

EPIDEMIOLOGY

Racial and Ethnic Variation in Health-Related Quality of Life Scores Prior to Prostate Cancer Treatment



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ABSTRACT

Introduction: Many men diagnosed with prostate cancer are concerned with how the disease and its course of treatment could affect their health-related quality of life (HRQOL). To aid in the decision-making process on a course of treatment and to better understand how these treatments can affect HRQOL, knowledge of pretreatment HRQOL is essential.

Aims: To assess the racial and ethnic variations in HRQOL scores in men newly diagnosed with prostate cancer before electing a course of treatment.

Methods: Male members of the Kaiser Permanente of Southern California health plan who were newly diagnosed with prostate cancer completed the five-domain specific Expanded Prostate Index Composite–26 (EPIC-26) HRQOL questionnaire from March 1, 2011 through August 31, 2013 (N = 2,579). Domain scores were compared across racial and ethnic subgroups and multiple logistic regression analyses were used to assess the association after adjusting for sociodemographic and clinical characteristics.

Main Outcome Measures: The five EPIC-26 domain scores (sexual, bowel, hormonal, urinary incontinence, and urinary irritation and obstruction).

Results: Results from the fully adjusted analyses indicated that non-Hispanic black men were more likely to be above the sample median on the sexual (odds ratio [OR] = 1.43, 95% CI = 1.09–1.88), hormonal (OR = 1.35, 95% CI = 1.03–1.77), and urinary irritation and obstruction (OR = 1.34, 95% CI = 1.03–1.74) domains compared with non-Hispanic white men. The Asian or Pacific Islander men were less likely to be above the sample median on the sexual domain (OR = 0.60, 95% CI = 0.44–0.83) compared with non-Hispanic white men. No additional statistically significant differences were identified.

Conclusions: Within an integrated health care organization, we found minimal racial and ethnic differences, aside from sexual function, in pretreatment HRQOL in men newly diagnosed with prostate cancer. These findings provide important insight with which to interpret HRQOL changes in men newly diagnosed with prostate cancer during and after prostate cancer treatment. **Reading SR, Porter KR, Slezak JM, et al. Racial and Ethnic Variation in Health-Related Quality of Life Scores Prior to Prostate Cancer Treatment. Sex Med 2017;5:e219–e228.**

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Key Words: EPIC-26; Ethnicity; Prostate Cancer; Quality of Life; Questionnaire; Race

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INTRODUCTION

Prostate cancer is the most prevalent type of solid tumor malignancy and the most common type of cancer diagnosis in American men. Fortunately, the survival rate for men diagnosed with prostate cancer is relatively high. Nearly 100% of men are alive at 5 years, 99% are alive at 10 years, and 94% are alive at 15 years,¹ with prostate cancer survivors representing one in five of all living cancer survivors.² This high likelihood of prostate cancer survival has created a shift in focus from that of basic survival to improvement or sustainment of health-related quality of life (HRQOL), because many men diagnosed with prostate cancer have reported disease-specific functional deterioration (eg, decreased urinary, sexual and bowel function) and broader HRQOL concerns (eg, decreased overall energy and vitality and lower performance in physical and social roles) associated with undergoing prostate cancer treatment.³ Thus, of primary concern for many men diagnosed with prostate cancer is how the disease and its course of treatment could affect their HRQOL.

Unfortunately, there is limited information regarding HRQOL differences in men diagnosed with prostate cancer before electing a course of prostate cancer treatment. Comparisons have been made between pre- and post-treatment HRQOL after specific prostate cancer treatments,^{4–7} in the long-term changes in HRQOL during the post-treatment survivorship period,^{8–11} and in the use of HRQOL as a prognostic tool for survival.¹² However, these comparisons have not been made within population subgroups. Broad descriptive pretreatment HRQOL information also has been reported,^{13,14} but not within population subgroups. Specifically, sparse data are available on HRQOL for men who identify as Hispanic or Asian and Pacific Islander.^{13,15,16} Given the growing number of racial and ethnic minorities contributing to the population of prostate cancer survivors,^{17,18} identifying potential differences between these groups could aid the patient-provider decision-making process when electing a course of prostate cancer care. Accordingly, our aim in the present investigation was to assess the racial and ethnic variations in pretreatment HRQOL in men newly diagnosed with prostate cancer to help identify those men who might be more likely to have poor pretreatment HRQOL.

