ORIGINAL ARTICLE

Fear of recurrence, treatment satisfaction, and quality of life after radical prostatectomy for prostate cancer

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Abstract

Goals of work Fear of cancer recurrence (FOR) is common in prostate cancer patients, but little research has examined the impact of FOR on quality of life (QOL) or the mechanism by which these fears become intensified. The objective of this study was to examine treatment satisfaction (TS) as a moderator of the relationship between FOR and QOL.
Patients and methods Data were drawn from the CaPSURE™ database, a 12,000-man national observational prostate cancer registry. Three hundred and thirty-three patients who underwent radical prostatectomy (RP) to treat their prostate cancer completed self-report measures. TS was measured 0–6 months post-RP with a nine-item scale developed for this study, FOR was measured 6–12 months post-RP with a previously validated five-item scale, and QOL was measured 12–18 months post-RP with the Short Form 36.
Main results After controlling for age, education, number of comorbid medical conditions, and cancer severity, lower FOR ($B=-0.12$, $p<0.0001$), higher TS ($B=0.09$, $p<0.001$), and the interaction of TS×FOR ($B=0.87$, $p<0.05$) significantly predicted higher mental health QOL scores. Furthermore, lower FOR ($B=-0.08$, $p<0.01$), and the interaction of TS×FOR ($B=-1.11$, $p<0.01$) significantly predicted higher physical health QOL scores.
Conclusions TS levels mitigated the impact of high FOR on lower levels of QOL. Specifically, patients who reported lower TS and greater FOR endorsed significantly lower levels of QOL compared to other patients in the sample.

Keywords Prostate cancer · Treatment satisfaction · Fear of recurrence · Quality-of-life

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Prostate cancer is the most common site of cancer in older men and second leading cause of cancer death in the USA [1]. While both the 5-year survival rate (93%) and 10-year survival rate (72%) are high, up to 30% of patients will show evidence of a cancer recurrence within 5 years of undergoing radical prostatectomy [19]. Concerns about cancer recurrence are frequently reported in prostate cancer patients. In a large study of cancer survivors' top 10 biggest concerns, prostate cancer patients rated being "fearful my illness will return" as their second biggest problem after sexual dysfunction [6].

Fear of cancer recurrence appears to fluctuate over the course of treatment and recovery from prostate cancer. Not surprisingly, monitoring for asymptomatic disease recurrence

through PSA testing can increase subjective anxiety levels [4, 20]. Among patients undergoing treatment, a prior study using CaPSURE™ data showed fear of recurrence improved after the first 6 months of active treatment for prostate cancer (radical prostatectomy, radiation, and brachytherapy) [15]. Despite the initial improvement, fear of recurrence remained constant over time and was still moderately high 2 years post-treatment. Fear of recurrence occurs in long-term prostate cancer survivors as well. For example, Deimling et al. [6] reported 38% of patients who underwent treatment more than 5 years ago reported being worried that a current physical symptom indicated a cancer recurrence.

Although fear of recurrence is common in prostate cancer, little is known about the psychological processes by which these fears get intensified. Questioning whether one's physician is checking carefully enough for the return of cancer appears to be related to higher anxieties about recurrence. Research in other samples of cancer patients, such as breast cancer, suggest that patients can experience anxiety about whether there are still cancer cells in their body and whether one's physician has been thorough enough [11, 25]. Another study showed that patients who felt that they or their physicians did not have control over their health reported greater fears of recurrence [8]. These data suggest that feeling dissatisfied with one's treatment may play an important role in exacerbating fears of cancer recurrence.

Prior studies have found that greater fear of cancer recurrence appears to predict worse quality of life [16]. Specifically, high fears of recurrence have been shown to be associated with more general anxiety, hopelessness about the future, and self-reported checking of bodily symptoms [11]. Further, research has documented greater fear of recurrence to be correlated with more psychological distress [10] and lower levels of psychological well-being [20, 21]. Clearly, having cancer generates a great deal of uncertainty for those diagnosed and questions about one's disease progression [3, 17]. While a few studies have confirmed that greater levels of uncertainty are associated with worse quality of life in prostate cancer patients [7, 23], surprisingly, little research has focused specifically the relationship between fear of cancer recurrence and quality of life in this population. In addition, data are scant on the extent to which fears of cancer recurrence interact with treatment satisfaction in predicting quality of life in prostate cancer patients. The objective of this study was to examine treatment satisfaction as a moderator of the relationship between fear of cancer recurrence and quality of life. Specifically, we hypothesized that patients who reported low levels of treatment satisfaction and high fear of cancer recurrence would experience worse quality of life compared to patients who were reported greater levels of satisfaction with their treatment.

