PROSTATE CANCER KNOWLEDGE AMONG MULTIETHNIC BLACK MEN

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The purpose of this survey of 528 black men in Miami and Fort Lauderdale, FL, was to assess prostate cancer knowledge among African-American, English-speaking Caribbean, Haitian-American, and African men in America. Knowledge levels were assessed by education, ethnicity, age, income, family history of prostate cancer, and perceived prostate cancer knowledge.

Twenty-five barbershops were visited during Fridays, Saturdays, and Sundays over a course of five months. The response rate was 99%. As the black men waited to be seen by their barbers, three interviewers asked them to answer the demographic and knowledge questions. SPSS was used to analyze the data.

The main findings were that knowledge levels were adequate, with mean correct responses being 68.4%. Approximately 19.1% of respondents answered 80% of questions correctly, and 7.1% answered 100% of questions correctly. There were no statistically significant differences in knowledge among black men of different ethnicities. There were only two factors which were significantly related to prostate cancer knowledge. Men who earned more than \$50,000 and those with a family history of prostate cancer scored significantly higher than lower-income men and men with no family history of prostate cancer.

As the percentage of Caribbean-American men and African men in the United States continues to increase, especially in metropolitan centers, those men at highest risk need to be targeted vigorously so that the disproportionate burden of prostate cancer on black men can be relieved. (*J Natl Med Assoc.* 2004;96:650–656.)

Key words: prostate cancer knowledge ◆ multiethnic black men

INTRODUCTION

Prostate cancer is the second leading cause of cancer deaths (after lung cancer) among American men.¹ The American Cancer Society estimated that 184,500 new cases would be diagnosed in 1998.¹ Prostate cancer morbidity and mortality rates are significantly elevated among black men. In 1994, the incidence rate for whites was 185.3/100,000

and 234.4/100,000 for black men.² African-American men have the highest incidence and mortality rate of prostate cancer in the world.³

In 1995, mortality rates of black men in America were 55.1/100,000—more than twice that of white American men (24.7/100,000).¹ Prostate cancer mortality is higher in every age group among African Americans, compared to white men.⁴ Black men are routinely diagnosed with later stages of prostate cancer, making their survival rates uniformly shorter.⁵ Five-year survival rates in 1988–1993 were lower for African-American men, with 81% of African-American and 95% of white men surviving.⁶

Although the overall decline in the prostate cancer death rate in the United States between 1990–1995 moved from 26.5% to 17.3%, the per-

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centage of decline was greatest for younger white men, and smallest for older men and African-American men. Among men who were under 75 years old, the decline among white men was 11.7%, and 6.6% among black men.⁷ Among men who were over 75 years old, the decline was 3.9% among white men and 2.9% among black men.⁷

Lack of cancer awareness and knowledge of prostate-related issues has been identified as a cause of poor survival and increased mortality rates among black men.^{8,9} The purpose of this article is to compare knowledge levels of urban multiethnic black men and to assess the influence of factors, such as ethnicity, age, education, history of prostate cancer, income, and perceived prostate cancer knowledge on actual knowledge levels.

Sociodemographic Characteristics of Multiethnic Black Men

Although the U.S. Census routinely refers to black men as "African-American" men, those "African-American" men are increasingly becoming a heterogeneous group that includes men who are either English-speaking Caribbean, Haitian-American, or African men from the continent of Africa. Throughout the United States, Miami and Fort Lauderdale have the highest percentage of the Caribbean Americans among blacks in the country, averaging 43.4% and 34.4%, respectively.¹⁰ In cities with large immigrant populations, these men who would be mistakenly described as African-American. What is not currently documented is the extent to which ethnicity influences prostate cancer risk, behavior, incidence, and mortality. Considering that men in Kingston, Jamaica were shown in 1992 to have the highest reported prostate cancer incidence in the world-an age-adjusted rate of 304/100,00011-it may be interesting to determine whether Jamaican Americans are at higher risk for prostate cancer than other black

men and how risk varies with duration in the United States. This survey is an attempt to examine the relationship between prostate cancer knowledge and ethnicity and other variables.