METHODS

Setting

The source population included male members of the Kaiser Permanente of Southern California (KPSC) health plan, a not-for-profit integrated health care delivery system that provides comprehensive care to more than 4 million individuals throughout the southern California region. Membership within the KPSC is socially and demographically diverse and highly representative of the underlying population.^{19–21} Individuals are enrolled in the KPSC health plan through their employer, family member, individually, or a state or federally funded program. All individual-level data, including sociodemographic information

and details of medical care obtained from outpatient, emergency department, and hospital encounters, are captured within a comprehensive electronic health record based on the EpicCare system (Epic Systems, Verona, WI, USA).

Study Population

The present investigation included male KPSC members who (i) received an incident positive prostate biopsy diagnosis from a KPSC medical center from March 1, 2011 through August 31, 2013 and (ii) were willing to participate in a study to evaluate prostate cancer treatment outcomes ($n = 5,727$; Figure 1). Participation was restricted to include only those men who completed a pretreatment HRQOL questionnaire within a 90-day window of their prostate biopsy diagnosis (60%; $n = 3,422$). This 90-day window started 30 days before and ended 60 days after prostate biopsy diagnosis to allow men to be included who (i) completed the questionnaire on the date of their prostate biopsy appointment but then had their prostate biopsy rescheduled and (ii) did not complete the questionnaire on the date of their prostate biopsy appointment so instead had the questionnaire mailed to their home. Most men completed the questionnaire in a KPSC clinic before undergoing their prostate biopsy examination (79%; $n = 2,702$), with the remainder completing the questionnaire by mail. If a completed pretreatment HRQOL questionnaire had not been returned by mail within 1 month of the man undergoing his prostate biopsy, he was mailed an additional questionnaire to complete and return by mail.

Men who were missing data to assess their sociodemographic (age, race and ethnicity, marital status, neighborhood education, neighborhood income, and primary language), health status (body mass index [BMI] and tobacco use), and medical history (Charlson Comorbidity Index [CCI] score, Gleason score, prostate cancer family history, serum prostate-specific antigen [PSA] level, and knowledge of prostate cancer status at time of questionnaire completion) information were excluded. The final analytic cohort included 2,579 men. This investigation was approved by the KPSC's institutional review board and the informed consent requirement was waived, citing that the pretreatment HRQOL questionnaire was considered part of standard urologic care. There was no remuneration for participation.

Health-Related Quality of Life

Pretreatment HRQOL was assessed with the Expanded Prostate Cancer Index Composite Short Form (EPIC-26) questionnaire, an abbreviated version of the full-length EPIC-50. This validated and self-administered 26-item questionnaire,²² specifically designed for individuals diagnosed with prostate cancer, evaluated five prostate cancer-specific functional and bother domains: (i) sexual, (ii) bowel, (iii) hormonal, (iv) urinary incontinence, and (v) urinary irritation and obstruction. Response options for each item form a Likert scale and multiple-item scale scores are transformed linearly to a 0 to 100 domain scale, with higher scores indicating better HRQOL and a

