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Association of Preexisting Symptoms with Treatment Decisions among Newly Diagnosed Prostate Cancer Patients

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Abstract

Background—The choice between surgical versus non-surgical treatment options is a fundamental decision for men with local stage prostate cancer because of differences in risks of genitourinary side effects among available treatments.

Objectives—We assessed whether preexisting genitourinary symptoms at the time of diagnosis influenced men's preferences for surgery versus other management options.

Methods—We recruited 593 patients with newly diagnosed local stage prostate cancer prior to initiating treatment from an integrated health care system, an academic urology center, and community urology clinics. Using logistic regression we compared whether men had a preference for non-surgical options or only preferred surgery.

Results—Nearly 60% indicated they were considering non-surgical options. Age and clinical characteristics but not preexisting genitourinary symptoms influenced the decision between preferences for surgical or non-surgical options. A total of 62% of men reported side effects as a main factor in their treatment decision. Men with more aggressive tumor types were less likely to consider side effects, however, men who reported poor ability to have an erection were more likely to consider side effects ($p<0.001$).

Conclusion—Sexual dysfunction at time of diagnosis, but not other genitourinary symptoms, is associated with men considering treatment-related side effects when considering surgery versus other options. Men who are not experiencing sexual dysfunction at diagnosis may discount the risks of side effects in the decision making process.

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Keywords

prostate cancer; symptoms; treatment

Introduction

Population prevalence studies suggest that as many as one half of men with prostate cancer are experiencing one or more genitourinary symptoms at the time of diagnosis.[1–5] Problems such as difficulty urinating, erectile dysfunction, bowel urgency, and urinary incontinence become more common at the ages men are diagnosed with prostate cancer, which has a median age of diagnosis of 68.[6] Men with local stage prostate cancer have a range of treatment options with potentially equivalent efficacy for controlling the tumor.[7] It is possible that urinary, bowel, or sexual symptoms that men experience at the time of diagnosis may influence their preferences for non-surgical options. Surgery is known to have different effects on urinary, bowel, and sexual function compared to other options including radiotherapies and watchful waiting.[8–11]

There has been relatively little study of the influence of genitourinary symptoms at diagnosis on treatment preferences. To address this question we analyzed data from the Prostate Cancer and Therapy Selection study (PCATS), a prospective, multi-center cohort study of men with newly diagnosed local stage prostate cancer. We specifically addressed the relationship between the presence of symptoms and preferences for considering non-surgical options. Our primary research questions were: (1) does the presence of obstructive urinary symptoms at the time of diagnosis lead men to prefer non-surgical options, and (2) does erectile dysfunction at the time of diagnosis lead men to be more sensitive to risks of additional sexual impairment and thus more likely to consider options other than surgery? We focused on these two symptoms since the risk of experiencing these side effects differs substantially between surgical and non-surgical procedures.[8–11]

Methods

Recruitment of Patients

We utilized two strategies to approach newly diagnosed patients prior to initiating therapy. At Kaiser Permanente Northern California (KPNC), patients were identified using electronic clinical databases to identify newly diagnosed prostate cancer patients based on positive biopsy results. Following verification of diagnosis and receipt of physician permission, patients were mailed an invitation letter and a baseline survey. Patients were also approached through 11 community urology clinics in the Pacific Northwest (PNW) and 3 urology practices affiliated with the University of Southern California (USC) including the Norris Cancer Center, the West LA VA Hospital and the County Hospital in Los Angeles. Patients receiving a mailed survey or taking home a survey from the clinic were followed by research staff. Patients at KPNC received payment of $US25 and those in the PNW received $US15 for completing the survey. All approach and follow up procedures were approved by institutional human subjects review committees.

