0.3317
<i>Family Income as % of Poverty Threshold</i>								
<200%	233	25.5	18.3–34.3	ref	229	20.2	13.2–29.7	ref
200–299%	114	27.0	18.2–38.0	0.8296	114	16.6	10.0–26.4	0.5405
300–399%	74	29.4	18.8–42.8	0.6140	74	10.6	5.4–19.9	0.0629
400–599%	57	37.8	23.9–54.0	0.1426	55	29.3	17.0–45.7	0.2518
500%+	115	36.3	27.9–45.6	0.0700	114	29.8	21.8–39.2	0.1302
Unknown	150	25.8	18.2–35.3	0.9500	148	14.2	9.5–20.7	0.2467
<i>Region</i>								
Northeast	120	38.4	27.7–50.5	ref	117	30.7	19.6–44.7	ref
Midwest	122	22.8	15.7–31.9	0.0321	121	10.7	7.2–15.6	0.0036
South	436	29.6	24.3–35.4	0.1816	431	19.5	15.1–24.8	0.1051
West	65	15.4	8.3–26.8	0.0025	65	13.6	6.7–25.5	0.0325
<i>Reside in Metropolitan Statistical Area</i>								
No	107	27.2	18.6–38.0	ref	107	15.1	8.8–24.8	ref
Yes	636	29.1	24.6–34.0	0.7369	627	20.1	16.1–24.8	0.2788
<i>Marital Status</i>								
Married/living with partner	368	31.1	25.7–37.0	ref	364	21.2	16.4–27.0	ref
Widowed	63	33.2	22.5–46.0	0.7366	62	24.2	15.5–35.6	0.5668
Divorced or separated	191	26.2	19.3–34.4	0.2425	187	18.0	12.7–24.7	0.4045
Never married	119	19.0	13.0–26.9	0.0117	119	10.3	4.9–20.6	0.0241

frequent use). For the question of “had a PSA within the past year” and “had ≥3 PSA tests within the past five years,” 21 and 29 men, respectively, were excluded due to missing information (Table 2).

The multivariate analysis (Table 3) focused on the question, “Did the doctor discuss the advantages and disadvantages of the PSA test before administering it?” This question was not asked of men who had not heard of the PSA test (282), had not had a PSA test (135) or had missing or incomplete information (22). The NHIS survey did not ask men who had not had a PSA test if their doctor discussed the advantages and disadvantages of the PSA test. Approximately 300 men responded to this question.

Based upon our literature review, we selected a set of factors or independent variables that might influence both PSA test use and whether a doctor discussed the benefits and limitations of the test with the patient. These factors were sociodemographic, health status and perceived risk.^{13,14} Socio-

demographic factors included age, level of education, poverty threshold, region and metropolitan statistical area. Health status factors included health insurance coverage, reported health status, family history of prostate cancer and participation in colorectal screening. Lastly, perceived risk was indicated by two questions: 1) “Would you say your risk of getting cancer in the future is low, medium or high?,” and 2) “Thinking only of your blood relatives, do you feel that the amount of cancer in your family is low, medium or high?” These factors are listed in Table 1.

Analysis

We used the statistical program SUDAAN in our analysis to account for the complex, stratified, multistage-cluster sampling design. Frequencies and percentages of non-Hispanic, African-American men were calculated by sociodemographic, marital status, health status, perceived risk and other vari-