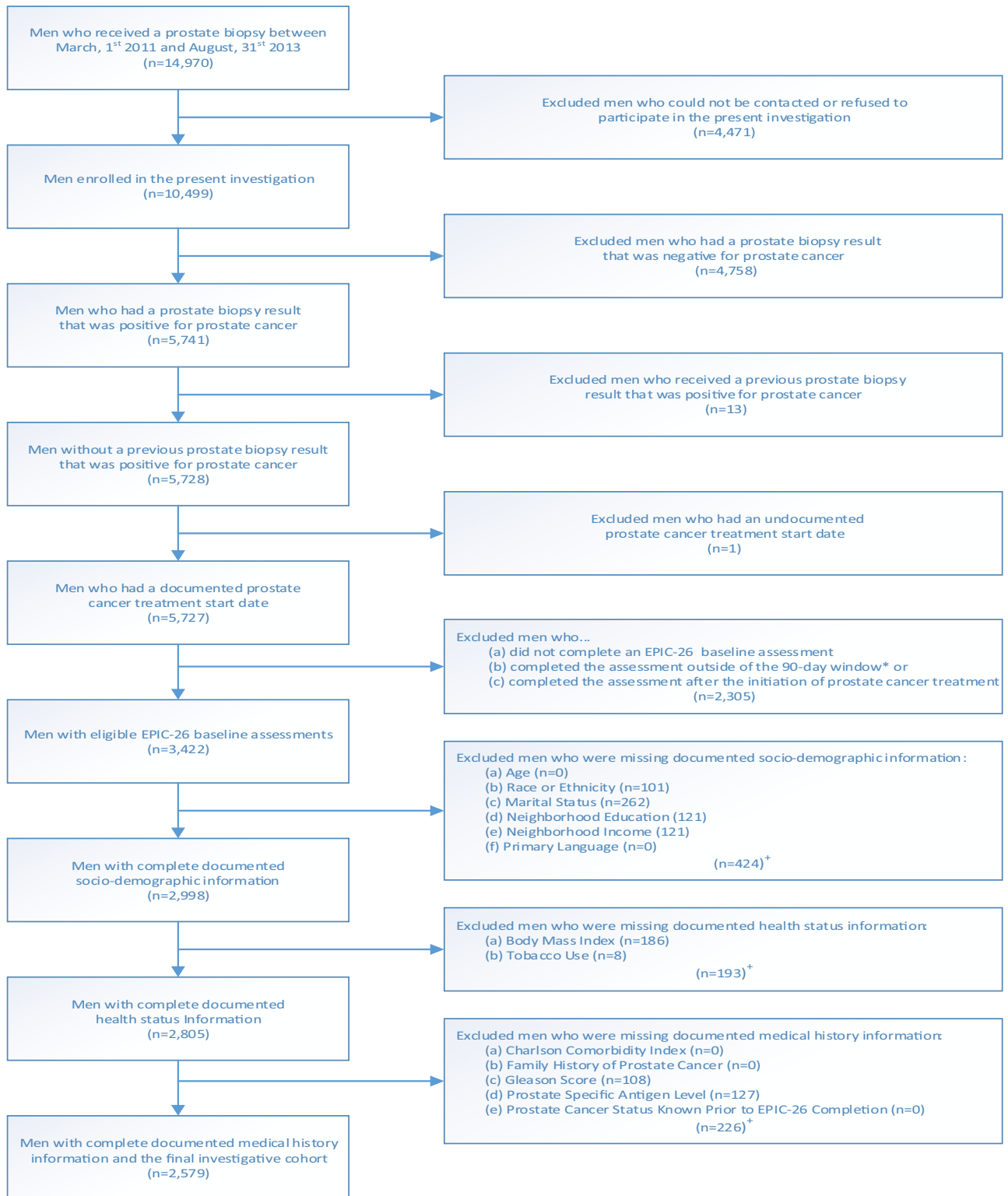


Figure 1. Inclusion and exclusion criteria for selection of the study population from March 1, 2011 through August 31, 2013 (N = 2,579). *Window spans from 30 days before until 60 days after prostate biopsy examination. ⁺Total reflects participants missing information on more than one variable. EPIC-26 = Expanded Prostate Index Composite–26.

minimum of 80% item completion being necessary to generate a domain score. A certified Spanish translator was employed to create a Spanish version of the EPIC-26 questionnaire for use in

the present investigation. All questionnaires were scanned and processed using Teleform (Cardiff Software, Inc, Vista CA, USA), a paper-based data capture software system.

Participant Characteristics

Age (years) was determined from the electronic health record calculated by subtracting the man's date of birth from his date of prostate biopsy diagnosis. Race and ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, or non-Hispanic Asian or Pacific Islander), marital status (married or with a partner or not married and without a partner), primary language (English, Spanish, or other), BMI (<25, 25–29, or ≥ 30 kg/m²), tobacco use (current, former, or never), CCI score (0, 1, or ≥ 2 ; calculated using *International Classification of Diseases, Ninth Revision, Clinical Modification* codes from inpatient and outpatient encounters during the 1-year period before questionnaire completion, to adjust for severe chronic conditions and risk of mortality in the analyses²³), family history of prostate cancer (yes or no), and serum PSA level (nanograms per milliliter) were obtained from the closest clinical encounter before prostate cancer diagnosis.