The U.S. population of blacks from the Caribbean and Africa grew at a faster rate during the 1990s than that of native-born blacks.¹⁰ Nearly 25% of the growth of the black population between 1990–2000 was attributed to newcomers from Africa and the Caribbean.¹⁰ While the number of African Americans increased by 10% to 31 million in the 1990s, the number of Caribbean Americans increased by 63% to more than 1.5 million, and the number of Africans in America more than doubled to 537,000.10 In some metropolitan areas, Caribbean Americans and Africans in America represent 20% or more of the black population.¹⁰ Approximately 60% of all Caribbean Americans who live in the United States are concentrated in three cities-New York, Miami, and Fort Lauderdale—with populations of 566,770, 153,255, and 150,476, respectively.10

Throughout the United States, median household income varies by ethnicity and race, ranging from \$52,000 for whites, \$33,500 for African Americans, \$40,300 for Africans in America, and \$40,000 for Caribbean Americans.¹⁰ Among blacks, unemployment rates range from 9.9% for African Americans, to 7.3% for Caribbean Americans, to 5.1% for Africans in America.¹⁰ Median years of schooling vary from 12.5 years for African Americans, 12.8 years for Caribbean Americans, 13.5 years for whites, and to 14.5 years for Africans in America.¹⁰

Prostate Cancer Screening Controversy

Potosky at al.¹² reported that the incidence of prostate cancer has increased dramatically during the 1990s, primarily due to the increased use of the serum prostate-specific antigen (PSA) assay as a

Ethnicity	%	Mean of Correct Responses
African American	56.4	71.2
English-speaking Caribbean American	28.9	69.9
Haitian American	10.8	66.4
African	3.9	63.0
Total	100	68.4

screening test. Although prostate cancer is being diagnosed at earlier stages for those men who take the PSA test, there is not yet evidence of a reduction in disease-specific mortality.¹² Recommendations for prostate cancer screening vary considerably.¹³ The National Cancer Institute does not recommend prostate cancer screening, while the American Cancer Society recommends annual screening beginning at age 50 for all men and at age 45 for black men, although it emphasizes that information about the benefits and limitations of testing should be provided.¹⁴ While the prostate cancer screening controversy rages on, black men in America and Jamaican men continue to be at high risk.

Prostate Cancer Knowledge among Black Men

While some studies indicate adequate prostate cancer knowledge levels, others do not. Weinrich reported an overall mean knowledge score of 5.2 out of a possible 6.0 among African-American men who had been recruited from a variety of commu-

Table 2. Knowledge and Sociodemographic Characteristics of Multiethnic Black Men (N=528)					
	% Respondents	% Correct Statements			
Highest Educatio	Highest Educational Level				
Elementary	0.8	65.9			
High School	37.5	68.2			
College	61.7	71.4			
Age					
<30 years	37.5	70.3			
31-49 years	45.3	70.1			
>50 years	17.2	60.9			
Reported Income					
<\$24,999	7.5	62.2			
\$25,000-\$49,999	39.1	73.9			
>\$50,000	23.4	71.1			
		(p=0.040)			
Family History of I	Prostate Cancer*				
Yes	12.5	81.9			
No	75.8	65.4			
Don't Know	11.7	71.3			
		(p=0.039)			
Perceived Prosta	te Cancer Knowle	edge			
Below average	52.5	68.2			
Average	42.6	67.2			
Above average	4.9	66.9			

nity sites—worksites, churches, housing projects, National Association for Advancement of Colored People/civic sites, barbershops, and a meal site.¹⁵ One report described high levels of awareness about the threat of prostate cancer and the benefits of treatment after assessing 20 African-American men from a community group in a large northeastern U.S. inner city.¹⁶ Focus group assessments in South Central Los Angeles revealed reasonable knowledge among middle socioeconomic groups, with men from socioeconomic groups demonstrating many misconceptions and myths regarding the etiology and mortality of prostate cancer.¹⁷

Several studies have demonstrated low levels of prostate cancer knowledge cancer among black men—whether the sample has been derived from churches, housing projects, inner-city housing projects and clinics, and shopping areas in seven Ohio cities,⁴ community based organizations,⁵ churchbased screenings,⁸ Kentucky men,¹⁸ Central Harlem clinics,¹⁹ or Central Harlem population-based telephone listings.²⁰ These surveys indicate that black men generally underestimate their risk of prostate cancer and are unaware of risk-reduction strategies and screening options.

There are no published reports which have specifically assessed how knowledge varies among multiethnic black men and how knowledge varies with sociodemographic variables, such as income, age, history of prostate cancer, education, and perceived knowledge. As the percentage of multiethnic black men in the United States continues to increase, this assessment of prostate cancer knowledge aims to respond to the changing demographic patterns and the disproportionate burden of prostate cancer faced by black men in America.