To be eligible, patients needed to be aged ≤ 75, have clinically local stage disease (T1 or T2), have no evidence of lymph node involvement or metastasis, and have a prostate-specific antigen (PSA) level of < 50 ng/ml. These criteria were selected to ensure all patients had favorable disease characteristics and reflect a life expectancy of roughly 10 years and would potentially be eligible for multiple treatment options. All patients were approached within 8 months of being diagnosed. Patients could not have initiated any treatment other than androgen deprivation therapy at the time of approach. Clinical characteristics were obtained by linkage

to the Surveillance Epidemiology and End Results (SEER) database for patients residing in SEER catchment areas[12] or by provider report for patients in non-SEER areas. For this analysis we focused on patients who were eligible for surgery, excluding 104 of 697 patients who indicated "My doctor said surgery is not appropriate for me."

Measures

Patients were asked which of 5 treatments were being considered (surgery, external beam radiotherapy, brachytherapy, hormone ablation, and watchful waiting/active surveillance). For each treatment, they were asked to check responses to indicate reasons for considering or not considering that option. Although all patients were approached prior to initiating treatment, some men had already decided on treatment at the time of approach and some men waited to return the survey until after they had received treatment. We compared the date the survey was received with self reported treatment initiation and SEER treatment dates for radical prostatectomy, external beam radiotherapy, and brachytherapy. We created an indicator variable of whether the survey was received after the subject had started treatment.

Patients were provided with 10 reasons for considering each treatment or 14 reasons for not considering a treatment. We asked men to select up to 3 main reasons for or against each treatment (see the supplementary material at http://thepatient.adisonline.com). Reasons for and against each treatment were developed based on patient focus groups conducted in Seattle among 15 participants who were within 1 year of diagnosis, and based on reviews of prior studies of reasons for selecting treatment.[13–23] Cognitive interviews of the survey instrument were conducted among 9 patients in Seattle, 9 in Los Angeles, and 6 in the Northern California Bay area in order to refine wording and ensure validity of the items.

We created a dichotomous variable summarizing concern about side effects. The variable was coded as 1 if patients indicated "I think it will have the fewest side effects" as a reason they are considering a particular treatment or "Worried about side effects" as a reason they were not considering a treatment and 0 otherwise. Patients were also asked "To date, how many different doctors have you seen to discuss your prostate treatment" as well as specific treatment recommendations they had received. For each of the 5 treatment options, patients were asked to indicate "none of my doctors discussed this option", "my doctors recommended this option", "my doctors recommended against this option", "my doctors disagreed on their recommendation for this option", and "my doctors discussed this option but did not make a recommendation." We included a count of the number of treatment options with a positive recommendation from at least one doctor.

Preexisting symptoms were assessed using the disease-specific Expanded Prostate Cancer Index Composite questionnaire, a well validated instrument used to assess function and bother of urinary, bowel, and sexual symptoms associated with prostate cancer treatment.[24] We created summary variables for the presence or absence of any preexisting limitations in urinary function or bowel function based on the composite function score from this questionnaire. In order to assess preexisting sexual function limitations we selected one item "Your ability to have an erection" rated as very poor/poor/fair versus good/very good. This single item was selected as the primary indicator of preexisting sexual function limitation rather than the composite EPIC score. The composite sexual function score, while sensitive to assessing multiple dimensions of function and bother related to sexual dysfunction, is difficult to interpret.[25] In sensitivity analyses, we explored different levels of the sexual function composite score.

The number of preexisting non-cancer comorbidities was ascertained by asking about 12 health conditions common among men diagnosed with prostate cancer.[8] Fear and worry about prostate cancer was assessed with 4 items from the MAX-PC Anxiety fear of recurrence

subscale[26] and a single item about PSA worry[23] "I worry a lot that my PSA will rise." Items were rated on a 4 point Likert scale with responses ranging from "strongly agree" to "strongly disagree". The 5 items were re-scaled from 0–100 with higher scores representing more worry. The items have demonstrated high reliability and validity.[26][27] Self-efficacy of control over the cancer was assessed with 4 items developed from the Assessment of Patients' Experience of Cancer Care (APECC) study.[28] The items were re-scaled from 0–100 with higher scores representing more loss of control. Both variables were categorized into evenly divided groups each containing a third of the population for inclusion in multivariate models.