Patients and methods

Participants

Participants in this study were enrolled in the CaPSURE™ (Cancer of the Prostate Strategic Urologic Research Endeavor) study, which is a longitudinal, observational disease registry for men with biopsy-proven prostate cancer. CaPSURE enrolls patients from a core group of 31 urologic practice sites. At each practice site, all men with biopsy-proven prostate cancer are invited consecutively to join CaPSURE regardless of their disease stage or treatment history. Informed consent for participation is obtained from each patient under local institutional review board supervision.

CaPSURE collects approximately 1,000 urologist- and patient-reported variables. Sociodemographic and quality-of-life data are collected from patients at enrollment and at subsequent 6-month intervals via mailed questionnaires. Response rates to the questionnaires are approximately 75% at each mailing. Patients are followed until time of death or withdrawal from the study. Clinical data are collected at time of enrollment and each time the patient returns for care, including history of prostate cancer diagnosis, biopsies, pathology, staging tests, primary and subsequent prostate cancer treatments, Karnofsky performance status scores, and medications. Follow-up prostate-specific antigen (PSA) results are also reported. The study protocol was approved by the institutional review board at the University of California, San Francisco, and the contributing sites.

As of April 2005, 11,804 patients were enrolled in the study, and more than 7,000 were currently participating in follow-up assessments. Participants were enrolled primarily from community-based practices. Only about 8% of the participants were enrolled from academic or Veterans Administration sites. A more detailed description of the CaPSURE™ project methods has been previously published [13].

To be included in the analyses presented in this paper, participants had to be diagnosed with biopsy-proven localized prostate cancer between 1999 and 2002 ($N=4,601$), to have received radical prostatectomy as their primary treatment ($N=2,121$), and to have completed post-treatment measures at three time points: (1) baseline, (2) 6 to 12 months post-treatment, and (3) 12 to 18 months post-treatment. Our final sample included 333 men who had completed post-treatment measures at each of these three time points.

Measures

Fear of cancer recurrence

A five-item fear of cancer recurrence measure [9] was added to the CaPSURE™ patient questionnaire in 1999 and remained in the semiannual questionnaire until 2002.

The fear of recurrence scale measures patient beliefs and anxieties about disease recurrence, such as "I am afraid of my cancer getting worse" and "I will probably have a recurrence within the next five years." All items are rated on a five-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree." The reliability and validity of this scale have been previously established [8, 9].

In a previous CaPSURE™ analysis [15], raw scale scores were reversed and transformed from a 5 to 25 scale to a 0 to 100 scale to make the scores easier to compare to scores from health-related quality-of-life instruments where higher scores represent better functioning. The five items were then averaged to create an overall fear of recurrence score. In this analysis, however, scores were *not* reversed, meaning higher scores indicated greater anxiety about cancer. In the current study, internal consistency of the scale was good (Cronbach's alpha=0.88).

Treatment satisfaction

Treatment satisfaction was measured with a nine-item Likert-type scale ranging from "Strongly Agree" to "Strongly Disagree." The treatment satisfaction scale measures global satisfaction with health care, and including items such as "I am perfectly satisfied with the health care I have been receiving" and "My health care providers could have been kinder and more considerate of my feelings." The reliability and validity of the scale have been documented [12]. In the current study, internal consistency was good (Cronbach's alpha=0.86).

Quality of life

Quality of life was assessed with the MOS Short Form 36 (SF-36) version 1.0 [24], which demonstrates high test–retest reliability and good internal consistency, content, and construct validity. For each item, patients rated the extent to which their QOL has been limited by problems with their physical or emotional health. The SF-36 produces eight subscales and two composite scores for physical health (PCS) and mental health (MCS). In this analysis, we report results only for the two composite scores. Internal consistency of these scales were good (Cronbach's alphas=0.94 and 0.89).