The percentage of the man's neighborhood that completed high school and his neighborhood median household income were derived through geocoding by mapping the man's home address to the US 2000 census block groups. Gleason scores were abstracted from electronic health record pathology reports using a KPSC-developed natural language processing program from free-text entry.²⁴ This natural language processing program also was used to verify the positive prostate biopsy result. We assumed that the man had knowledge of his prostate cancer status, at the time of questionnaire completion, if he completed the questionnaire by mail after his prostate biopsy diagnosis.

Statistical Analyses

Sociodemographic and clinical characteristics across each racial and ethnic subgroup were compared using χ^2 and non-parametric analysis of variance (Kruskal-Wallis) tests, as appropriate. EPIC-26 domain scores also were compared using Kruskal-Wallis tests. To assess the association of race and ethnicity with each of the EPIC-26 domain scores, multivariable logistic regression analyses were performed. Each EPIC-26 domain score was dichotomized at the median. Models were built sequentially, beginning with the crude analysis followed by inclusion of covariates for sociodemographics, health status, and then medical history. All analyses were conducted using SAS 9.2 (SAS Institute, Cary, NC, USA).

RESULTS

Of the 2,579 men included in our investigative cohort, 1,260 (49%) were non-Hispanic white, 375 (15%) were non-Hispanic black, 692 (27%) were Hispanic, and 252 (10%) were non-Hispanic Asian or Pacific Islander (Table 1). The non-Hispanic white men were generally older (median = 66.0 years), more likely to have a larger percentage of their neighborhood that completed high school (median = 91.2%), and had a higher neighborhood household income (median = \$71,562.5)

compared with the other racial and ethnic subgroups. The non-Hispanic Asian or Pacific Islander men were the most likely to be married (86.1%) and had the lowest BMI (42.1% with BMI < 25 kg/m²), whereas non-Hispanic black men were the most likely to have the highest CCI score (40.0% with score ≥ 2) and have a family history of prostate cancer in addition to non-Hispanic white men (9.3% and 9.4%, respectively).

Most men reported high baseline levels of pretreatment HRQOL across four of the five EPIC-26 domains (bowel, hormonal, urinary incontinence, and urinary irritation and obstruction; median score range = 87.5–100; Table 2). However, low levels were reported on the sexual function domain (median score range = 50.0–62.5). Only 11.0% of men reported a score of 100 on this domain compared with the 33.8% to 66.1% of men who reported a score of 100 across the other four domains.

Median values for each of the EPIC-26 domains were 58.3 for the sexual domain, 100 for the bowel domain, 95.0 for the hormonal domain, 100 for the urinary incontinence domain, and 93.8 for the urinary irritation and obstruction domain. In the unadjusted models, compared with the non-Hispanic white men, non-Hispanic black men were more likely to be above the median on the sexual function (odds ratio [OR] = 1.34, 95% CI = 1.05–1.71) and urinary irritation and obstruction (OR = 1.46, 95% CI = 1.14–1.88) domains (Table 3). In addition, Hispanic men were more likely to be above the median on the urinary irritation and obstruction domain (OR = 1.30, 95% CI = 1.06–1.59) and the Asian or Pacific Islander men were more likely to be above the median on the hormonal domain (OR = 1.51, 95% CI = 1.10–2.07) and less likely to be above the median on the sexual function domain (OR = 0.69, 95% CI = 0.52–0.93) compared with non-Hispanic white men.

After adjustment for sociodemographics (age, marital status, neighborhood education, neighborhood income, and primary language), the non-Hispanic black men remained more likely to be above the median on the urinary irritation and obstruction domain (OR = 1.35, 95% CI = 1.04–1.74) and the Asian or Pacific Islander men remained more likely to be above the median on the hormonal domain (OR = 1.42, 95% CI = 1.03–1.96) and less likely to be above the median on the sexual function domain (OR = 0.66, 95% CI = 0.48–0.90). No other statistically significant differences were identified. Inclusion of health status measures (BMI and tobacco use) did not change the analytic findings, except for Asian or Pacific Islander men being less likely to be above the median on the urinary incontinence domain (OR = 0.73, 95% CI = 0.53–1.00) and no longer being more likely to be above the median on the hormonal domain (OR = 1.26, 95% CI = 0.91–1.74) compared with non-Hispanic white men.

