

Determinants of Prostate Specific Antigen Screening among Black Men in the United States in the Contemporary Era

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Purpose: Although black men represent a high risk population for prostate specific antigen screening for prostate cancer, recommendations in black men are unclear. To our knowledge the resultant effect of conflicting recommendations and disparities in access to care on prostate specific antigen screening in black men is unknown.

Materials and Methods: We compared the rate of self-reported prostate specific antigen screening in black men relative to that in nonHispanic white men. The BRFSS (Behavioral Risk Factor Surveillance System) 2012 data set was used to identify asymptomatic men 40 to 99 years old who reported undergoing prostate specific antigen screening in the last 12 months. Age, education, income, residence location, marital status, health insurance, regular access to a health care provider and a health care provider recommendation to undergo screening were extracted. Subgroup analyses by race and age were performed using complex samples logistic regression models to assess the odds of undergoing prostate specific antigen screening.

Results: In 2012 there were 122,309 survey respondents (weighted estimate 54.5 million) in the study population, of whom 29% of black and 32% of non-Hispanic white men reported undergoing prostate specific antigen screening. Younger black males had higher rates and odds of screening than nonHispanic white men of a similar age (ages 45 to 49, 50 to 54 and 55 to 59 years OR 1.66, 1.58 and 1.36, respectively). Among black men only a higher education level (graduates vs nongraduates OR 2.12), regular access to a health care provider (OR 2.05) and a health care provider recommendation for screening (OR 8.43) were independently associated with prostate specific antigen screening.

Conclusions: Despite long-standing disparities in health care access black males 45 to 60 years old have a higher rate and probability of prostate specific antigen screening than nonHispanic white men. Among black men educational attainment had a more pronounced association. In contrast the association with health care provider recommendations was less pronounced relative to that in non-Hispanic white men. Future research may shed more light on the gamut of factors that influence the decision making process for prostate specific antigen testing.

Key Words: prostate, prostate specific antigen, mass screening, African American, education

Abbreviations and Acronyms

HCP = health care provider

NHW = nonHispanic white

PCa = prostate cancer

PSA = prostate specific antigen

USPSTF = United States Preventive Services Task Force

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THE use of population based PSA screening for the early diagnosis of PCa is fraught with controversy. There are currently contrasting recommendations by professional medical bodies^{1–3} and USPSTF.⁴ In this context black men represent a unique challenge. They are widely acknowledged as a high risk group for PCa, are more likely to present with advanced disease at diagnosis and have inferior oncologic outcomes⁵ independent of sociodemographic and disease specific confounding factors. While data suggest that PSA screening may provide a survival benefit in black men,^{6,7} the PLCO (Prostate, Lung, Colorectal and Ovarian Cancer Screening)⁸ and ERSPC (European Randomized Study of Screening in Prostate Cancer)⁹ trials were underpowered to address this issue. Together the lack of unanimity in national guidelines regarding the decision to screen black men as well as their appropriate age cutoff^{2,4,10} is inimical to optimal care for black men and perplexing for HCPs.

Based on these considerations we examined data from the BRFSS 2012 survey to provide a contemporary analysis of PSA screening in black vs NHW men older than 40 years. The study objectives were to 1) assess the prevalence of self-reported PSA screening in a weighted sample of American men 40 years old or older in the year preceding the 2012 BRFSS survey and 2) determine the association between race and the sociodemographic characteristics that influence screening behavior in black men. We hypothesized that black men were more likely to undergo PSA screening compared to NHW men, given the general consensus that black race represents a high risk group for PCa.

MATERIALS AND METHODS

Data Source

We performed a cross-sectional study using data from the 2012 BRFSS (<http://www.cdc.gov/brfss>). The BRFSS, which is the largest continuously performed health survey in the world, is a joint initiative of the CDC (Centers for Disease Control and Prevention), and states and territories in the United States. The BRFSS surveys are designed to measure behavioral risk factors and are administered annually to a stratified random sample of the American population 18 years old or older. Initiated in 1984 the BRFSS provides nationally representative estimates via iterative proportional fitting weighting. This methodology allows for the incorporation of cellular telephone survey data from 2012 and thereafter, and decreases nonresponse bias and error within estimates. Patients are weighted by age, gender, race/ethnicity, educational attainment, marital status, property ownership and telephone ownership. The median combined response rate in the 2012 BRFSS survey was 45.2% covering 50 states, the District of Columbia, Guam and Puerto Rico.

Study Population

National estimates of self-reported PSA testing in respondents 40 to 99 years old relied on the response to 2 survey questions, including 1) “Have you EVER HAD a PSA test?” and 2) “How long has it been since you had your last PSA test?” Patients answering yes to question 1 and “Within the last year (any time less than 12 months ago)” to question 2 were identified as having undergone PSA testing within the last year.

Of patients who underwent PSA testing those who underwent PSA screening were identified by exclusion based on the answer to the question, “What was the MAIN reason you had this PSA test—was it...” Those who answered “Because of a prostate problem” or “Because you were told you had prostate cancer” were excluded from the screening population in the current study. Further, only nonHispanic men who self-identified as NHW or black were included in study.

Patient Characteristics and End Points

The primary outcome variable was self-reported PSA screening in the year preceding the 2012 BRFSS survey. Additional variables were age at the time of the survey stratified according to 5-year increments from ages 40 to 79 years and 80 years or greater, education level, income, residence location, health insurance status, marital status, access to a regular HCP and whether PSA screening was recommended by a HCP. Ascertainment of HCP recommendation was a yes response to the question, “Has a doctor, nurse, or other health professional EVER recommended that you have a PSA test?”

Subgroup analysis stratified by race was planned a priori to examine the association between patient and demographic characteristics, and self-reported PSA screening within a year preceding the BRFSS 2012 survey.

Statistical Analysis

Descriptive statistics were calculated on patient demographics (supplementary table 1, <http://jurology.com/>). For all point estimates 95% CIs and *p* values were calculated using the Complex Samples package for SPSS®. The variables used to define strata were (_STSTR), clusters (_PSU) and sample weights (_LLCPWT), which accounted for landline and cell phone surveys. To assess for the independent association of covariates and self-reported PSA screening we performed complex samples multivariable logistic regression. Analyses were first done to assess the sociodemographic characteristics associated with PSA in black and NHW men, who were assessed separately (supplementary table 2, <http://jurology.com/>). Combined analysis was then performed to examine the association between race and screening probability in each age subgroup (see table). To further control for differences in access to health care between NHW and black men this analysis was repeated, excluding men without regular access to a HCP. Separate interaction terms (between race and each of the sociodemographic covariates) were then added to the full multivariate model to measure the heterogeneity of covariate influence on screening black vs NHW men.

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