Data analyses

Chi-squared analyses and one-way analyses of variance were used to analyze pretreatment demographic clinical data differences between participants and nonparticipants. To examine our main outcome analyses, we fit a mixed model using the MCS and PCS from the SF-36, assessed 12–18 months post-treatment, as outcome variables in separate

models. The following variables were entered into each model: (1) covariates: age, education, number of comorbid health conditions, and prostate cancer risk score, (2) treatment satisfaction assessed 0–6 months post-treatment, (3) fear of recurrence data assessed 6–12 months post-treatment, and (4) treatment satisfaction × fear of recurrence interaction term. We chose to examine the lagged relationships over time because we hypothesized that treatment satisfaction at baseline would predict fear of recurrence at the next time point, which would subsequently predict quality of life. Clinical risk was based on a modification of the risk groups defined by D'Amico et al. [5]. Patients were considered low risk if they had a PSA less than or equal to 10 ng/ml, a Gleason sum less than 7 with no primary or secondary Gleason of 4 or 5, and clinical T-stage T1–T2a, intermediate risk if they had a PSA 10.1–20 ng/ml or a Gleason sum 7 or a Gleason secondary 4 or 5, or T-stage cT2b–2c, and high risk if they had a PSA greater than 20 ng/ml, or a Gleason sum greater than 7 or Gleason primary 4 or 5, or T-stage cT3a. Mixed model analyses were performed with version 9.1 of SAS software using PROC MIXED.

Results

Comparison of participants to nonparticipants

We compared demographic and medical characteristics of our participants (N=333) vs patients who did not have complete data on quality of life, fear of recurrence, and treatment satisfaction at each of the previously specified three time points (N=1,788). Participants did not significantly differ from nonparticipants on age at diagnosis, race, education, income, relationship status, or insurance status. Furthermore, no statistically significant differences emerged between the two groups on PSA level, T-stage, total Gleason score, risk category, and number of comorbidities. Nonparticipants were significantly more likely to meet criteria for obesity than participants (p<0.05).

Sample characteristics

Table 1 presents the demographic and medical characteristics of the 333 participants who met the criteria for these analyses, as described earlier. Mean age of participants was 61.8 years (SD=6.7 years). The majority of participants were Caucasian, married or living with a partner, and had private insurance or Medicare supplement. Almost half of the sample had graduated college. Most patients (55%) had between one to two comorbid medical conditions, while 23% had three or more comorbid medical conditions. Fifteen percent were rated as having high-risk disease, 37% were rated intermediate risk, and 48% were rated low risk.

Tables 2 and 3 display the frequency distributions for each of the treatment satisfaction and fear of recurrence items. At baseline, the average treatment satisfaction score was $M=78.5$, $SD=15.6$. Fear of recurrence, measured at the 6–12 month follow-up, was low on average, $M=20.0$, $SD=18.4$. Severity of fear of recurrence was similar to that reported in another sample of CaPSURE™ patients [15]. The average SF-36 MCS and PCS scores measured at the 12–18-month follow-up were $M=53.8$, $SD=8.2$ and $M=52.0$, $SD=8.0$, respectively. It is notable that quality of life in this sample was similar to the MCS and PCS norms for the general US population of men: $M=51.35$, $SD=8.98$ and $M=51.21$, $SD=88.4$, respectively [24].

Table 4 shows the zero-order correlations for the treatment satisfaction scale, fear of recurrence scale, and the SF-36 MCS and PCS scales. Lower treatment satisfaction, as

Table 1 Demographic and medical characteristics of sample ($N=333$)

Variable	Value	Number	Percent
Age at diagnosis (years)	<60	115	35
	60–69	176	53
	70+	42	13
Race	Native American	3	1
	Asian	5	2
	Latino	6	2
	African American	12	4
	White	302	91
	Mixed	3	1
Education	<High school	27	9
	High school grad	63	22
	Some college	63	22
	College grad	139	48
Yearly income	<$30,000	47	17
	$30,000–50,000	75	27
	$50,000–75,000	55	20
	>$75,000	101	36
Relationship status	In relationship	278	95
	Single	14	5
Medical insurance	Medicare supp	77	24
	Medicare	34	11
	Private	197	62
	Other	8	3
PSA category	≤4	52	16
	4.1–10	214	67
	10.1–20	43	13
	>20	12	4
T-stage	1	177	53
	2	153	46
	3	3	1
Gleason total	2–4	2	1
	5–6	245	74
	7	73	22
	8–10	10	3
Gleason groups	no 4–5	247	75
	1–3/4–5	46	14
	4–5/1–5	37	11
Risk category	Low	156	48
	Intermediate	119	37
	High	48	15
Comordities	None	65	22
	1–2	160	55
	3+	66	23
BMI category	Normal (<25.0)	71	25
	Overweight (25.0–29.9)	166	57
	Obese (30.0+)	52	18