Data Analysis

We categorized patients as having a self-reported preference for at least one non-surgical option including brachytherapy, external beam radiotherapy, watchful waiting and/or primary androgen deprivation therapy versus surgery as the only treatment option they were considering. We examined univariate differences in patient characteristics between the two patient groups (Table I). Mean differences were compared between groups using χ^2 tests for categorical variables and t-tests for continuous variables. Race was categorized as African American or non-African American as African American race has been shown to be related to treatment variation in local stage prostate cancer. [29,30] PSA was categorized as <4, 4–6.9, 7–9.9, ≥10 ng/mL; Gleason grade as ≤6, 7, ≥8; and education was categorized as less than college degree or college degree or higher.

We used multivariate logistic regression with the dichotomous variable "preference for at least one non-surgical option" or "preference for surgery only" as the dependent variable (Table II). The primary independent urogenital symptom variables were: any limitation in urinary function, any limitation in bowel function, and good or very good ability to have an erection. Demographic and clinical characteristics added to the model included age, preexisting comorbidities, race, education, marital status, PSA, and Gleason category. We compared inclusion of age and PSA as linear predictors or categorical variables; linear predictors were chosen for the models. We hypothesized that psychosocial influences such as fear and anxiety about the cancer and feeling a need to control the cancer would influence a patient's treatment choice. Thus we included these variables in the models to assess the importance of these psychosocial domains on patient preferences for surgery. Noting that age is associated with prevalence of preexisting symptoms and that younger men may consider symptoms differently from older men in their treatment decision, we explored for effect modification between age and preexisting symptoms by comparing the fit of models with age and symptom interactions using the likelihood ratio test.[31]

Our multi-center cohort design, which includes patients recruited from a large integrated health system (KPNC); an academic based, high-volume surgical referral urology practice (USC); and community urology clinics (PNW); was intended to represent the variety of urology practices patients may experience in the United States. We accounted for the potential influence of factors that may vary by site in the regression model, including the initiation of treatment before returning the survey, the number of doctors consulted, and the number of specific treatment recommendations a patient may receive. To ensure the appropriateness of combining the data from the multiple centers, we tested for an interaction between site and each of the three main predictors – preexisting limitations in urinary, bowel and sexual function - to determine if preexisting limitations were characteristically different by site.

We postulated that patients' familiarity with the symptoms of urinary, bowel, or sexual dysfunction would influence their ranking of the importance of these factors as potential treatment-related side effects. To evaluate this postulate, we created a dichotomous dependent variable that indicated whether side effects were or were not a main factor in treatment

preferences. This variable was included as a covariate in a model examining preferences between surgery only and non-surgical options (Table II). We also constructed a separate multivariate logistic regression model in which whether or not side effects were a main factor in treatment preference was included as the dependent variable, using the same covariates described above (Table III).

In order to demonstrate how preexisting symptoms influence the treatment process, we calculated the predicted probability of the model to indicate adverse effects as a main factor in the treatment decision using an abbreviated set of covariates: age, education, PSA, Gleason score, number of doctors consulted, feelings of control scale, and ability to have an erection. We held constant the following variables: age, PSA, number of doctors consulted, and feeling of control scale at mean population levels, and produced the predicted probability of side effects as a main factor in the decision highlighting education, Gleason score, and ability to have an erection.

Results

Study participation

We mailed 1232 surveys to patients at KPNC and sent home 240 survey packets with patients approached through USC and PNW urology clinics. We received surveys from 69 patients who were excluded due to the following reasons: missing clinical data (n=5), diagnosis more than 8 months prior to approach (n=2) or evidence of non-local stage disease at diagnosis (n=62). A total of 804 (57%) eligible patients returned surveys with response rates varying by study site: 52% at KPNC, 88% at USC and 78% at PNW. Men over age 75 were not included in these analyses (n=107). An additional 104 patients were excluded who indicated their doctor said surgery was not appropriate for a final sample size of 593.

