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The Impact of Sociodemographic Factors and PSA Screening Among Low Income Black and White Men: Data from the Southern Community Cohort Study

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Abstract

BACKGROUND—Variation in PSA screening is a potential source of disparity in prostate cancer survival, particularly among underserved populations. We sought to examine the impact of race and socioeconomic status (SES) on receipt of PSA testing among low-income men.

METHODS—Black (n=22,167) and White (n=9,588) men age ≥40 completed a baseline questionnaire from 2002–2009 as part of the Southern Community Cohort Study. Men reported whether they had ever received PSA testing and had testing within the prior 12 months. To evaluate the associations between SES, race and receipt of PSA testing, odds ratios (ORs) and 95% confidence intervals (CIs) were estimated from the multivariable logistic models where age, household income, insurance status, marital status, body mass index, and educational level were adjusted.

RESULTS—Black men were younger, had a lower income, less attained education, and were more likely to be unmarried and uninsured (all p<0.001). Percentages of men having ever received PSA testing rose from <40% below age 45 to ~ 90% above age 65, with Whites >50 more likely than Blacks to have received testing. Lower SES was significantly associated with less receipt of PSA testing in both groups. After adjustment for SES, White men had significantly lower odds of PSA testing (OR 0.81, 95% CI 0.76–0.87).

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Conflict of Interest

The remaining authors report no relevant conflict of interest to disclose.

CONCLUSIONS—Greater PSA testing among White than Black men over age 50 in this low income population appears to be mainly a consequence of SES. Strategies for PSA screening may benefit from tailoring to the social circumstances of the men being screened.

Keywords

PSA; race; socioeconomic status; prostate cancer; screening

Introduction

There is significant controversy regarding the utilization of PSA testing for early detection of prostate cancer. The United States Preventative Services Task Force (USPSTF) gave PSA testing a D-grade in 2012 based primarily on randomized trials in the US and in Europe.[1–3] As a result of the changes in prostate cancer screening recommendations, there has been a decrease in the amount of PSA testing performed in the US, and fewer men are being diagnosed with prostate cancer.[4–6] As this shift continues towards less screening and detection of prostate cancer, there is significant concern that mortality may increase among high-risk populations such as Black men, men with a family history of prostate cancer, and low-income/uninsured men.

There are well-documented disparities between Black and White men with regard to prostate cancer incidence, treatment received and survival.[7–11] Despite an overall decrease in prostate cancer specific mortality among Black and White men in the PSA era, the 2-fold greater mortality has persisted among Black compared to White men.[11] While it is generally accepted that sources of these disparities are multifactorial, differences in socioeconomic status (SES, i.e. income, insurance status, educational attainment, marital status) and healthcare access may have a significant role. It is not clear if differences in SES could explain the entire disparity, or which component of SES drives disparity in screening for prostate cancer. The role of SES on prostate cancer screening, in particular, remains to be fully elucidated. Prior studies have shown that Black men are less likely to receive prostate cancer screening and that uninsured patients are more likely to present with higher stage disease within the screenable cancers, including prostate cancer.[12, 13] To determine the impact of race and individual-level SES on ever receiving PSA testing, as well as receipt of recent PSA testing (within the prior 12 months), we analyzed cross-sectional data from the Southern Community Cohort Study (SCCS) conducted from 2002–2009 among low-income Black and White men age 40–79. We hypothesize that long-term follow-up of men in SCCS will demonstrate continued disparity in receipt of PSA screening in Black men compared to White men.

Methods

Study Population

Details for SCCS recruitment strategies, eligibility and data collection have been previously described.[14, 15] Briefly, the SCCS is an institutional review board approved prospective cohort study of more than 86,000 men and women between 40–79 years of age recruited primarily from community and preventive health centers in the Southeast. Both patients

recruited from community health centers (CHCs) and persons recruited from stratified random sampling of general population were included in the study.[14] Informed consent was obtained from all study participants. Extensive environmental, sociodemographic, and behavioral information that may impact cancer risk and detection was collected by structured in-person interview or by mailed questionnaire.