After adjustment for medical history covariates (CCI score, Gleason score, family history of prostate cancer, serum PSA level,

Table 1. Participant sociodemographic and clinical characteristics by racial and ethnic subgroup membership (N = 2,579)

	Non-Hispanic white (n = 1,260; 48.9%)	Non-Hispanic black (n = 375; 14.5%)	Hispanic (n = 692; 26.8%)	Non-Hispanic Asian or Pacific Islander (n = 252; 9.8%)	P value*
Sociodemographics					
Age (y)					<.001
Median	66.0	63.0	63.0	65.0	
25th–75th percentiles	60.0–71.0	56.0–70.0	56.0–68.0	60.0–69.0	
Age group (y), n (%)					<.001
≤49	24 (26.7)	22 (24.4)	39 (43.3)	5 (5.6)	
50–59	271 (40.7)	108 (16.2)	231 (34.7)	56 (8.4)	
60–69	592 (50.8)	147 (12.6)	296 (25.4)	130 (11.2)	
≥70	373 (56.7)	98 (14.9)	126 (19.2)	61 (9.3)	
Marital status, n (%)					.002
Married or partner	970 (48.2)	277 (13.8)	549 (27.3)	217 (10.8)	
Not married, no partner	290 (51.2)	98 (17.3)	143 (25.3)	35 (6.2)	
Neighborhood completing high school, %					<.001
Median	91.2	83.1	75.6	88.6	
25th–75th percentiles	83.4–95.6	70.9–91.8	57.2–87.9	77.1–94.4	
Neighborhood household income (\$)					<.001
Median	71,562.5	55,541.0	54,754.5	68,842.0	
25th–75th percentiles	52,435.0–93,264.0	40,758.0–78,425.0	40,511.0–70,708.5	53,001.5–85,118.5	
Primary language, n (%)					<.001
English	1,254 (55.4)	375 (16.6)	404 (17.9)	230 (10.2)	
Spanish	0 (0.0)	0 (0.0)	287 (100.0)	0 (0.0)	
Other	6 (20.7)	0 (0.0)	1 (3.5)	22 (75.9)	
Health status					
Body mass index (kg/m ²), n (%)					<.001
<25	266 (47.6)	84 (15.0)	103 (18.4)	106 (19.0)	
25–29	585 (49.3)	150 (12.7)	334 (28.2)	117 (9.9)	
≥30	409 (49.0)	141 (16.9)	255 (30.6)	29 (3.5)	
Tobacco use, n (%)					.126
Current	98 (45.2)	38 (17.5)	55 (25.4)	26 (12.0)	
Former	511 (51.0)	154 (15.4)	252 (25.1)	86 (8.6)	
Never	651 (47.9)	183 (13.5)	385 (28.3)	140 (10.3)	
Medical history					
Charlson comorbidity index, n (%)					<.001
0	649 (49.7)	160 (12.2)	386 (29.5)	112 (8.6)	
1	203 (44.1)	65 (14.1)	128 (27.8)	64 (13.9)	
≥2	408 (50.3)	150 (18.5)	178 (21.9)	76 (9.4)	
Gleason score, n (%)					.099
≤6	707 (47.6)	208 (14.0)	427 (28.7)	144 (9.7)	
7	412 (52.4)	117 (14.9)	186 (23.6)	72 (9.2)	
≥8	141 (46.1)	50 (16.3)	79 (25.8)	36 (11.8)	
Prostate cancer family history, n (%)					.005
Yes	119 (56.9)	35 (16.8)	46 (22.0)	9 (4.3)	
No	1,141 (48.1)	340 (14.4)	646 (27.3)	243 (10.3)	
PSA levels at ASRRs (ng/mL)[†]					
Age ≤ 49 y					.426
Median	3.8	4.8	3.6	3.5	

(continued)