Table 2 Frequency distributions of fear of recurrence items for total sample ($N=333$)

Fear of recurrence scale items	Strongly agree (%)	Agree (%)	Not certain (%)	Disagree (%)	Strongly agree (%)
1. I am certain that I have been cured of cancer	32	36	24	3	5
2. I will probably relapse within the next five years.	38	34	24	3	0
3. My fear of having my cancer getting worse gets in the way of my enjoying life.	59	33	5	3	0
4. Because cancer is unpredictable, I feel I cannot plan for the future.	49	38	8	4	0
5. I am afraid of my cancer getting worse.	51	32	9	7	1

measured within the first 6 months post-treatment, was significantly correlated with higher fear of recurrence at 6–12 months post-treatment ($p<0.01$) and lower MCS ($p<0.01$) and PCS ($p<0.01$) quality of life scores at 12–18 months post-treatment. Higher fear of recurrence at 6–12 months post-treatment was significantly correlated with lower MCS ($p<0.01$) and PCS ($p<0.01$) quality-of-life scores at 12–18 months post-treatment.

Treatment satisfaction, fear of recurrence, and SF-36 MCS

Table 5 displays the estimates and significance levels for the mixed model analysis, where the MCS was regressed on fear of recurrence, treatment satisfaction, and an interaction term of Treatment satisfaction×fear of recurrence. The overall regression model was statistically significant, $F=8.90$, $R^2=0.23$, $p<0.0001$. After controlling for age, education,

number of comorbid medical conditions, and cancer severity, lower fear of recurrence ($B=-0.12$, $p<0.0001$), higher treatment satisfaction ($B=0.09$, $p<0.001$), and the interaction of treatment satisfaction×fear of recurrence ($B=0.87$, $p<0.05$) significantly predicted higher MCS scores. Figure 1 displays the significant interaction effect, which indicated patients reporting higher fear of recurrence and lower treatment satisfaction had the lowest MCS scores.

Treatment satisfaction, fear of recurrence, and SF-36 PCS

Table 6 displays the estimates and significance levels for the mixed model analysis, where the PCS was regressed on fear of recurrence, treatment satisfaction, and an interaction term of treatment satisfaction×fear of recurrence. The overall regression model was statistically significant, $F=7.94$, $R^2=0.26$, $p<0.0001$. After controlling for age, education,

Table 3 Frequency distributions of treatment satisfaction items for total sample ($N=333$)

Treatment satisfaction scale items	Strongly agree (%)	Agree (%)	Agree somewhat (%)	Disagree somewhat (%)	Disagree (%)	Strongly disagree (%)
1. I am perfectly satisfied with the health care I have been receiving.	45	46	6	1	2	1
2. There are some things about the health care I have been receiving that could be better.	5	18	17	6	34	22
3. I have not had as much contact with HCPs as I think I should have.	2	5	11	7	47	27
4. The amount of time I have spent with HCPs is certainly adequate.	30	51	11	4	2	1
5. My HCPs could have listened more carefully to what I had to say.	2	8	12	8	45	25
6. My HCPs have explained completely the reasons for examination procedures and tests.	38	49	6	4	2	1
7. My HCPs have always treated me with the utmost respect.	50	42	5	1	1	1
8. My HCPs could have been kinder and more considerate of my feelings.	3	5	6	8	41	37
9. I have an extraordinary amount of confidence in the HCPs I have been seeing.	43	44	9	3	1	0

HCPs Health Care Providers

Table 4 Zero-order correlations for treatment satisfaction, fear of recurrence, and quality of life (N=333)