Statistical Analysis

There were 31,755 men (22,167 Black and 9,588 White) enrolled in the SCCS between 2002 and 2009. Six thousand two hundred and seventy men (4,362 Black and 1,908 White) with an unknown PSA screening status or received DRE over PSA test were excluded from the final analysis. The self-reported study outcomes from the questionnaire were if a man "Ever" received a PSA screening test in their lifetime and if a man received "Recent" PSA screening, defined as PSA testing within the prior 12 months. Patients' demographic characteristics were summarized by race group (Black vs. White), age at study enrollment, or frequency with percentage for categorical variables. Differences between Black and White men were compared using the Wilcoxon rank sum test for age at study enrollment, or the χ^2 test for categorical variables. To assess the association between each socioeconomic factor with PSA screening status, we fitted multivariable logistic regression models in Black and White men separately, while adjusting for age at study enrollment (40–44, 45–49, 50–54, 55–59, 60–64, and 65–79). The reference age at study enrollment was set at 50–54, as this was the most common age of suggested initiation of prostate cancer screening during the study period. The socioeconomic factors analyzed were annual household income (< $15,000; $15,000 – $24,999; $25,000 – $49,999; and ≥$50,000), insurance status (No Insurance, Private Insurance, Public Insurance, Other Insurance), marital status (Single, Divorced, or Widowed (SDW) vs Married or living with a partner), and education level (High school or less, and More than high school). We also included body mass index (BMI, kg/m^2) in the analysis. Odds ratios (OR) and 95% confidence intervals (95% CI) were estimated and reported. To assess the overall, age-specific, and insurance-specific race effects on PSA screening, logistic regression models were fitted on each subgroup of participants. To evaluate if the associations of each socioeconomic factor with PSA screening status differed between Black and White men, we included the product term of race (Black vs. White) and each socioeconomic factor while adjusting other factors in the model and reported the associated p values for the product terms. Although the majority of participants were enrolled as patients from community health centers, we further adjusted source of enrollment in a sensitivity analysis. For all analyses, statistical significance was considered at a two-sided 5% level. All analyses were conducted using R version 3.2.2.

Results

Table 1 summarizes the demographic characteristics of the study cohort. Black men represented 69.8% of the group, and were significantly younger than White men at the time of study enrollment (mean 50y vs 53y, $p<0.001$). There were significant differences between Black and White men in terms of household income, insurance status, marital status, education, BMI, and comorbidity (all $p<0.001$). Black men had lower annual household income, higher rate of uninsured/public insurance status, lower rate of being married/living

with partner, and lower educational attainment compared to White men. White men had a higher BMI (BMI ≥30: 34% vs 28%) and a greater number of comorbidities (2+: 31.1% vs 23.3%) compared to Black men.

The odds of ever receiving PSA screening according to various socioeconomic factors by race are summarized in Table 2. As would be expected, the percentages of men reporting that they had received PSA testing increased with increasing age category among both Blacks and Whites, rising from 30–34% at age 40–44 to nearly 90% at age 65 and above. The prevalence of PSA testing was higher among Blacks than Whites below age 50, with higher prevalence among Whites than Blacks above age 50 (interaction p=.011). Within both racial groups, the odds of PSA testing also increased with higher BMI, higher income, marital status and higher educational status. Having Private or Public insurance also was associated with significantly increased odds of receipt of PSA testing compared to having no insurance. There were no significant interactions between race and SES factors on the odds of PSA testing, indicating that the examined socioeconomic and healthcare access factors have a similar impact on PSA testing across race groups.