Table 1. Continued

	Non-Hispanic white (n = 1,260; 48.9%)	Non-Hispanic black (n = 375; 14.5%)	Hispanic (n = 692; 26.8%)	Non-Hispanic Asian or Pacific Islander (n = 252; 9.8%)	P value*
25th–75th percentiles	3.4–5.5	3.0–7.7	2.8–5.3	2.7–4.6	
Age 50–59 y					.422
Median	4.8	5.0	4.9	5.4	
25th–75th percentiles	4.0–6.5	4.2–8.3	3.9–6.9	4.0–6.5	
Age 60–69 y					.161
Median	6.1	6.6	6.1	6.1	
25th–75th percentiles	5.0–8.1	5.2–10.2	5.0–8.8	5.0–8.6	
Age ≥ 70 y					.297
Median	8.8	9.2	9.3	7.7	
25th–75th percentiles	6.8–13.5	7.3–13.1	6.7–13.5	6.2–11.6	
Knowledge of prostate cancer status, n (%)					
Yes	260 (51.1)	75 (14.7)	132 (25.9)	42 (8.3)	.503
No	1,000 (48.3)	300 (14.5)	560 (27.1)	210 (10.1)	

ASRRs = age-specific reference ranges; PSA = prostate-specific antigen.

*By Kruskal-Wallis and χ^2 tests.

†Increased PSA level per ASRR: 2.5 ng/mL at 40 to 49 years, 3.5 ng/mL at 50 to 59 years, 4.5 ng/mL at 60 to 69 years, and 6.5 ng/mL at 70 years and older.

and knowledge of prostate cancer status at time of questionnaire completion), non-Hispanic black men were more likely to be above the median on the sexual function (OR = 1.43, 95% CI = 1.09–1.88), hormonal (OR = 1.35, 95% CI = 1.03–1.77),

and urinary irritation and obstruction (OR = 1.34 95% CI = 1.03, 1.74) domains compared with non-Hispanic white men. The Asian or Pacific Islander men also remained less likely to be above the median on the sexual function domain (OR = 0.60, 95%

Table 2. Distribution of participant EPIC-26 domain scores by racial and ethnic subgroup membership (N = 2,579)

EPIC-26 domains	Non-Hispanic white (n = 1,260)		Non-Hispanic black (n = 375)		Hispanic (n = 692)		Asian or Pacific Islander (n = 252)		P value*
	n	Value	n	Value	n	Value	n	Value	
Sexual (n = 2,355)	1,164		342		628		221		.041
Median		61.2		62.5		58.3		50.0	
25th–75th percentiles		26.3–87.5		34.7–87.5		30.5–83.3		26.3–77.8	
Range		0.0–100.0		0.0–100.0		0.0–100.0		0.0–100.0	
Bowel (n = 2,316)	1,177		331		583		225		.156
Median		100.0		100.0		100.0		100.0	
25th–75th percentiles		95.8–100.0		95.8–100.0		91.7–100.0		95.8–100.0	
Range		16.7–100.0		25.0–100.0		20.8–100.0		0.0–100.0	
Hormonal (n = 2,150)	1,116		304		532		198		.668
Median		95.0		95.0		95.0		95.0	
25th–75th percentiles		85.0–100.0		85.0–100.0		81.3–100.0		85.0–100.0	
Range		18.8–100.0		37.5–100.0		6.3–100.0		0.0–100.0	
Urinary incontinence (n = 2,310)	1,174		321		595		220		.154
Median		100.0		100.0		100.0		100.0	
25th–75th percentiles		85.5–100.0		85.5–100.0		85.5–100.0		79.3–100.0	
Range		22.8–100.0		14.5–100.0		0.0–100.0		25.0–100.0	
Urinary irritation and obstruction (n = 2,239)	1,149		314		556		220		.002
Median		87.5		93.8		93.8		93.8	
25th–75th percentiles		75.0–100.0		81.3–100.0		75.0–100.0		81.3–100.0	
Range		25.0–100.0		6.3–100.0		6.3–100.0		0.0–100.0	

EPIC-26 = Expanded Prostate Index Composite–26.

*By Kruskal-Wallis test.

Table 3. Multiple logistic regression analyses examining race and ethnicity as a predictor of each EPIC-26 domain score controlling for sociodemographic and clinical characteristics (n = 2,579)