Table 2. continued

	Had Any PSA Test in the Past Year				Had ≥3 PSA Tests in the Past Five Years			
	N	% ^a	CI ^b	P Value ^c	N	% ^a	CI ^b	P Value ^c
All	718	30.8	26.6–35.4		710	18.8	15.2–23.1	
Health Status								
<i>Health Insurance Coverage</i>								
Not covered	124	7.2	2.78–17.3	ref	124	5.9	1.9–16.7	ref
Covered	613	33.2	28.6–38.2	0.0000	604	22.3	18.3–26.9	0.0000
<i>Health Status</i>								
Excellent	143	21.4	14.7–30.0	ref	141	12.1	7.4–19.1	ref
Very good	186	22.1	16.7–28.8	0.8743	184	14.1	9.8–19.8	0.5719
Good	232	33.2	25.8–41.6	0.0329	229	22.6	15.7–31.3	0.0323
Fair or poor	180	36.6	28.6–45.5	0.0027	178	27.3	18.7–38.0	0.0047
<i>Family History of Prostate Cancer</i>								
Yes	52	54.0	38.2–69.0	0.0014	52	44.7	29.6–60.9	0.0011
No	681	27.1	22.9–31.7	ref	672	17.6	14.0–21.8	ref
Perceived Risk								
<i>Perceived Risk of Getting Cancer</i>								
Low	504	28.4	23.0–34.6	ref	501	19.3	14.6–25.1	ref
Medium	178	27.4	20.7–35.2	0.8294	173	16.7	11.3–24.0	0.5700
High	61	36.0	24.0–50.1	0.3113	60	27.6	16.5–42.3	0.2316
<i>Perceived Amount of Cancer in Family</i>								
Low	574	27.5	22.6–33.0	ref	570	18.6	14.7–23.3	ref
Medium	122	30.4	21.9–40.4	0.5981	119	19.3	12.4–28.8	0.8878
High	47	41.4	26.9–57.8	0.1118	45	29.7	16.6–47.4	0.1829
Physician Discussions of Advantages and Disadvantages of PSA Test^d								
Yes	247	70.1	61.1–77.7	0.0839	240	49.2	40.9–57.6	0.0224
No	75	56.5	44.1–68.2	ref	73	34.2	23.9–46.2	ref

a: Adjusted for the NHIS sampling methods, weighted to the U.S. Census 2000, and adjusted to the distributions of all factors in the table; b: 95% confidence limits; c: P values for a general linear contrast comparing a row percent to its reference level. The reference levels are labeled ref.; d: N drops substantially since only 301 men answered the question, “Did your doctor discuss the advantages and disadvantages of the PSA test?”; * Excluding men with prostate cancer

able categories. SUDAAN was also used to calculate population estimates and 95% confidence intervals for both having received a PSA test within the past year and having received ≥ 3 PSA tests within the past five years. Linear contrasts were used to test the statistical significance of differences among men within the variable categories—for example, comparing PSA testing among men aged ≥ 65 years with men aged 40–49 years. Finally, using SUDAAN for the logistic regression and adjusting for all other variables in the model, we estimated the odds of men having the PSA test for both outcomes: 1) had a PSA test within the past year, and 2) had ≥ 3 PSA tests within the past five years.

RESULTS

The weighted distributions of characteristics of the NHIS 2000 sample of non-Hispanic African-American men aged ≥ 40 years are presented in Table 1. Of the 739 men included in this analysis, almost 80% were between 40–64 years old. Thirty-one percent of the men had less than a high-school education, and 31% stated that their income was less than twice that of the poverty threshold. Most participants lived in a metropolitan statistical area (86%) and had some form of health insurance coverage (83%). Approximately half of the men were married, slightly more than half (58%) were from the south and almost half of the men considered themselves to be in very good or excellent health. Almost all (94%) men reported no known family history of prostate cancer, although 31% of the men had a medium or high perceived risk of getting cancer and almost 80% of the men perceived a low amount of cancer in their family. Of the men who had heard of the PSA test, a majority (76.6%) of them reported that their doctors had discussed with them the advantages and disadvantages of the PSA test before administering it.

In the bivariate analysis (Table 2), 31% of the men had a PSA test within the past year, and 19% had ≥ 3 PSA tests within the past five years. PSA test use increased with age. The variables positively associated with men having received a PSA test within the past year were as follows: aged ≥ 50 years, some college or technical school education, health insurance coverage, self-reported good or fair/poor health, and a positive family history of prostate cancer. The analysis also found that men from the midwest or west and men who were single or never married were less likely to have had a PSA test within the past year.