Table 3 summarizes the impact of SES on age-specific differences in ever receiving PSA screening for White men vs Black men. Controlling just for age and not SES, White men had significantly higher odds of PSA screening (OR 1.15, 95% CI 1.08, 1.22) compared to Black men. However, after adjusting for household income, educational level, marital status and insurance status, the likelihood of ever receiving PSA screening was significantly lower among White men (OR 0.81, 95% CI 0.76,0.87).

To evaluate compliance with past recommendations for annual PSA testing, the odds of recent (prior 12 months) PSA screening according to SES factors and race are summarized in Table 2 (right panel). Recent receipt of PSA testing increased with age, with testing again more common Blacks under age 50, but more common among Whites over age 50 (p-interaction=0.02). There was also a significant racial difference based on insurance status (p=0.022), but no significant differences in recent PSA testing between Black and White men based on household income, marital status, educational attainment, or comorbidity.

Table 3 (right panel) summarizes the impact of SES on race differences in recent PSA testing. Similar to the findings in the “Ever” screened analysis, White men had significantly higher odds of recent PSA testing in the unadjusted logistic regression model (OR 1.12, 95% CI 1.05,1.18). However, regardless of age, White men had significantly lower odds of a recent PSA test in the model adjusted for SES (OR 0.80, 95% CI 0.75,0.86) (Table 3).

The sensitivity analysis by further adjusting source of enrollment in all models gave similar results (data not shown).

Discussion

Utilizing a large cohort of low-income Black and White men, we show that a lower percentage of Black men ever receive PSA screening or had a recent PSA screening test compared to White men. Screening rates rose steadily with age, and were strongly associated with SES, with insurance status and income having the strongest influence on

odds of receiving PSA screening. When controlling for multiple SES indicators, the higher frequency of PSA testing among Whites disappeared. In fact, after adjustment, White men in this low-income cohort were less likely to be screened than Black men.

These results extend a prior analysis by Fowke et al that utilized the first two years of data from SCCS.[15] The updated, larger analysis presented here provides details on the roles of SES in PSA testing within race groups. Our analysis also shows findings similar to the Behavioral Risk Factor Surveillance System (BRFSS) showing on univariate analysis that Black men had lower overall screening rates compared to White men (40.4% Black vs 46.1% White), and that SES was significantly associated with receipt of PSA testing.[16] Differences in screening according to SES may relate to prior data showing that health seeking behavior among various SES strata is guided by “internal” vs “external” locus of control, i.e. men at higher SES may rely on internal cues to seek healthy behavior while men at lower SES may rely on the “powerful other” for health care guidance or more likely take risks regarding their health.[17]

Due to the controversy surrounding PSA testing for early detection of prostate cancer, primary care physicians face a dilemma when considering cancer screening in men. There are a host of recommendations for prostate cancer screening, ranging from no screening at all[1] to various age and health status-based guidelines emphasizing shared decision making, from the American Urological Association[18], the National Comprehensive Cancer Network[19], the American Cancer Society[20], and the American College of Physicians[21]. It requires an in-depth conversation between patient and physician to adequately weigh the risks and benefits of screening, with the assumption that the physician has reviewed all the available data presented in the various guidelines and that the patient has adequate health literacy to process this information to make an informed decision. The USPSTF recommendation simplifies this conundrum by dichotomizing the screening decision to a yes/no outcome, and increasingly physicians are choosing “No”.[6] What is clear from the data presented here, collected before the 2012 recommendation, is that regardless of any guidelines, SES and insurance were the main drivers of receipt of racial differences PSA testing. What is not yet known is if screening rates will decline more rapidly among Black, low-income and uninsured populations, potentially exacerbating differences in stage at diagnosis and survival among these higher risk men. There is a clear decrease in the number of PSA screenings and prostate cancer incidence since the USPSTF recommendations[22, 23], however this decrease has not been noted among insured patients.[24]