	Non-Hispanic White (n = 1,260)		Non-Hispanic Black (n = 375)		Hispanic (n = 692)		Asian or Pacific Islander (n = 252)	
	OR		OR	95% CI	OR	95% CI	OR	95% CI
Crude								
Sexual (n = 2,355)	ref		1.34	1.05–1.71 [§]	0.98	0.81–1.20	0.69	0.52–0.93 [§]
Bowel (n = 2,316)	ref		1.14	0.88–1.47	0.88	0.71–1.08	1.15	0.85–1.55
Hormonal (n = 2,150)	ref		1.25	0.97–1.62	1.13	0.92–1.40	1.51	1.10–2.07 [§]
Urinary incontinence (n = 2,310)	ref		0.91	0.70–1.19	0.86	0.70–1.06	0.79	0.58–1.06
Urinary irritation and obstruction (n = 2,239)	ref		1.46	1.14–1.88	1.30	1.06–1.59 [§]	1.27	0.95–1.69
Sociodemographics*								
Sexual (n = 2,355)	ref		1.27	0.97–1.65	0.96	0.75–1.23	0.66	0.48–0.90
Bowel (n = 2,316)	ref		1.13	0.87–1.48	0.89	0.70–1.13	1.14	0.83–1.55
Hormonal (n = 2,150)	ref		1.27	0.97–1.66	1.06	0.83–1.36	1.42	1.03–1.96 [§]
Urinary incontinence (n = 2,310)	ref		0.89	0.68–1.16	0.90	0.70–1.16	0.77	0.57–1.05
Urinary irritation and obstruction (n = 2,239)	ref		1.35	1.04–1.74 [§]	1.11	0.87–1.41	1.20	0.90–1.62
Health status[†]								
Sexual (n = 2,355)	ref		1.28	0.98–1.68	0.96	0.74–1.23	0.57	0.41–0.78 [¶]
Bowel (n = 2,316)	ref		1.13	0.87–1.48	0.88	0.69–1.12	1.11	0.81–1.52
Hormonal (n = 2,150)	ref		1.28	0.98–1.67	1.06	0.82–1.36	1.26	0.91–1.74
Urinary incontinence (n = 2,310)	ref		0.89	0.68–1.16	0.91	0.71–1.17	0.73	0.53–1.00 [§]
Urinary irritation and obstruction (n = 2,239)	ref		1.34	1.04–1.74 [§]	1.11	0.87–1.41	1.19	0.88–1.60
Medical history[‡]								
Sexual (n = 2,355)	ref		1.43	1.09–1.88 [§]	0.97	0.75–1.26	0.60	0.44–0.83
Bowel (n = 2,316)	ref		1.18	0.90–1.54	0.89	0.69–1.13	1.15	0.84–1.58
Hormonal (n = 2,150)	ref		1.35	1.03–1.77 [§]	1.08	0.84–1.39	1.32	0.95–1.83
Urinary incontinence (n = 2,310)	ref		0.90	0.69–1.18	0.90	0.70–1.16	0.73	0.54–1.00
Urinary irritation and obstruction (n = 2,239)	ref		1.34	1.03–1.74 [§]	1.10	0.87–1.41	1.18	0.87–1.59

EPIC-26 = Expanded Prostate Index Composite–26; OR = odds ratio; ref = reference.

*Adjusted for sociodemographics (age [categorical], marital status, neighborhood education, neighborhood income, and primary language).

†Adjusted for sociodemographics and health status (body mass index and tobacco use).

‡Adjusted for sociodemographics, health status and medical history (Charlson comorbidity index, family history of prostate cancer, Gleason score, serum prostate-specific antigen level, and knowledge of prostate cancer status).

§P < .05; ||P < .01; ¶P < .001.

CI = 0.44–0.83) compared with non-Hispanic white men. No interactions of race and ethnicity with any of the selected covariates were found to be statistically significant (data not shown).

DISCUSSION

We found few, relatively minor differences, apart from sexual function, in HRQOL before prostate cancer treatment across racial and ethnic subgroups. Overall, the sexual function domain had the lowest reported median scores (range = 50.0–62.5, maximum = 100.0) compared with the other four HRQOL domains (range = 87.5–100.0, maximum = 100.0). This is consistent with prior literature²⁵ attributing most of these low scores on the sexual function domain to the generally older age of men diagnosed with prostate cancer.^{13,26} We also found median scores on the urinary irritation and obstruction domain to be slightly lower than those seen on the urinary incontinence domain. This minor difference between urinary

incontinence and urinary irritation has been identified in other investigations,^{13,16,25,27} regardless of the HRQOL questionnaire that was implemented. This suggests that many men might view the discomfort associated with urinary irritation and obstruction as more compromising than the inconvenience or embarrassment of bladder leakage.