METHODS

A 10-item survey was developed and administered to assess levels of prostate cancer awareness among multiethnic black men in the metropolitan area of Miami and Fort Lauderdale. The development of the questionnaire was guided by the American Cancer Society's recommendations. The overall goal was to develop and administer a brief questionnaire that assessed demographic characteristics and knowledge of prostate cancer. The questionnaire needed to be brief because it would be administered to men during barbershop waiting time. Demographic data were collected regarding ethnicity, age, income, education, family history of cancer, and perceived prostate cancer knowledge. Prostate cancer knowledge statements constituted the minimum amount of information that black men need to have about prostate cancer—what to eat for overall health, how to prevent prostate cancer, the risks and benefits of screening, and who is at greatest risk.

The final questionnaire consisted of five statements related to the American Cancer Society's risk factors and recommendations for taking charge of prostate health. The face validity of the instrument was assessed by nutrition educators, public health educators, and university nursing faculty. The instrument was pretested in six barbershops, resulting in the inclusion of the "don't know" category and the simplification of the words in the statements. Using the SMOG readability test, the readability of the final questionnaire was assessed to be of a sixth-grade reading level.²¹

Approximately 528 black men who were patrons of 25 Miami and Fort Lauderdale barbershops were interviewed about their knowledge of prostate cancer while they waited in the barbershop. The men were interviewed on Fridays, Saturdays, and Sundays over the course of five months. The multiethnic sample consisted of African-American, Englishspeaking Caribbean-American, Haitian-American, and African men. The response rate was 99%. Of the 533 black men who were approached in 25 barbershops, all but five agreed to be interviewed. No data were collected on those who declined the interview. The majority (56.4%) of urban multiethnic black men were African-American, followed by Englishspeaking Caribbean-American men (28.9%) and Haitian-American (10.8%), and the remainder of the sample were Africans from Africa (3.9%) (Table 1).

The majority (61.7%) of the sample were college-educated, 37.5% attended high school, and only

0.8% reported elementary school as their highest educational level. Approximately 37.5% were less than 30 years old, 45.3% were between 31–49 years old, and the remaining 17.2% were more than 50 years old. The majority—39.1%—reportedly earned \$25,000–49,999. Approximately 23.4% earned more than \$50,000, and the remaining 7.5% earned less than \$24,999. The majority (75.8%) of men reported that they had no family history of prostate cancer, 12.5% indicated a family history, and as many as 11.7% did not know their family history. When asked to describe their prostate cancer knowledge, 52.5% rated their prostate cancer knowledge as "below average," 42.6% chose "average," and the remaining 4.9% chose "above average."

SPSS, frequencies, students' t-tests, Tukey's post-hoc tests, Spearmans' rho, and analysis of variance tests were used to compare knowledge scores with demographic and other variables.

RESULTS

There were no significant differences in knowledge levels by ethnicity (Table 1). The sociodemographic characteristics which were significantly related to higher knowledge were income and family history of prostate cancer. Men who earned more than \$50,000/year scored significantly higher (71.1%) than those who earned less than \$50,000/year (73.9% for those earning \$25,000-\$49,999) or those earning less than \$24,999/year 62.2% (p=0.040). Men with a family history of prostate cancer scored higher (81.9%) than those with no family history (65.4%) (p=0.039) or those who did not know their family history of prostate cancer (71.3%). Men who had a family history of prostate cancer had the highest knowledge score among all categories in all demographic variables (81.9%) (Table 2).

Statements	% Correct
Black men are twice as likely as white men to die from prostate cancer	51.3
Black men have 13% more testosterone than white men	34.0
Black men who have a family history of prostate cancer should eat more cooked tomato grapefruit, and watermelon	es, 82.7
The most effective way for black men to reduce their risk of prostate cancer is to eat less fat and eat more fruits and vegetables	77.8
African-American men have the highest death rate from prostate cancer in the world	29.1

When asked to designate statements as true or false, the majority (82%) of black men correctly identified cooked tomatoes, grapefruit, and watermelon as beneficial foods for men who have a family history of prostate cancer and men in general. Only 51.3% of respondents correctly indicated that black men are twice as likely to die from prostate cancer as white men. Only 34% agreed that black men have 13% more testosterone than white men. Only 29.1% knew that black men in the United States have the highest death rate from prostate cancer in the world. Approximately 77.8% of black men agreed with the statement that the most effective way to reduce their risk of prostate cancer is to eat less fat and eat more fruits and vegetables (Table 3).

Knowledge levels for the five questions which embodied critical information were adequate. The mean for correct responses was 71.2%, with 31.8% of respondents answering 60% of questions correctly, 19.1% answering 80% of questions correctly, and only 7.1% answering all five questions correctly (Table 4).