The importance of physician-patient communication regarding PSA screening cannot be overstated, particularly among Black men. Multiple studies have shown a significant association of physician communication and receipt of PSA testing.[16, 25, 26] In a small community-based cohort study from the Philadelphia area, 64% of men reported ever having a PSA test and 57% reported a PSA test within the prior year.[25] The overall likelihood of PSA testing was associated with physician communication, and recent testing was strongly associated with health insurance status. In a larger study utilizing SEER-Medicare data, independent factors associated with PSA screening among Black men aged 40–99 were higher education level, regular access to a healthcare provider, and a health care provider recommendation for PSA screening.[16] It would be interesting to know if differences in PSA

testing are a result of differences in shared decision making during the patient-physician interaction, but we do show that racial differences in PSA screening in older men seem attributable to differences in income and insurance status between Black and White men.

Even with blanket application of the most aggressive screening guideline from the American Urological Association, there remains the potential of missing a significant proportion of aggressive, but curable, disease.[27] If it is clear that Black men are more likely to have aggressive disease at diagnosis, and SES has a significant impact on receipt of prostate cancer screening, the long term result of completely obviating PSA screening will have its greatest impact on Black men. This is illustrated from a SEER-Medicare analysis of men diagnosed with prostate cancer from 1994 to 2002, which showed that Black men were less likely to undergo pre-diagnosis PSA screening, and experience a longer interval between PSA screening and diagnosis.[28] This translated to higher odds of advanced-staged disease at diagnosis among Black men compared to Whites. More notable is the fact that when controlling for PSA interval, there is a significant reduction in the odds of being diagnosed with Stage III or IV prostate cancer among Black men.[28] This indicates the critical importance of not only performing PSA screening, but ensuring regular PSA testing among high-risk populations. Data from SEER comparing pre- and post-PSA era survival between Black and White men have already demonstrated a significant survival benefit regarding aggressive PSA screening among Black men, thus we have population-level data that supports screening in age-appropriate Black men.[29]

Critics of PSA screening will point out that there are risks of overdiagnosis and overtreatment of prostate cancer when indiscriminate PSA testing is performed, including urinary incontinence and erectile dysfunction. Some have also suggested that there are potential psychological harms from diagnosis of indolent disease, though the evidence demonstrating this is lacking.[30] To ameliorate these negative effects among men who may not derive a survival benefit from treating potentially indolent prostate cancer, there has been increased utilization of active surveillance.[31] Unlike in past years, active surveillance protocols are increasingly acceptable to low-risk PC patients. This approach allows for close monitoring of men who may completely avoid receiving definitive treatment, while also ensuring minimal risk of progression to untreatable disease among men who eventually do need treatment.[32] Multiple new tissue, urine and serum based tests have also been developed, along with increased utilization of advanced imaging such as multiparametric magnetic resonance imaging, which help refine the diagnostic and treatment-decision making process in men at risk for prostate cancer.[33–37] These advancements represent the natural progress of medicine; however, if PSA screening is completely obviated, then there will be no need for these techniques. Instead, we will see a tremendous shift towards treatment of advanced and metastatic disease, from which Black men and poor, uninsured men will likely suffer the greatest burden. Clearly, smarter screening based on shared decision making, objective assessment of 10-year survival, and risk stratification based on race and family history is a more optimal approach to early detection of prostate cancer before the cancers have become advanced. Steps to improve screening rates among Black men include physician workforce diversification, consideration of ethnicity in prostate cancer screening guidelines, and educational programs to aid in the informed decision-making process with primary care physicians.

Our analysis included a large sample of Black and White men, with overlapping SES ranges that permit the evaluation of SES on race differences in screening. There are, however, limitations to consider when interpreting the results of our study. First, PSA testing history was assessed by interview and questionnaire, and it is possible that some men may report having a PSA and had not, and others may have had a PSA done and not reported having one. However, if the resulting misclassification were random this error would likely lead to a null bias. Second, we were not able to account for why someone received PSA testing, whether it was truly for screening purposes or if it was related to symptoms. Accounting for this difference would be quite difficult, however, and would require additional information from the treating physician. Third, the crude differences in overall screening rates between Black and White men in part were due to the somewhat younger Black population, which is why age adjustment and age-stratification were necessary to compare Black-White differences in PSA testing. The timing of data collection did not permit us to directly compare race-specific screening prevalence pre-vs. post-USPSTF changes in screening recommendations. Our objective was rather to examine the role of SES on race differences in screening practices in lower-income men with more limited healthcare access and fewer healthcare alternatives in order to inform a more equitable or targeted approach for any future prostate cancer early-detection protocols.

