Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eMETHODS

Sensitivity Analyses

We performed five sets of sensitivity analyses to evaluate the robustness of our primary analyses. First, for reasons that are unknown, a higher percentage of AA compared to NHW men had ungraded cancer, particularly those with BMI<25 kg/m^2 (30.8 v. 8.0%; P <0.0001). We therefore repeated the primary analyses after randomly assigning a grade to ungraded cases based on the overall distribution of low- and high-grade cases in each race group (eTable 1). Using a bootstrap approach of 1,000 replications, 62.7% of ungraded cases in AA men and 67.1% of ungraded cases in NHW men were randomly assigned to low-grade cancer overall while the remainder were assigned to high-grade. Second, given a greater proportion of AA than NHW men died (5.8% v. 3.9%; P <0.0001), we modeled death as a competing risk using Fine and Gray competing risk regression[24] (data not shown). Third, we allowed for race-specific effects of diabetes by including an interaction of race with diabetes since AA men had a higher prevalence of diabetes than NHW men (17.4% v. 7.8%; P <0.0001) (data not shown). Fourth, since AA men were less likely to be compliant with study visit protocols (missing 2 consecutive clinic follow-up visits) than NHW men (15.7% v. 6.4%; P <0.0001), we censored all participants at the time of non-compliance (i.e. the date of the second missed appointment) (eTables 2-3). Finally, because excluding men who did not report PSA or DRE screening within 2 years of their censor date may introduce a bias (e.g. missing data on screening could be non-random), we repeated the primary analyses including all 31,697 men (eTables 4-5).

eTable 1. Bootstrapped hazard ratios[a] for joint associations of body mass index (BMI) and race with risk of total and grade-specific prostate cancer for African-American and non-Hispanic white men in study sample from the Selenium and Vitamin E Cancer Prevention trial where ungraded cancers were randomly assigned grade (sensitivity analysis 1).

	BMI Level (kg/m2)				
	<25	**25 to <27.5**	**27.5 to <30**	**30 to <35**	**35 to 50**
All cancers					
NHW	1.00 (ref)	1.12 (0.92, 1.38)	1.04 (0.84, 1.28)	0.96 (0.78, 1.20)	0.94 (0.69, 1.26)
AA	1.28 (0.76, 1.94)	1.67 (1.11, 2.39)	1.64 (1.03, 2.40)	1.68 (1.11, 2.37)	1.90 (1.12, 3.05)
Race effect	1.28 (0.76, 1.94)	1.49 (0.98, 2.09)	1.58 (0.99, 2.29)	1.75 (1.15, 2.37)	2.03 (1.10, 3.31)
Low-grade					
NHW	1.00 (ref)	1.16 (0.90, 1.48)	1.03 (0.83, 1.48)	0.84 (0.62, 1.05)	0.78 (0.50, 1.14)
AA	1.20 (0.67, 2.12)	1.50 (0.90, 2.27)	1.48 (0.76, 2.20)	1.28 (0.79, 1.90)	1.76 (0.89, 3.04)
Race effect	1.20 (0.67, 2.12)	1.29 (0.78, 1.94)	1.44 (0.72, 2.17)	1.53 (0.98, 2.31)	2.25 (1.12, 4.38)
High-grade					
NHW	1.00 (ref)	1.04 (0.72, 1.51)	1.08 (0.71, 1.53)	1.24 (0.91, 1.86)	1.31 (0.76, 2.15)
AA	1.45 (0.30, 2.61)	2.08 (1.04, 3.76)	2.03 (0.97, 3.64)	2.66 (1.40, 4.54)	2.22 (0.49, 4.34)
Race effect	1.45 (0.30, 2.61)	2.01 (1.02, 3.61)	1.88 (1.03, 3.95)	2.15 (1.02, 3.49)	1.70 (0.40, 3.52)

[a] Adjusted for age, education, diabetes, family history of prostate cancer, current smoking, and trial arm

eTable 2. Health-related characteristics of African-American and non-Hispanic white men in study sample from Selenium and Vitamin E Cancer Prevention Trial where earliest censoring event was defined as study protocol noncompliance.

	African-American			Non-Hispanic white		P value[a]
	n	Crude Rate	Adjusted Rate[b]	n	Crude	
Total prostate cancer	248	1559.2	1909.3	1404	1171.4	<0.0001
Stage at diagnosis						
Stage I-II	56	352.1	442.0	315	262.8	0.001
Stage III-IV	3	18.9	30.9	7	5.8	0.02
Unknown	190	1194.6	1443.9	1083	903.6	<0.0001
Gleason score at diagnosis						
2-6	137	861.3	1020.5	871	726.7	0.001
7-10	80	503.0	652.7	419	349.6	<0.0001
Unknown	31	194.9	236.1	114	95.1	<0.0001

[a] P values by t-test for continuous variables; P values by Chi-square test for categorical variables

[b] Rates per 100,000 person-years directly standardized by 5-year increments using non-Hispanic white men in SELECT as reference population; p-values generated via Wald test of 5-year age-adjusted incidence rate ratio comparing African-American and non-Hispanic white men

eTable 3. Hazard ratios[a] for joint associations of body mass index (BMI) and race with risk of total and graded prostate cancer for African-American and non-Hispanic white men in SELECT trial where earliest censoring event was defined as study protocol noncompliance (sensitivity analysis 4).