Variable	TS baseline	TS time 2	TS time 3	FOR baseline	FOR time 2	FOR time 3	PCS baseline	PCS time 2	PCS time 3	MCS baseline	MCS time 2	MCS time 3
TS baseline		0.61**	0.61**	−0.38**	−0.39**	−0.35**	0.18**	0.18**	0.18**	0.32**	0.30**	0.33**
TS time 2			0.66**	−0.39**	−0.45**	−0.42**	0.24**	0.26**	0.27**	0.35**	0.33**	0.32**
TS time 3				−0.28**	−0.33**	−0.32**	0.23**	0.31**	0.32**	0.23**	0.29**	0.28**
FOR baseline					0.76**	0.74**	−0.26**	−0.23**	−0.26**	−0.41**	−0.39**	−0.39**
FOR time 2						0.78**	−0.23**	−0.22**	−0.27**	−0.36**	−0.43**	−0.39**
FOR time 3							−0.23**	−0.20**	−0.30**	−0.40**	−0.44**	−0.43**
PCS baseline								0.55**	0.52**	0.15**	0.14**	0.18**
PCS time 2									0.75**	0.20**	0.12**	0.19**
PCS time 3										0.12*	0.18**	0.06
MCS baseline											0.53**	0.61**
MCS time 2												0.65**

TS Treatment satisfaction, *FOR* fear of recurrence, *PCS* SF-36 Physical Composite Scale, *MCS* SF-36 Mental Composite Scale

*$p<0.05$; **$p<0.001$

Table 5 Results of mixed model analyses predicting SF-36 MCS at 12–18 months after radical prostatectomy

| Parameter	Estimate	SE	t value	p value
Intercept	38.46	5.25	7.33	0.0001
Age at diagnosis	0.19	0.07	2.83	0.0050
Education level				
<High school	−4.19	1.62	−2.59	0.0102
High school graduate	−0.86	1.14	−0.75	0.4534
Some college	−1.25	1.17	−1.07	0.2838
College graduate	0.00	–	–	–
Risk category				
Low	−0.14	1.32	−0.10	0.9172
Intermediate	−0.27	1.34	−0.20	0.8434
High	0.00	–	–	–
Fear of recurrence	−0.12	0.03	−4.36	0.0001
Treatment satisfaction	0.09	0.03	2.86	0.0046
Fear of recurrence× treatment satisfaction	0.87	0.44	1.99	0.0481

number of comorbid medical conditions, and cancer severity, lower fear of recurrence ($B=−0.08$ $p<0.01$) and the interaction of treatment satisfaction×fear of recurrence ($B=−1.11$, $p<0.01$) significantly predicted higher PCS scores. Figure 2 displays the significant interaction effect, which indicated patients reporting higher fear of recurrence and lower treatment satisfaction had the lowest PCS scores.

Discussion

Two main findings emerged from this study. First, radical prostatectomy patients' increased fear of cancer recurrence predicted lower levels of quality of life, even after controlling for relevant demographic and medical characteristics, such as disease severity. Second, treatment satisfaction levels mitigated the impact of high fear of recurrence on lower levels of quality of life. Specifically, patients who reported being more dissatisfied with their prostate cancer treatment and also greater fear of cancer recurrence endorsed significantly lower levels of quality of life compared to other patients in the sample.

After treatment, prostate cancer patients undergo continued medical monitoring for cancer recurrence, which can exacerbate anxiety [4, 20]. Consistent with findings obtained 2 years after treatment from a larger CaPSURE™ sample [15], fear of cancer recurrence was not uncommon among our study patients 6 to 12 months postradical prostatectomy. Although many patients did not report high fear of cancer recurrence, those that did had significantly lower levels of quality of life, as reported 12 to 18 months postradical prostatectomy. This finding suggests that fears of cancer recurrence measured at one time point continue to affect