Conclusions

In a low-income cohort, Black men had significantly lower income, lower educational level, and higher rate of uninsured/publicly insured status compared to White men. On univariate analysis, Black men over age 50 had a significantly lower rate of PSA screening and recent PSA testing compared to White men; however, racial differences in PSA screening appeared to be strongly related to socioeconomic determinants. These data have strong public health implications regarding PSA testing overall, prostate cancer screening among low-income and Black men, and the importance of shared-decision making during physician-patient discussions within lower-income populations in the U.S.

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Table 1

Baseline characteristics of Black and White Men enrolled in the Southern Community Cohort Study, 2002–2009, N=31,755

Characteristics	Black (N=22,167)	White (N=9588)	P-value[1]
Median Age, year (IQR)	50 (45,56)	53 (47,61)	<0.001
Age Categories			
40–44	5525 (25%)	1619 (17%)	<0.001
45–49	5552 (25%)	1847 (19%)	
50–54	4751 (21%)	1680 (18%)	
55–59	3003 (14%)	1661 (17%)	
60–64	1764 (8%)	1345 (14%)	
65–79	1572 (7%)	1436 (15%)	
Household Income			<0.001
<$15,000	13068 (59.0%)	3872 (40.4%)	
$15,000 – $24,999	4672 (21.1%)	1600 (16.7%)	
$25,000 – $49,999	2796 (12.6%)	1655 (17.3%)	
≥$50,000	1382 (6.2%)	2316 (24.2%)	
Missing Data	249 (1.1%)	145 (1.5%)	
Insurance[2]			<0.001
No Insurance	10,273 (46.3%)	3271 (34.1%)	
Public Insurance	6910 (31.2%)	2863 (29.9%)	
Private Insurance	4608 (20.8%)	3338 (34.8%)	
Other Insurance	273 (1.2%)	74 (0.8%)	
Missing Data	103 (4.6%)	42 (0.4%)	
Marital Status			<0.001
Single, Divorced, Widowed	14998 (67.6%)	4292 (44.8%)	
Married, or living with a partner	7069 (31.9%)	5071 (52.9%)	
Missing Data	100 (0.4%)	225 (2.3%)	
Education			<0.001
High school or less	16418 (74.0%)	5425 (56.6%)	
More than high school	5731 (25.8%)	4153 (43.3%)	
Missing Data	18 (0.1%)	10 (0.1%)	
Body Mass Index (kg/m^2)			<0.001
<25	7953 (35.9%)	2714 (28.3%)	
25–29.9	7735 (34.9%)	3574 (37.3%)	
≥30	6303 (28.4%)	3236 (33.8%)	
Missing Data	176 (0.8%)	64 (0.7%)	
PSA Screening Status			<0.001

Characteristics	Black (N=22,167)	White (N=9588)	P-value[1]
Ever	10,022 (45.2%)	5151 (53.7%)	
Never	7783 (35.1%)	2529 (26.4%)	
Missing Data[3]	4362 (19.7%)	1908 (19.9%)	
PSA Screening Status[4]			<0.001
Recent (within prior 12 months)	7239 (72.2%)	3864 (75.0%)	
Former (>12 months)	2769 (27.6%)	1286 (25.0%)	
Missing Data	14 (0.2%)	1 (0.0%)	

PSA- prostate specific antigen

[1]Wilcoxon rank sum test for age as a continuous variable; Pearson's χ^2 test for other categorical variables; All tests were done on Non-missing data.