Patient Characteristics

A total of 345 (58%) indicated they are considering at least one non-surgical option, with the remaining 42% indicating surgery is their only preferred option. Descriptive statistics (Table I) indicate that patients who are younger, have lower PSA levels, and Gleason grade at diagnosis, and fewer preexisting comorbid conditions are more likely to only consider surgery. There are large differences by study site with 33% of patients at KPNC preferring surgery, while 70% of men at USC and 61% of men at PNW prefer surgery. There were no bivariate differences by race, marital status or education. The number of doctors that patients had consulted with did not vary in bivariate comparisons; however, the total number of treatment options recommended to men considering only surgery was higher (mean = 1.8) compared to men who were considering non-surgical options (mean = 1.0). More than two-thirds of men who were considering non-surgical options had indicated that side effects were a main factor in their decision, while less than half of men who were considering only surgery reported concern about side effects. Patients who returned the survey after starting treatment reported they were less likely to prefer non-surgical options.

Preexisting Genitourinary Symptoms

The overall composite EPIC scores for urinary, bowel, and sexual function and bother were 84.9, 92.1, and 54.0 respectively with no differences for urinary and bowel scores between those considering only surgery and those considering non-surgical options. Scores on the sexual function and bother scale were five points lower among men considering non-surgical options ($p<0.001$)(Table I). A total of 42% of men reported some preexisting limitation in urinary function; 71% reported preexisting limitation in bowel function, and 44% reported good or very good ability to have an erection. There were no bivariate differences between treatment preferences and urinary or bowel function. However, 51% of men considering only

surgery indicated good or very good ability to have an erection compared to 39% of men considering non-surgical options (p<0.004).

Multivariate Models

In a multivariate model (Table II, Model 1), younger age was associated with a preference for surgery. Patients who returned the survey after starting treatment were more likely to prefer surgery. There were no differences in preference for surgery by black or non-black race or education. Married patients were more likely to consider only surgery. Patients with higher PSA values were moderately more likely to consider non-surgical options, while those with higher Gleason grade preferred surgery only. Recruitment site remained a strong predictor of preference between surgical or non-surgical options. Patients recruited through urology clinics were considerably more likely to consider only surgery compared to patients from KPNC. Consulting with more doctors was associated with patients being less likely to consider only surgery; on the other hand, more frequent recommendations for multiple options was associated with a preference for only considering surgery. Fear and anxiety about cancer was associated with a preference for surgery, and greater feelings of cancer control were associated with a preference for surgery.

None of the preexisting symptoms – urinary, bowel, or sexual problems – were significantly associated with treatment preference for surgery versus other options. In sensitivity analyses we explored using the full EPIC function scales for urinary, bowel and sexual function to assess our ability to capture preexisting symptoms, but found that the results were similar. We tested for possible interaction effects of age and when patients returned the survey with the symptoms variables using likelihood ratio tests. We found no evidence that either age or time of survey return in relation to treatment choice or treatment modified the importance of preexisting symptoms for urinary function, bowel function, and ability to have an erection.

In the model where we included consideration of side effects, preexisting symptoms did not appear to be mediators in whether men consider side effects in preference for non-surgical options. The odds for choosing surgical vs. nonsurgical options were similar for the effect of preexisting symptoms in models with and without the variable assessing the importance of side effects (Table II, Model 2). Notably, patients who indicated that side effects were a main factor in their decision were 66% more likely to consider non-surgical options (OR 0.34, p<0.001). Overall, the clinical, sociodemographic, and psychosocial variables explained approximately 22% of the variation in treatment preferences (Table II, Model 1). An additional 3% of the variation was accounted for by the inclusion of whether men considered side effects in their decision (Table III, Model 2).

Poorer sexual function, but not urinary or bowel function, was associated with higher likelihood of considering side effects as a main factor in the treatment decision (Table III), Men with good ability to have an erection at baseline were less likely (OR 0.57, p = 0.007) to indicate side effects were a main factor in their treatment decision. We hypothesized that this relationship may be true for only younger men. However, including an interaction term for age and ability to have an erection did not improve the fit of the model. Other factors that were associated with increased likelihood of side effects being a main factor in the decision preferences included Gleason score, and number of doctors consulted. Men who returned the survey after starting treatment were less likely to consider side effects as a main factor (OR 0.42, p<0.001), while those taking longer to decide on treatment were more likely to consider side effects as a main factor in their decision.