Fig. 1 SF-36 mental composite score (*MCS*) least square estimates by fear of recurrence (*FC*) and treatment satisfaction (*TS*) after radial prostatectomy
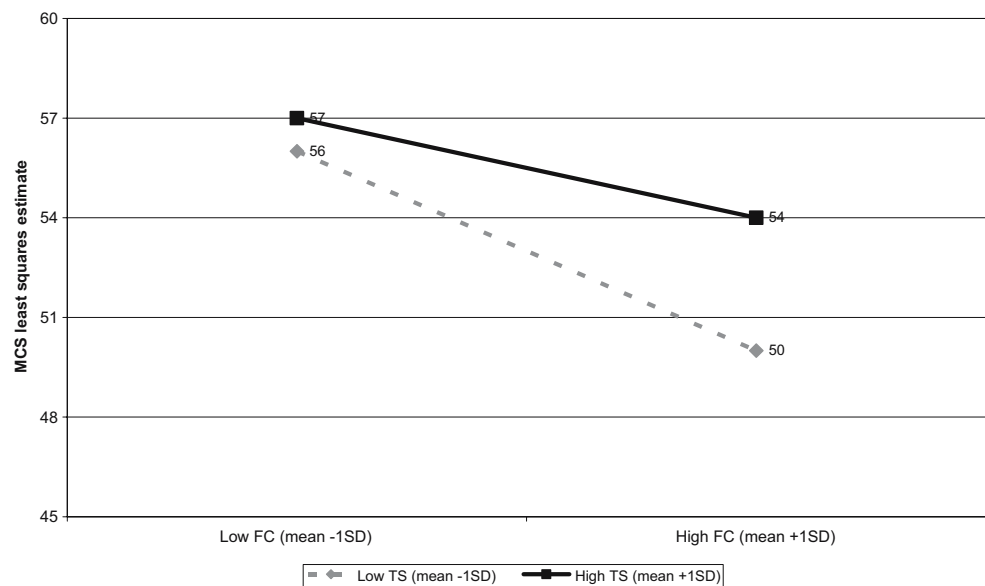
quality of life negatively a full 6 months later. Men reporting higher fear of recurrence may need psychosocial interventions to help them manage their concerns about recurrence before quality of life is compromised. While little data have been published about this relationship for prostate cancer patients, our findings are in keeping with data from breast cancer patients showing greater fear of cancer recurrence appears to predict worse quality of life [16].

Table 6 Results of mixed model analyses predicting SF-36 PCS at 12–18 months after radial prostatectomy

Parameter	Estimate	SE	*t* value	*p* value
Intercept	56.09	5.31	10.55	0.0001
Age at diagnosis	−0.17	0.07	−2.54	0.0117
Race				
White	3.80	1.56	2.43	0.0156
Other	0.00	–	–	–
Education				
<High school	−4.95	1.56	−3.16	0.0017
High School Grad	−1.93	1.09	−1.77	0.0781
Some college	−2.52	1.12	−2.26	0.0245
College grad	0.00	–	–	–
No. comorbidities				
None	5.90	1.30	4.52	0.0001
1–2	3.24	1.09	2.99	0.0031
3+	0.00	–	–	–
Risk category				
Low	−1.37	1.26	−1.09	0.2779
Intermediate	−0.79	1.28	−0.62	0.5381
High	0.00	–	–	–
Fear of recurrence	−0.08	0.03	−3.30	0.0011
Treatment satisfaction	0.05	0.03	1.52	0.1292
Fear of recurrence× treatment satisfaction	−1.11	0.42	−2.64	0.0088

Another important point from this study is that patients' dissatisfaction with their prostate cancer follow-up care has important psychosocial ramifications. Our findings underscore the importance of cancer treatment satisfaction for quality of life. Dissatisfaction with cancer care, especially when patients report problems with the physician–patient relationship, has been also shown by other research to predict worse quality of life [18, 22]. Treatment satisfaction, as assessed in the first 6 months after radical prostatectomy, moderated the relationship between fear of cancer recurrence and quality of life. This suggests that treatment dissatisfaction may play an important role in exacerbating fears of cancer recurrence.

While a degree of fear of recurrence is not uncommon and to some extent is to be expected in cancer patients, strained patient–provider relationships may exacerbate these fears. For example, low self-efficacy for patient–physician interactions has been shown to predict greater treatment dissatisfaction, less confidence in medical providers, and greater symptom distress in prostate cancer patients [14]. Similarly, studies of breast cancer patients have shown patient dissatisfaction increases when patients perceive that their physician has not been thorough enough or has communicated medical information poorly [11, 25]. Taken together, these findings suggest physician behaviors can significantly impact patient satisfaction and symptom distress. It is a possibility that improving patient–physician interactions may reduce fear of recurrence and increase quality of life, and future studies should investigate this question.