[2]The primary selection of insurance in order of Private insurance, Public Insurance, and Other insurance.

[3]Either unknown status (N=1295) or chose DRE (N=4975) over PSA test

[4]Among those who ever had a PSA screening (N=15173)

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Table 2

The associations between patient social economic characteristics and PSA screening status (Ever vs Never, and Recent vs Former) in the Southern Community Cohort Study, 2002–2009, N=25,485

	Ever received PSA Screening					Recent received PSA Screening				
	Percent		OR[2](95% CI)			Percent		OR[2](95% CI)		
Characteristics	**Black**	**White**	**Black**	**White**	**p[3]**	**Black**	**White**	**Black**	**White**	**p[3]**
Age at Enrollment					0.011					0.002
40–44	34	30	0.35 (0.32,0.39)	0.28 (0.24,0.34)		23	18	0.41 (0.37,0.45)	0.32 (0.26,0.39)	
45–49	48	47	0.63 (0.57,0.69)	0.52 (0.43,0.61)		33	30	0.66 (0.60,0.73)	0.54 (0.45,0.64)	
50–54	60	65	1.00 Reference	1.00 Reference		43	47	1.00 Reference	1.00 Reference	
55–59	74	82	1.72 (1.53,1.94)	1.83 (1.50,2.23)		55	63	1.38 (1.24,1.54)	1.52 (1.29,1.81)	
60–64	81	88	2.54 (2.17,2.97)	2.88 (2.28,3.62)		61	70	1.73 (1.51,1.97)	1.98 (1.65,2.38)	
65–79	89	92	4.31 (3.53,5.27)	4.17 (3.21,5.42)		71	76	2.30 (1.99,2.66)	2.54 (2.10,3.07)	
P for linear trend			<0.001	<0.001				<0.001	<0.001	
Household Income					0.662					0.192
< $15,000	50	52	1.00 Reference	1.00 Reference		35	35	1.00 Reference	1.00 Reference	
$15,000 – $24,999	56	58	1.22 (1.12,1.33)	1.16 (0.99,1.36)		40	40	1.14 (1.05–1.25)	1.07 (0.92,1.25)	
$25,000 – $49,999	70	75	1.75 (1.55,1.96)	1.48 (1.22,1.79)		53	57	1.63 (1.46,1.82)	1.36 (1.15,1.62)	
≥$50,000	86	90	3.05 (2.50,3.72)	2.80 (2.18,3.58)		68	74	2.05 (1.75,2.41)	2.07 (1.70,2.53)	
P for linear trend			<0.001	<0.001				<0.001	<0.001	
Insurance					0.112					0.013
No Insurance	41	40	1.00 Reference	1.00 Reference		27	25	1.00 Reference	1.00 Reference	
Private Insurance	70	86	1.67 (1.51,1.84)	2.02 (1.67,2.44)		54	69	1.69 (1.53,1.86)	2.07 (1.74,2.45)	
Public Insurance	69	74	2.16 (1.99,2.34)	2.29 (1.98,2.64)		52	55	2.19 (2.03,2.38)	1.99 (1.73,2.28)	
Other Insurance	53	67	1.16 (0.86,1.57)	1.93 (0.99,3.75)		35	48	1.11 (0.82,1.51)	1.80 (0.97,3.34)	
Marital Status					0.099					0.455
Single, divorced or widowed	50	52	1.00 Reference	1.00 Reference		35	35	1.00 Reference	1.00 Reference	
Married or with a partner	68	78	1.24 (1.14,1.34)	1.37 (1.20,1.57)		52	61	1.29 (1.20,1.39)	1.27 (1.13,1.44)	