The variables we measured accounted for about 5% of the variation in the consideration of side effects (Table III). To demonstrate the variability associated with baseline erectile function in men's consideration of side effects as a main factor in the decision, we constructed predicted

probabilities based on those variables that were important including Gleason grade and education (Table IV). Among men with Gleason grade 7, those with good ability to have an erection and less than a college degree were less likely to consider side effects as a main factor (46%). In contrast, men with Gleason Grade 7 who have a college or graduate degree and poor ability to have an erection were more likely (66%) to consider side effects as a main factor – a 20% difference.

Discussion

We hypothesized that the potential side effects of treatment options would be more salient to men with preexisting genitourinary symptoms and that such individuals would be more likely to consider non-surgical options with lower risks of genitourinary side effects. Our hypothesis was not supported: preexisting genitourinary symptoms had little influence on men's preferences for surgical versus nonsurgical treatment for local stage prostate cancer. Other factors were significant predictors of whether men considered non-surgical options, including: age, disease risk, anxiety and fear about the cancer, feelings of control over the disease, and whether the subject was diagnosed in an integrated health care system (KPNC).

Psychosocial factors were associated with whether men considered only surgery or non-surgical options. For example, men with higher levels of worry and anxiety about their cancer were more likely to consider only surgery. In contrast, those who felt more in control of their disease and its treatment were more likely to consider non-surgical options. The strongest predictor of whether men considered non-surgical options was whether men indicated side effects were a main factor in their treatment decision. Men who were not concerned with side effects were two-thirds more likely to consider only surgery than men who were concerned with side effects.

Sexual function at the time of diagnosis was strongly associated with the likelihood that men considered side effects. Men with poor ability to have an erection were 43% more likely to consider side effects compared to men with good or very good ability to have an erection. In contrast to our hypothesis, preexisting urinary or bowel symptoms did not influence the importance of side effects in the treatment decision.

One potential reason for a lack of association between urinary symptoms and treatment preference is that some men with urinary obstruction may potentially receive relief associated with surgical removal of the prostate, so that the presence of urinary symptoms may influence some men towards surgery and others away from it. However, the main finding regarding urinary symptoms suggests that preexisting function is not a major factor influencing men's preferences.

Health care delivery system factors also appeared to play a role in the responses we observed. A higher proportion of men at KPNC preferred non-surgical therapy compared to the other sites. Men diagnosed in KPNC are provided with informational resources, such as group educational seminars about treatment options including brachytherapy that may not be as available to men diagnosed in community or academic clinics. Men may seek out academic medical centers for their surgical expertise and thus the differences by study site in men considering only surgery may reflect a population with a predisposition to surgery.

A key strength of our study is that our findings represent the experience of men from multiple care settings. Another strength is that men were recruited early in the treatment decision process, prior to receiving treatment, thus we are able to gain insight into the cognitive process and influences as men were making their decisions. We do note that although we asked men to return the survey before starting treatment, 28% of patients delayed returning the survey until after initiating treatment. Patients who initially indicated they were considering non-

surgical options may have actually gone on to surgery, or men who indicated they were only considering surgery may have previously been considering multiple options or may considered other options at a later time.

Few studies have been able to evaluate baseline function prior to treatment for prostate cancer in a large sample of men.[32,33] Our focus on baseline genitourinary symptoms and the treatment decision making process is unique because the role of symptoms on decision making preferences and outcomes is not well studied. The interaction of symptoms and psychosocial factors such as fear of recurrence has recently been evaluated in men following diagnosis.[34] This study, one of the first to examine concurrently the roles of symptoms and fear of recurrence among prostate cancer patients; found that both psychosocial factors and symptoms play a considerable role in men's quality of life. We observed little influence of baseline symptoms in men's treatment preferences, although fear of recurrence and anxiety did influence treatment considerations.

Conclusions

The objective of the PCATS study is to understand what influences men's treatment preferences, and how we can ensure men are considering factors that will lead them to making choices that are consistent with their personal preferences. Our findings suggest that sexual function may be a factor that is not appropriately considered in the decision process. The observation that men who have experience with sexual dysfunction symptoms view side effects differently suggests a potential information asymmetry. Physicians should carefully counsel patients about the risks of impaired sexual function with surgery, and fully explain their burden to those men who may otherwise be unaware of how decreased sexual function may affect quality of life.