	BMI Level (kg/m2)					
	<25	**25 to <27.5**	**27.5 to <30**	**30 to <35**	**35 to 50**	**P trend[b]**
All cancers						
NHW	1.00	1.11 (0.96, 1.30)	1.02 (0.87, 1.20)	0.95 (0.80, 1.12)	0.93 (0.73, 1.18)	0.52
cases/cohort	282/4,555	426/6,140	319/5,153	287/5,092	90/1,733	
AA	1.18 (0.81, 1.70)	1.69 (1.27, 2.25)	1.71 (1.28, 2.30)	1.66 (1.27, 2.18)	1.92 (1.33, 2.75)	0.03
cases/cohort	32/638	59/749	55/688	68/897	34/426	
AA race effect	1.18 (0.81, 1.70)	1.52 (1.15, 2.00)	1.68 (1.26, 2.24)	1.76 (1.34, 2.29)	2.07 (1.39, 3.07)	0.03
Cancers with known grade						
NHW	1.00	1.12 (0.96, 1.32)	1.02 (0.86, 1.20)	0.94 (0.79, 1.12)	0.96 (0.75, 1.23)	0.54
cases/cohort	259/4,555	394/6,140	290/5,153	262/5,092	85/1,733	
AA	0.95 (0.63, 1.46)	1.65 (1.23, 2.23)	1.66 (1.22, 2.26)	1.57 (1.18, 2.10)	1.97 (1.35, 2.86)	0.007
cases/cohort	24/638	53/749	49/688	59/897	32/426	
AA race effect	0.95 (0.63, 1.46)	1.47 (1.10, 1.97)	1.64 (1.21, 2.22)	1.38 (0.94, 2.02)	2.05 (1.37, 3.09)	0.007
Gleason<7						
NHW	1.00	1.16 (0.96, 1.40)	0.96 (0.78, 1.18)	0.84 (0.68, 1.04)	0.80 (0.58, 1.09)	0.02
cases/cohort	180/4,555	285/6,140	192/5,153	164/5,092	50/1,733	
AA	0.83 (0.49, 1.42)	1.49 (1.03, 2.15)	1.62 (1.12, 2.34)	1.16 (0.79, 1.71)	1.67 (1.05, 2.68)	0.13
cases/cohort	15/638	35/749	35/688	32/897	20/426	
AA race effect	0.83 (0.49, 1.42)	1.28 (0.90, 1.83)	1.69 (1.18, 2.44)	1.30 (0.89, 1.89)	2.10 (1.24, 3.53)	0.02
Gleason>=7						
NHW	1.00	1.03 (0.78, 1.39)	1.15 (0.85, 1.54)	1.18 (0.88, 1.59)	1.35 (0.90, 2.01)	0.02
cases/cohort	79/4,555	109/6,140	98/5,153	98/5,092	35/1,733	
AA	1.24 (0.62, 2.49)	2.05 (1.22, 3.45)	1.71 (0.96, 3.04)	2.60 (1.66, 4.07)	2.69 (1.45, 5.00)	0.01
cases/cohort	9/638	18/749	14/688	27/897	12/426	
AA race effect	1.24 (0.62, 2.49)	1.97 (1.19, 3.27)	1.49 (0.85, 2.62)	2.20 (1.43, 3.39)	2.00 (1.03, 3.87)	0.27

[a] Adjusted for age, education, diabetes, family history of prostate cancer, current smoking, and trial arm; censoring occurred at last contact before trial end

[b] P trend with BMI as continuous variable

eTable 4. Demographic and health-related characteristics of African-American and non-Hispanic white men from the Selenium and Vitamin E Cancer Prevention Trial.

	African-Americans			Non-Hispanic whites		P value[a]
Total No.	4,523			27,174		
Age, mean (SD), y	59.1 (7.1)			63.5 (6.4)		<0.0001
Education ,%						<0.0001
≤High school	32.1			19.0		
Some college	35.1			26.1		
College graduate	19.4			29.2		
Post-graduate	13.4			25.7		
Diabetes, %	17.6			8.1		<0.0001
Current smoking, %	18.3			5.9		<0.0001
Body Mass Index (kg/m^2), %						<0.0001
18.0 to <25.0	18.9			19.9		
25.0 to <27.5	22.2			26.8		
27.5 to <30.0	20.1			22.7		
30.0 to <35.0	26.6			22.8		
35.0 to 50.0	12.2			7.8		
Family history of prostate cancer, %	17.5			19.6		0.0005
Trial arm, %						0.61
Selenium+Vitamin E	24.4			25.2		
Selenium+Placebo	25.1			24.9		
Vitamin E+Placebo	24.7			24.8		
Placebo+Placebo	25.8			25.1		
	n	**Crude Rate**	**Adjusted Rate[b]**	**n**	**Crude Rate**	
Total prostate cancer	275	1172.4	1482.2	1459	985.8	<0.0001
Stage at diagnosis						
Stage I-II	64	272.9	348.7	325	219.6	0.002
Stage III-IV	3	12.8	21.4	7	4.7	0.03
Unknown	208	886.8	1112.1	1127	761.5	<0.0001
Gleason score at diagnosis						
2-6	149	635.2	780.8	898	606.7	0.02
7-10	88	375.2	489.2	443	299.3	<0.0001
Unknown	38	162.0	212.2	118	79.7	<0.0001