	Ever received PSA Screening					Recent received PSA Screening				
	Percent		OR[2](95% CI)			Percent		OR[2](95% CI)		
Characteristics	**Black**	**White**	**Black**	**White**	**p[3]**	**Black**	**White**	**Black**	**White**	**p[3]**
Education					0.456					0.816
High school or less	51	56	1.00 Reference	1.00 Reference		37	40	1.00 Reference	1.00 Reference	
More than high school	70	81	1.76 (1.62,1.91)	1.85 (1.62,2.12)		52	63	1.48 (1.36,1.60)	1.37 (1.21,1.54)	
Body Mass Index					0.360					0.424
<25	48	59	1.00 Reference	1.00 Reference		33	43	1.00 Reference	1.00 Reference	
25–29.9	58	71	1.26 (1.17–1.37)	1.22 (1.05–1.42)		42	54	1.26 (1.16–1.36)	1.18 (1.03–1.35)	
30.0+	64	69	1.53 (1.41–1.67)	1.26 (1.08–1.46)		48	52	1.49 (1.37–1.62)	1.28 (1.12–1.47)	
P for linear trend			<0.001	0.004				<0.001	<0.001	

[1] Among those who ever received a PSA screening

[2] Adjusted for age at enrollment, household income, insurance status, marital status, education and body mass index

[3] P-value for testing the Interaction between race and each specific SES factor

Table 3

The associations between race (White vs Black) and PSA screening status (Ever vs Never, and Recent vs Former) stratified by age at enrollment and insurance type in the Southern Community Cohort Study, 2002–2009

Characteristics	Ever received PSA Screening (Ever vs Never)		Recent received PSA Screening[1] (Recent vs Never/Former)	
	OR[2,4](95% CI)	OR[3,4](95% CI)	OR[2,4](95% CI)	OR[3,4](95% CI)
Overall	1.15 (1.08,1.22)	0.81 (0.76,0.87)	1.12 (1.05,1.18)	0.80 (0.75,0.86
Age at Enrollment				
40–44	0.84 (0.73,0.96)	0.73 (0.63,0.84)	0.76 (0.65,0.89)	0.68 (0.57,0.80)
45–49	0.96 (0.85,1.09)	0.73 (0.64,0.84)	0.88 (0.77,1.00)	0.67 (0.58,0.78)
50–54	1.27 (1.11,1.45)	0.87 (0.75,1.01)	1.17 (1.03,1.33)	0.84 (0.73,0.96)
55–59	1.60 (1.35,1.89)	0.88 (0.73,1.07)	1.43 (1.25,1.64)	0.94 (0.80,1.10)
60–64	1.74 (1.39,2.18)	0.85 (0.66,1.10)	1.45 (1.23,1.71)	0.88 (0.73,1.06)
65–79	1.39 (1.06,1.82)	0.72 (0.53,0.98)	1.28 (1.08,1.53)	0.82 (0.67,1.00)
Insurance				
No Insurance	0.93 (0.85,1.02)	0.78 (0.70,0.86)	0.91 (0.82,1.00)	0.77 (0.69,0.86)
Private Insurance	2.56 (2.25,2.90)	0.78 (0.67,0.92)	1.94 (1.76,2.15)	0.86 (0.76,0.98)
Public Insurance	1.29 (1.16,1.44)	0.82 (0.73,0.93)	1.11 (1.01,1.22)	0.75 (0.67,0.84)
Other Insurance	1.79 (0.96,3.34)	1.24 (0.59,2.59)	1.76 (0.96,3.21)	1.24 (0.60,2.54)

[1] Among those who ever received a PSA screening

[2] Estimated from unadjusted model (“overall” OR adjusted for age)

[3] Estimated from adjusted model. Household income, insurance status, marital status, education and body mass index were adjusted in the models stratified by age at enrollment. Age at enrollment, household income, marital status, education and body mass index were adjusted in the models stratified by insurance status.

[4] OR represents the odds of receiving a screening among White men compared to Black men, such that an OR> 1.0 is interpreted as greater PSA testing among White men, while an OR < 1.0 is interpreted as greater PSA testing among Black men.