Limitations of the current research are important to consider when interpreting these findings. First, the post-treatment assessments were not coordinated with cancer follow-up appointments for patients in this study. Therefore, our measurements may underestimate fear of recur-

Fig. 2 SF-36 physical composite score (*MCS*) least square estimates by fear of recurrence (*FC*) and treatment satisfaction (*TS*) after radial prostatectomy
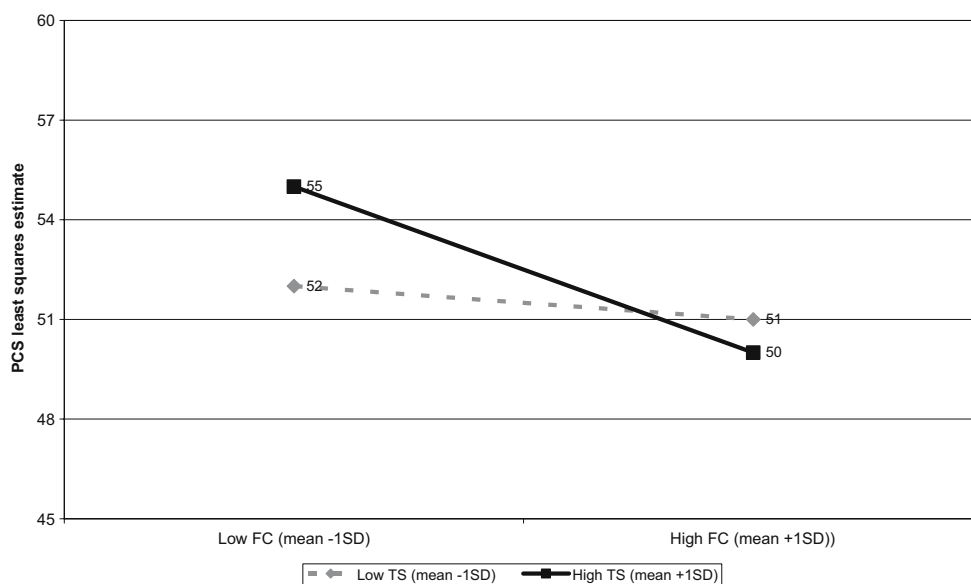
rence levels, as prior research shows anxiety to increase around medical follow-ups [4, 20]. A second limitation lies in the generalizability of our findings. Participants in this study represent a small proportion of CaPSURE™ participants and may not necessarily apply to the larger sample of study patients receiving nonsurgical treatment for prostate cancer or to the more general population of prostate cancer patients. However, participants were not found to significantly differ from nonparticipants on any demographic variables and on any cancer-relevant clinical data. Third, participants were primarily Caucasian, highly educated, and had medical insurance; therefore, it is unknown whether these findings would be replicated in a lower income, uninsured, or non-Caucasian sample. Fourth, data were obtained only for 18 months after radical prostatectomy. Because recurrence rates increase over time, a longer follow-up period may have shown increasing fear of recurrence. As a result, it is unknown whether the patterns identified in our analyses apply to longer term prostate cancer patients or to patients who have undergone other types of treatment options, such as brachytherapy and radiation. Despite these limitations, strengths of this study include the use of longitudinal, lagged data and the fact that patients were recruited from community practices and clinics across the USA instead of being limited to academic medical centers.

To our knowledge, this is the first study with prostate cancer patients to document the potential for low treatment satisfaction to amplify the relationship between increased fear of recurrence and worsened quality of life. Clearly, more data are needed on the specific factors leading to treatment dissatisfaction in prostate cancer patients. In the meantime, medical providers need to be aware of the psychological impact that fear of recurrence may have for their patients. Furthermore, educating patients about prostate cancer seems to be an important strategy for improving psychological outcomes. For example, providing patients with enough information about their prognosis and treatment options and helping them to accept the uncertainty around their disease appears to help prostate cancer patients improve their quality of life [2]. Future studies should determine whether improving treatment satisfaction helps to reduce fears of cancer recurrence and subsequently improve quality of life in prostate cancer patients.

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