Careful assessment of baseline symptoms is important to the quality of care men receive. Recently proposed quality indicators call for providers to document baseline function so that any changes following treatment can be monitored and addressed.[35] Our study suggests that the assessment of baseline symptoms, sexual symptoms in particular, can be used as a mechanism for discussing risks of genitourinary adverse effects with treatment and their potential impact on quality of life, especially among men who have not experienced symptoms.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table I

Characteristic of patients who are considering only surgery and those who are considering at least one non-surgical treatment option.

	Preference for Non-Surgical Options n = 345 (58%)	Preference for Surgery Only n = 248 (42%)	
Age [y] (%)[a]			
<60	20%	40%	<0.001
60–64	16%	20%	
65–69	27%	29%	
70–75	37%	10%	
PSA (%)[a]			
<4 ng/ml	10%	15%	p=0.008, trend p=0.008[e]
4 – 6.9 ng/ml	53%	58%	
7 – 9.9 ng/ml	19%	14%	
>10 ng/ml	17%	13%	
Gleason Score (%)[a]			
≤6	71%	59%	p=0.008, trend 0.013[f]
7	23%	34%	
8–10	6%	7%	
Mean number of chronic conditions (%)[a]			
0	34%	47%	p=0.005, trend 0.002[g]
1	38%	31%	
2	19%	18%	
3+	9%	5%	
Race (%)[a]			
White	75%	73%	p =0.232
Black	9%	10%	
Hispanic	6%	10%	
Asian	8%	7%	
Other/Unknown	2%	-	
Married (%)			
Currently married	80%	83%	p=0.414
Education (%)[a]			
Less than College	50%	48%	p=0.866
College or Graduate degree	49%	51%	
Returned Survey After Starting Treatment (%)	24%	32%	P=0.036
Study Site (%)[a]			
Kaiser Permanente Northern California (KPNC)	84%	57%	p<0.001
USC	8%	25%	

	Preference for Non-Surgical Options n = 345 (58%)	Preference for Surgery Only n = 248 (42%)	
Pacific Northwest	8%	18%	
No. of Doctors Consulted	2.1	2.1	p=0.468
No. of Treatment Options Recommended	1.0	1.8	p<0.001
Fear and Worry about Cancer[b]	55	58	p=0.132
Feeling of Control Scale[c]	59	58	p=0.331
Current Limitations in Urinary Function (%)	41%	43%	p=0.630
Current Limitations in Bowel Function (%)	70%	72%	p=0.612
Ability To Have an Erection (%) (Good or Very Good)	39%	51%	p<0.004
EPIC Urinary Function[d]	91.1	91.1	p=0.948
EPIC Bowel Function[d]	91.7	91.2	p=0.561
EPIC Sexual Function[d]	48.0	52.8	p=0.031
EPIC Urinary Summary[d]	84.8	85.1	p=0.780
EPIC Bowel Summary[d]	92.1	92.3	p=0.809
EPIC Sexual Summary[d]	51.9	56.9	p=0.030
Adverse Effects were a Main Factor in Decision (%)	71%	49%	p<0.001

[a] Percents may not sum to 100 due to rounding

[b] Mean score on scale of 0–100; Higher = more worry

[c] Mean score on scale of 0–100; Higher = less control

[d] Mean score on a scale of 0–100; Higher score = better function

[e] Trend from low to high PSA

[f] Trend from low to high Gleason score

[g] Trend from low to high number of comorbidities

PSA = prostate-specific antigen

Table II

The association of clinical, sociodemographic, psychosocial factors (Model 1) and the importance of side effects (Model 2) with preferences for surgery or non-surgical options for localized prostate cancer