Perceived knowledge of prostate cancer was significantly correlated with education (r=0.49, p< 0.010). College-educated black men were more likely to report above-average perceived knowledge of prostate cancer than men who had not attended college. There was a weak but statistically significant relationship between actual and perceived knowledge (r=0.233, p=0.010).

Older men were more likely to earn larger incomes than men who were below age 50. Age was significantly correlated with income (r=0.430, p=0.010). Higher-income men tended to have more years of education than men who reported that they

Table 4. Number of Correct Responses among Multiethnic Black Men		
Correct Responses for	% Multiethnic Black Men Scoring Correct Responses	
20% of questions	14.9%	
40% of questions	27.1%	
60% of questions	31.8%	
80% of questions	19.1%	
100% questions	7.1%	

earned less than 50,000/year. Income was also significantly correlated with education (r=0.215, p=0.010).

DISCUSSION

The purpose of this survey was to assess prostate cancer knowledge and how it varied by sociodemographic characteristics and ethnicity among black men. Knowledge about prostate cancer seems adequate among multiethnic black men in Miami and Fort Lauderdale, regardless of ethnicity. Knowledge means ranged from 71.2% to 63.3% across demographic variables, and there were no statistically significant differences among ethnic groups. The only factors which were linked to significantly higher knowledge scores were income and family history of prostate cancer. Higher-income men (those who earn more than \$50,000) scored significantly higher (71.1% correct statements) than men who earn less than \$50,000 (p=0.040). This income gradient has also been reported in other knowledge surveys.5,17,22 Prostate cancer knowledge was significantly lower among lower-income men and among those who had no history of prostate cancer.

This study has several limitations. First, only the face validity of the questionnaire was evaluated and more extensive reliability and validity assessments of the instrument were not undertaken. Second, the convenience sample may not be representative of the population, and the results may not be generalizable to all black men in urban areas in the United States. The high percentage of college-educated men-61.7%-is higher than the national average of 18.2% of black men who are collegeeducated.23 The higher percentage of college-educated men in this sample may be related to the adequate levels of knowledge. Third, to a lesser degree, the sample is somewhat biased because it excludes black men who do not visit barbershops for a variety of reasons. They may cut their own hair, they may be bald, they may be Rastafarians and for religious reasons do not cut their hair, or they may have their hair cut by friends or family members. Fourth, this convenience sample was 28.9% English-speaking Caribbean-American and 10.8% Haitian-American. This convenience sample has a slightly lower percentage (38.9%) than the percentage of English-speaking Caribbean Americans and Haitian Americans than the census data, which averages 43.4% in Fort Lauderdale and 34.4% in Miami for Caribbean Americans. Considering that Miami was identified in the 2000 Census as the city with the country's highest poverty rate with 28.5% of all households falling below federal poverty levels²⁴—these findings may not apply to other metropolitan areas.

One of the disadvantages of using true/false statements to assess knowledge is that results may overestimate respondents' specific knowledge. For example, although 82.7% of black men correctly indicated that grapefruit, watermelon, and cooked tomatoes should be eaten liberally by men with a family history of prostate cancer, it is highly unlikely that had black men been asked to identify which three foods promote prostate health, they would have been able to specify grapefruit, watermelon, and cooked tomatoes. Similarly, although 77.8% of respondents correctly agreed that the best way to reduce cancer risk is to eat less fat and eat more fruits and vegetables, it is not clear whether they would have been able to independently specify those risk-reduction strategies. These speculations seem plausible since many respondents indicated that they were unfamiliar with the term "testosterone." A more accurate way to assess their knowledge would have been to use an open-ended question, but the difficulties of coding open-ended questions are well-established.

The finding that 77.8% of black men agreed that the most effective way for black men to reduce their risk of prostate cancer is to eat less fat and eat more fruits and vegetables is supported by earlier findings. The 1992 National Health Interview Survey indicated that most adults (83%) believe that good eating habits may reduce their chances of developing major diseases, and respondents who believed cancer to be related to what people eat or drink mentioned eating more fiber (72%), more fruits and vegetables (66%), and less fat (60%) as the behaviors.²⁵

These findings of adequate prostate cancer awareness indicate that certain multiethnic black men need information regarding the benefits and risks of prostate cancer prevention. Since black men with lower income, regardless of ethnicity, and those with a family history of prostate cancer may be less likely to be knowledgeable, these men need to be the targets of prostate cancer education programs. Prostate cancer mortality data indicate that in New York City, Caribbean-born black men who are over age 65 had the highest death rates followed by Southern-born blacks, with white males having the lowest mortality rates.²⁶ What is more, evaluations of prostate cancer education have shown statistically significant increases in short-term knowledge among black men.^{8,27}

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