



Prostate Cancer and Quality of Life

Analysis of Response
Shift Using Triangulation
Between Methods

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ABSTRACT

Quality of life (QoL) after prostate cancer treatment is uncertain. Patient responses to QoL questions shift for a number of reasons: measurement intervals no longer have the same psychological anchors (recalibration), the importance attributed to different QoL domains changes over time (reprioritization), and the definition of QoL differs throughout the disease continuum (reconceptualization). Therefore, the aim of this study was to describe QoL response shift in a cohort of 66 men with prostate cancer. The method involved carrying out a sequential triangulation between quantitative and qualitative methods. Patients were assessed at baseline (P1), followed by a posttest (P2) and a then-test measurement (P3). The difference between P3 and P1 was used to determine the response shift effect (recalibration). From baseline to posttest, QoL significantly decreased. The recalibration then-test confirmed a low QoL in all periods evaluated. Coping mechanisms were found to differ by age group, with older men less concerned about side effects than younger men. Health professionals should be alert to QoL changes over time and possible side effects, should coping skills fail. [*Journal of Gerontological Nursing*, 40(6), 32-41.]

Since the 1990s, the incidence of prostate cancer in Spain has increased exponentially due to the use of prostate-specific antigens (PSA) for early diagnosis in asymptomatic men (Larrañaga et al., 2010). Five-year survival is 85%, a relatively high rate achieved through early treatment and the efficacy of currently available therapies (Marcos-Gragera et al., 2012). However, preventing one prostate cancer death in Europe requires the diagnosis of 48 cases, which reflects the overdiagnosis and overtreatment of low-risk prostate cancer (Welch & Albertsen, 2009). As age increases, individuals are more affected by overtreatment (Marcos-Gragera et al., 2012), and the most common side effects of prostate cancer treatments are related to quality of life (QoL) considerations: sexual dysfunction and impotence; urinary and fecal incontinence; fatigue; and psychological problems, including emotional disturbance and dysthymia (Johnson & Cadogan, 2013; Korfage et al., 2008; Ponholzer, Brössner, Struhel, Marszalek, & Madersbacher, 2006; Serdà, 2009). The concept of QoL is multidimensional, dynamic, and modular in its paradigm (Cella & Tulsky, 1993) and influenced by psychological mechanisms, affecting the individual's capacity to adjust to the disease (Díaz Veiga, Facal, &

Yanguas Leazón, 2010). In turn, this adjustment process is affected by the individual's coping strategies, social network, and other personal factors (Literas, Navarro, & Fontanals, 2010; Schwartz et al., 2006).

A cancer diagnosis has a major impact on an individual's QoL. Men's QoL—and self-evaluation of this QoL—decreased after treatment as side effects began to have an impact, limiting their daily activities and precluding other normal activities. In this context, the prostate cancer diagnosis is a change in health status. Studies of QoL in patients with prostate cancer report conflicting results (Ponholzer et al., 2006; Serdà, 2009).

The principal effect of the changeable nature of QoL is the resulting change in the patient's assessment of the concept. Studying the magnitude of this change, known as QoL response shift (QoL-RS), is fundamental in interpreting an individual's scores on QoL questionnaires in clinical research (Schwartz & Sprangers, 2000).

Sprangers and Schwartz (1999) identified three interactive mechanisms that produce a QoL-RS: *reconceptualization*, *reprioritization*, and *recalibration*. The reconceptualization mechanism corresponds to redefinition of the QoL concept; reprioritization, to changes in the

importance attributed to the various dimensions that constitute the QoL concept; and recalibration, to changes in the internal values of QoL questionnaire responses.

In a previous study, men with prostate cancer reported high QoL despite the increased comorbidity produced by their side effects (Serdà, 2009). In recent years, several studies have addressed this paradox by investigating the mechanisms underlying QoL-RS among cancer patients (Hagedoorn, Sneeuw, & Aaronson, 2002; Korfage, de Koning, & Essink-Bot, 2007; Sharpe, Butow, Smith, McConnell, & Clarke, 2005). However, no studies have used QoL-RS analysis to explain the relationship between the significance of side effects linked to treatment and QoL.

The aims of this study were to identify QoL-RS mechanisms in men with prostate cancer, describe the relationship between side effects and QoL, and assess the magnitude and direction of response shift after primary treatment. We hypothesized that the level of QoL immediately after prostatectomy treatment (P1) would be rated more negatively in retrospect (then-test, P3) than at the reference point itself.

METHOD

Sample

This study was part of a larger randomized controlled clinical trial testing the efficacy of a complementary therapy program to improve the QoL of prostate cancer patients (Serdà & Marcos-Gragera, 2013). Participants were selected by means of their medical record number using SPSS software, version 15. The sample size was calculated to detect at least a 5-point difference ($SD = 9$) between groups in the Functional Assessment of Cancer Therapy-Prostate results (FACT-P, Segal et al., 2003). Accepting an alpha risk of 0.05 and beta risk of less than 0.05 in a two-tailed test of paired averages, 53 participants were required in each group (experimental and

control). We estimated a 20% loss to follow up.