Variables positively associated with men having received ≥ 3 PSA tests within the past five years were as follows: aged ≥ 50 , health insurance coverage, self-reported good or fair/poor health, a family history of prostate cancer and reported physician-patient discussions on the advantages and disadvan-

tages of the PSA test. Men from the midwest or west and men who were single or never married were less likely to have had ≥ 3 PSA tests within the past five years (Table 2).

In a multivariate model that adjusted for all sociodemographic, health status and perceived risk variables, men who had engaged in physician-patient discussions had almost three times the odds of having received a PSA test within the past year than men whose doctors had not discussed the PSA test with them (Table 3). Men whose physicians had discussed with them the advantages and disadvantages of the PSA test had decreased odds of having received ≥ 3 PSA tests than men whose doctors had not discussed the PSA test with them.

DISCUSSION

More than 75% of the men who had heard of and had a PSA test reported that their doctor had discussed with them both the advantages and disadvantages of the PSA test before administering it. This finding is much higher than that found in other reports.^{13,15,17} In addition, the men in the study whose physicians had discussed with them the advantages and disadvantages of the PSA test were more likely to have received the test within the past year. According to another study, only 28% of black or white males reported that their doctor had ever discussed the PSA test with them.¹⁶ The recent recommendations for physician-patient discussions about screening may have played a role in the increase that was evident in our study.³ This finding of physician discussions reported by men is of increased importance since previous studies have not shown results this high. This could mean that African-American men are getting the message of their increased risk-burden of this disease; however, this finding applies mainly to those men who visit the doctor, have heard of the test and have had the PSA test experience.

Based on self-reports, almost one-third (31%) of the men had received a PSA test within the past year, and approximately 19% had received ≥ 3 PSA tests within the past five years. The former percentage is consistent with findings from one previous study on PSA test use (30% had received a PSA test within the past year).¹⁵ In another study, 35% of middle-aged veterans had received at least one PSA test and a digital rectal examination (DRE) within the past five years.¹⁶ In comparison, our findings were somewhat lower (19%); however, neither of the two previous studies was stratified by race.

A somewhat different pattern emerged regarding physician-patient discussions for men who had received ≥ 3 PSA tests within the past five years. Men who reported physician-patient discussions were at decreased odds of having received ≥ 3 PSA

tests in the past five years. These men, however, had more PSA test use than participants who had not engaged in PSA discussions with their doctors. The variable, physician–patient discussions, showed variation with the number of PSA tests that the men had over a five-year period—that is, the men who talked with their doctors about the advantages and disadvantages of the test: 1) had higher PSA test use than those who did not talk with their doctors, but 2) lower frequency (0–2 PSA tests) than men who had ≥3 PSA tests during the past five years. There may be several possible reasons for this finding, including: 1) the emphasis on physician–patient discussions may be a recent phenomenon and may not have occurred as frequently over a longer period of time, 2) the participants may not have been able to accurately recall the number of PSA tests they received over a long period of time, and 3) physician–patient discussions may decrease PSA test use. One study found that informed decision-making and physician-patient discussions were associated with slight decreases in PSA test use.¹⁸ It is important to note that physician discussions are not necessarily considered as informed decision-making. Informed decision-making is a suggested tool used to include patients in making their healthcare decisions.

Despite the high percentage of men who had discussed PSA testing with their doctors, a large number of men had neither heard of nor had received the PSA test. There may be several reasons for this. First, prostate cancer and PSA screening education may not be targeted enough or is not effectively reaching the African-American community. Second, there may also be physician biases for or against screening that might enter into doctors’ discussions and patients’ decisions. This is particularly true since it has not been proven in controlled trials that PSA testing, biopsies and subsequent treatment saves lives. Third, certain barriers may prevent doctors from discussing the benefits and risks of prostate cancer screening with their patients and these barriers may affect the African-American community.