In the fully adjusted multiple logistic regression models, one of the most significant findings was that men who identified as Asian or Pacific Islander were less likely to be above the median on the sexual function domain compared with their non-Hispanic white male counterparts. This finding has been identified in a previous study showing lower scores for Japanese and Japanese-American men before prostate cancer treatment on the sexual function and sexual bother questionnaires of the University of California–Los Angeles Prostate Cancer Index compared with non-Hispanic white men.²⁸ One possible explanation for this finding might be the presence of a cultural barrier. It has been reported that Asian men might view engaging in health-seeking behavior as a loss of status or

control that could damage their masculine identity.²⁹ Therefore, these men might have accepted their sexual dysfunction as a natural part of aging and were less likely to seek treatment to address their poor sexual function.

Our findings also indicated non-Hispanic black men were more likely to be above the sample median on the sexual function, hormonal, and urinary irritation and obstruction domains compared with non-Hispanic white men. Although prior literature on racial and ethnic differences in HRQOL is limited,¹⁵ within the existing literature the HRQOL findings in non-Hispanic black men are varied. Some studies have shown that non-Hispanic black men report having worse HRQOL compared with non-Hispanic white men when evaluated at prostate cancer diagnosis and/or during post-treatment.^{16,30,31} Other studies have shown that psychosocial and HRQOL factors are better in non-Hispanic black men compared with non-Hispanic white men at prostate cancer diagnosis and during early treatment.^{32,33} These conflicting findings highlight the need for more prospective and longitudinal studies in non-Hispanic black men to elucidate some of the reasons for these HRQOL changes and to better understand those who maintain a stable HRQOL throughout the course of prostate cancer care.

Despite the numerous strengths of the present investigation, several potential limitations should be acknowledged. First, subtle domain differences might have been missed because of the decision to dichotomize at the median for each of the outcome variables (the five EPIC-26 domain scores). This decision was based on the high clustering of data on each of the outcome variables. When the dichotomization cut-point was moved to the 75th percentile, the findings were similar (data not shown), suggesting that this is likely not the case. Second, residual confounding could have occurred within our analyses. For example, we could not assess the clinical stage of the prostate cancer because of the large percentage of missing data. Therefore, this information was not included as a covariate in our analyses, but we did include covariates for Gleason score and PSA level to account for some prognostic factors of prostate cancer. Third, men included in our analyses completed the EPIC-26 HRQOL questionnaire after prostate biopsy diagnosis, which could have biased our findings. However, after performing sensitivity analysis that excluded those individuals who underwent a prostate biopsy examination before completing the EPIC-26 questionnaire, our results were unchanged (data not shown). Fourth, we could not account for individual-level income or education, which can influence HRQOL, but we did include covariates for neighborhood-level income and education. Fifth, generalizability could be limited because our population was composed of health-insured members. However, with the recent implementation of the Patient Protection and Affordable Care Act, these findings might be more representative of future racial and ethnic HRQOL differences. Sixth, although the EPIC-26 is a validated questionnaire of HRQOL in individuals diagnosed with prostate cancer,²² there are HRQOL domains that were not included in this questionnaire. Some of these domains include emotional well-being and

anxiety that have been shown to be useful for individuals with prostate cancer. However, one of the goals of the initial investigation was to assess the feasibility of routine HRQOL screening within a clinical practice. The EPIC-26 HRQOL questionnaire, being brief and manageable, supports the idea of lessening provider and patient burden and encouraging participant completion.

In all, knowledge of pretreatment HRQOL differences by population subgroups is important for informing the prostate cancer care decision-making process. Targeted improvements in HRQOL, particularly for men who might have initially low pretreatment HRQOL, could lead to (i) a more effective selection of a course of prostate cancer treatment that minimizes specific HRQOL concerns, (ii) improved accuracy in the monitoring of any changes in HRQOL throughout the course of prostate cancer care, and (iii) the ability to set target goals and improvements in HRQOL during the prolonged survivorship period that is typically seen for individuals diagnosed with prostate cancer.³⁴

CONCLUSIONS

These findings suggest that, within an integrated health care organization, minimal racial and ethnic differences exist in pretreatment HRQOL in men newly diagnosed with prostate cancer apart from sexual function. This finding provides important insight with which to interpret HRQOL changes during and after prostate cancer treatment for men newly diagnosed with prostate cancer.

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