	Model 1		Model 2	
	Odds Ratio	**p**	**Odds Ratio**	**p**
Age	0.92	<0.001	0.91	<0.001
PSA	0.96	0.064	0.95	0.047
Gleason Score				
≤6	NA		NA	
7	2.31	<0.001	2.16	0.002
8–10	1.75	0.216	1.45	0.421
Race				
Non black	NA		NA	
Black	1.66	0.173	1.61	0.213
No. of chronic conditions	0.85	0.167	0.83	0.139
Currently Married	1.88	0.037	1.88	0.040
Education				
Less than College	NA		NA	
College or Graduate degree	0.95	0.829	1.04	0.870
Returned Survey After Starting Treatment	1.71	0.023	1.45	0.129
Study Site				
Kaiser Permanente Northern California (KPNC)	NA		NA	
USC	4.84	<0.001	5.45	<0.001
Pacific Northwest	3.69	<0.001	3.70	<0.001
No. of Doctors Consulted	0.75	0.038	0.79	0.109
No. of Treatment Options Recommended	1.40	<0.001	1.45	<0.001
Worry and Anxiety about Cancer				
Low Worry and Anxiety	NA		NA	
Moderate Worry and Anxiety	1.37	0.270	1.67	0.087
High Worry and Anxiety	2.50	0.002	2.92	0.001
Feeling of Control Scale				
High Feeling of Control	NA		NA	
Moderate Feeling of Control	0.54	0.031	0.50	0.019
Low Feeling of Control	0.42	0.005	0.43	0.007
Current Limitations in Urinary Function	1.15	0.508	1.12	0.608
Current Limitations in Bowel Function	0.95	0.834	0.91	0.689
Ability To Have an Erection (Good or Very Good)	1.30	0.226	1.14	0.566
Side Effects were a Main Factor in the Treatment Decision (Model 2 only)	--	--	0.34	<0.001
	R-square = 0.217		R-square = 0.248	

PSA = prostate-specific antigen

Table III

Clinical, sociodemographic and psychosocial factors and their association with considering side effects as a main factor in treatment preference

	Odds Ratio	p
Age	1.00	0.639
PSA	0.99	0.558
Gleason Score		
≤6	NA	
7	0.63	0.032
8–10	0.38	0.016
Race		
Non black	NA	
Black	0.90	0.751
Number of chronic conditions	0.92	0.424
Currently Married	0.92	0.732
Education		
Less than College	NA	
College or Graduate degree	1.40	0.085
Returned Survey After Starting Treatment	0.42	<0.001
Study Site		
Kaiser Permanente Northern California (KPNC)	NA	
USC	1.15	0.655
Pacific Northwest	0.83	0.518
No. of Doctors Consulted[a]	1.43	0.006
No. of Treatment Options Recommended	1.05	0.556
Worry and Anxiety about Cancer		
Low Worry and Anxiety	NA	
Moderate Worry and Anxiety	1.57	0.083
High Worry and Anxiety	1.33	0.271
Feeling of Control Scale		
High Feeling of Control	NA	
Moderate Feeling of Control	1.00	0.988
Low Feeling of Control	1.32	0.322
Current Limitations in Urinary Function	0.84	0.382
Current Limitations in Bowel Function	0.85	0.469
Ability To Have an Erection (Good or Very Good)	0.57	0.007
	R-Square = 0.050	

[a] Greater number of doctors consulted was associated with greater likelihood of considering adverse effects

NA = not available; PSA = prostate-specific antigen

Table IV

Gleason cancer grade, education, and erectile function as factors influencing the probability of side effects as a main factor in local stage prostate cancer patient's treatment decision

	5 or 6	Gleason Grade 7	8 to 10
< College Degree			
Good ability to have erection	0.59 (0.50, 0.67)	0.46 (0.35, 0.57)	0.33 (0.19, 0.51)
Poor ability to have erection	0.69 (0.61, 0.75)	0.56 (0.47, 0.66)	0.43 (0.27, 0.61)
College or Graduate Degree			
Good ability to have erection	0.68 (0.60, 0.75)	0.56 (0.45, 0.66)	0.43 (0.26, 0.61)
Poor ability to have erection	0.76 (0.69, 0.82)	0.66 (0.56, 0.75)	0.53 (0.36, 0.70)