Physicians may sometimes find it difficult to adequately discuss prevention, benefits and risks with

their patients within the limited time allotted during a patient visit. Dunn found that >50% of both attending and house staff physicians stated that time constraints and complexity of the topic (48%) were main barriers to discussions with patients.⁸ Additionally, 39% of the house staff physicians stated that their personal lack of knowledge about the benefits and risks of PSA screening influenced their discussions with their patients.⁸ Ashford’s study of inner-city physicians found that 77% said that they received little training in prevention, and 45% noted that the recommendations of preventive medicine were unclear.¹⁹

A study found support for both positive family history of prostate cancer and perceived vulnerability to develop prostate cancer positively associated with intention to undergo screening.²⁰ However, our findings, which were specific to African-American men, showed no support to the two perceived risk variables but offered strong support for family history. Those men with a known family history had more PSA tests both during the past year as well as in the past five years.

A potential limitation of this study was the reliance on patients’ self-reports to obtain the information needed about PSA test use. Furthermore, surveys that ask for information over an extended period of time are subject to recall error. Another limitation was the relatively small and possibly biased sample of African-American men who responded to the question regarding physician-patient discussions. Many of the African-American men in this study had neither heard of nor undergone a PSA test and, as a result, were not asked the question of interest regarding physician-patient discussions. In addition, the wording of a key question—“Did your doctor discuss the advantages and disadvantages of the test with you before doing it?”—could have caused confusion. Men’s answers may have been different if they had been asked two separate questions whether their doctors discussed the advantages and disadvantages of the PSA test with them. By combining the advantages and disadvantages in the same question, one may wrongly assume that discussions were equally balanced, when in fact

Table 3. Adjusted odds ratios of non-Hispanic black men^a aged ≥40 and PSA test use

	Had Any PSA Test in the Past Year n=299			Had ≥3 PSA Tests in the Past Five Years n=292		
	Odds Ratio	CI ^b	Wald P Value ^c	Odds Ratio	CI ^b	Wald P Value ^c
<i>Physician Discussions of Advantages and Disadvantages of PSA Test</i>						
Yes	2.72	1.31–5.65	0.0070	0.41	0.21–0.79	0.0077
No	ref	ref				

a: Excluding men with prostate cancer; b: 95% confidence limits; c: P value for a Wald Chi-squared main effect test; * Adjusted for the NHIS sampling methods, weighted to the U.S. Census 2000, and adjusted to the distributions of all factors in Table 2

they may not have been. A related limitation is the time order of the doctor discussion(s) and the receipt of the PSA test. It is not known if the discussion preceded the first PSA test, occurred after the test or in between. This is especially true for the question used in this study: "How many PSA tests have you had in the past five years?" Lastly, we included men aged ≥ 40 years in our sample because African-American men are considered to be at a higher risk than white men for prostate cancer, and it is recommended that they be tested at an earlier than age 50. Nonetheless, we are aware that men in their early 40s are less likely to be screened ≥ 3 times in the past five years.

Our findings call for implementing more effective prostate cancer and PSA screening education programs and awareness campaigns in African-American communities. African Americans—particularly African-American men—should interact more with doctors and the healthcare system, and be encouraged to discuss and ask questions about the specific benefits and risks regarding the PSA test for African-American men. This is especially appropriate since it has not been proven in controlled studies that PSA testing, biopsies and subsequent treatment saves lives. Doctor-patient discussions have tremendous impact on PSA testing.

Additionally, programs and awareness campaigns should be targeted specifically toward those with lower levels of education, those from the midwest and west regions, those who are single or never-married, and those without health insurance coverage. Nurses and other healthcare professional staff can assist physicians in educating African-American men on prostate cancer and screening with decision-making tools and health education materials. Additionally, physicians can increase their participation in prostate cancer awareness campaigns and attend in-service training on prostate cancer screening research and recommendations. These combined efforts may ultimately help enable physicians and African-American men to be more informed about prostate cancer screening and healthcare choices.

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