[a] P values by t-test for continuous variables; P values by Chi-square test for categorical variables
[b] Rates per 100,000 person-years directly standardized by 5-year increments using non-Hispanic white men in SELECT as reference population; p-values generated via Wald test of 5-year age-adjusted incidence rate ratio comparing African-American and non-Hispanic white men

eTable 5. Hazard ratios[a] for joint associations of body mass index (BMI) and race with risk of total and graded prostate cancer among African-American and non-Hispanic white men within full cohort censored at date of prostate cancer diagnosis or last contact within SELECT trial (sensitivity analysis 5).

	BMI Level (kg/m2)					
	<25	**25 to <27.5**	**27.5 to <30**	**30 to <35**	**35 to 50**	**P trend[b]**
All cancers						
NHW	1.00	1.13 (0.97, 1.31)	1.04 (0.89, 1.22)	0.95 (0.81, 1.12)	0.90 (0.71, 1.14)	0.46
cases/cohort	289/5,415	439/7,277	334/6,162	303/6,188	94/2,132	
AA	1.12 (0.80, 1.58)	1.54 (1.17, 2.02)	1.49 (1.12, 1.98)	1.49 (1.15, 1.94)	1.74 (1.23, 2.47)	0.03
cases/cohort	39/854	66/1,004	58/907	75/1,205	37/553	
AA race effect	1.12 (0.80, 1.58)	1.37 (1.05, 1.78)	1.43 (1.08, 1.90)	1.56 (1.21, 2.02)	1.93 (1.32, 2.83)	0.02
Cancers with known grade						
NHW	1.00	1.14 (0.98, 1.33)	1.03 (0.87, 1.21)	0.95 (0.80, 1.12)	0.92 (0.72, 1.18)	0.42
cases/cohort	266/5,415	408/7,277	303/6,162	276/6,188	88/2,132	
AA	0.84 (0.56, 1.26)	1.42 (1.06, 1.90)	1.45 (1.07, 1.96)	1.45 (1.10, 1.90)	1.79 (1.25, 2.56)	0.002
cases/cohort	27/854	56/1,004	52/907	67/1,205	35/553	
AA race effect	0.84 (0.56, 1.26)	1.24 (0.94, 1.65)	1.41 (1.05, 1.90)	1.53 (1.17, 2.00)	1.94 (1.31, 2.88)	0.002
Gleason<7						
NHW	1.00	1.18 (0.98, 1.43)	0.99 (0.81, 1.21)	0.84 (0.68, 1.04)	0.77 (0.56, 1.05)	0.009
cases/cohort	182/5,415	293/7,277	202/6,162	170/6,188	51/2,132	
AA	0.70 (0.41, 1.18)	1.29 (0.90, 1.84)	1.35 (0.93, 1.95)	1.13 (0.79, 1.61)	1.61 (1.04, 2.51)	0.03
cases/cohort	16/854	37/1,004	35/907	38/1,205	23/553	
AA race effect	0.70 (0.41, 1.18)	1.09 (0.77, 1.54)	1.36 (0.95, 1.95)	1.34 (0.94, 1.92)	2.11 (1.28, 3.46)	0.002
Gleason>=7						
NHW	1.00	1.04 (0.78, 1.37)	1.10 (0.83, 1.48)	1.18 (0.88, 1.57)	1.28 (0.87, 1.89)	0.02
cases/cohort	84/5,415	115/7,277	101/6,162	104/6,188	37/2,132	
AA	1.16 (0.62, 2.20)	1.70 (1.03, 2.82)	1.66 (0.98, 2.82)	2.20 (1.43, 3.40)	2.18 (1.18, 4.05)	0.02
cases/cohort	11/854	19/1,004	17/907	29/1,205	12/553	
AA race effect	1.16 (0.62, 2.20)	1.64 (1.00, 2.69)	1.50 (0.90, 2.52)	1.87 (1.23, 2.84)	1.71 (0.89, 3.28)	0.32

[a] Adjusted for age, education, diabetes, family history of prostate cancer, current smoking, and trial arm
[b] P trend tested with BMI as continuous variable