The sample for the current study was the control subgroup from the original study ($N = 66$) recruited in a hospital in Catalonia, Spain from October 2007 to October 2008. The study protocol was approved by the hospital's research ethics committee.

Included participants had received a histological diagnosis of prostate cancer from a medical specialist following guidelines approved by the European Society for Medical Oncology; information was available on disease stage and treatment phase. All participants provided signed informed consent.

Participants were excluded if they had experienced side effects prior to the diagnosis and were not living at home at posttest (P2), if they had a cognitive deficit or diagnosed psychotic disorder, or if they did not understand and speak Spanish.

Study Design

The study methodology triangulated quantitative and qualitative methods to study the same empirical unit. The quantitative method was used to identify QoL changes in men with prostate cancer and study the recalibration mechanism involved in the QoL-RS. The qualitative method was used to identify the mechanisms that explain QoL-RS and assess the relationships established between the experience of living with side effects and their effect on QoL.

Quantitative Method

The most effective assessment of recalibration is the then-test method, a retrospective analysis of the pretest design. To minimize potential changes in the internal standard by which participants assign value to the questions, Kvam, Wisløff, and Fayers (2010) recommend that the then-test be performed at a time close to the posttest.

In this descriptive longitudinal study, QoL scores were collected during three periods: P1, P2, and P3:

- P1 (baseline). During the diagnosis and treatment phase, patients completed sociodemographic, QoL, and fatigue questionnaires. Patients were evaluated, triangulating with the side effects in the medical record.

- P2 (posttest). At 16 weeks posttreatment, when the patient was living independently at home, all P1 questionnaires except the sociodemographic questions were repeated.

- P3 (then-test). Two weeks after completing P2, participants completed a retrospective evaluation of P1. The questionnaires completed in P2 were re-administered, but now questions referred to the time of diagnosis and treatment. The then-test was used to identify the recalibration mechanism in the QoL-RS (Schwartz et al., 2006; Schwartz & Sprangers, 2010). The difference between the average of the baseline and then-test scores provides an estimate of the direction and magnitude of response shift. Observed changes were calculated according to the difference between the averages of the posttest and baseline scores, whereas adjusted changes were measured as the difference between mean posttest and then-test scores.

Measurements

QoL was evaluated using the FACT-P scale, version 4 (score range = 0 to 156). This questionnaire included five interrelated dimensions: general state of health, family and social environment, emotional state, personal functions, and additional concerns. A higher score indicates better QoL (Segal et al., 2003). Fatigue was evaluated using the Functional Assessment of Chronic Illness Therapy (FACIT)-Fatigue scale, version 4 (score range = 0 to 52). Higher scores indicate lower levels of fatigue and higher levels of functioning (Webster, Odom, Peterman, Lent, & Cella, 1999). Both questionnaires had good psychometric reliability and validity in all of

TABLE 1
CASE PROFILES

Case	1	2	3	4	5	6	7
<i>n</i>	9	10	9	10	9	9	10
Age (years)	≥65 to 70	55 to 65	55 to 65	≥65 to 70	45 to 55	75 to 85	75 to 85
Socioeconomic level ^a	Did not finish school	Advanced education	Advanced education	Basic education	Advanced education	Did not finish school	Basic education
Marital status	Widowed	Married	Married	Married	Married	Widowed	Married
Disease stage	III-IV	II-III	I-II	I-II	I-II	II-III	III-IV
Treatment type	O	R	P	P	P	AB	AB

Note. O = orchiectomy; R = radiotherapy; P = prostatectomy; AB = androgenic block.
^a Based on education, where "advanced education" = ≥6 years and "basic education" = ≤5 years.

TABLE 2
SEMI-STRUCTURED INTERVIEW QUESTIONS

1. How are you feeling? How is your health?
2. Has your health been affected by the treatment? If yes, please explain.
3. How would you describe your current quality of life?
4. Would you say that your quality of life has changed since the day the prostate cancer was diagnosed? If yes, please explain.
5. Which are the most important spheres/domains/dimensions of your life?
6. How do they contribute to maintaining your quality of life?

their dimensions. The questionnaires were given to participants for self-completion.

Evaluation of Covariates

Disease and treatment side effects were recorded from patient recall and compared with the medical record, and interviewer assessments of participant responses were recorded in an observational diary.

Statistical Analysis

Student's *t* test was used for paired-data analysis of the continuous variables with a normal distribution, and nonparametric Wilcoxon or Mann-Whitney *U* tests were used for those with a non-normal distribution. The Pearson correlation was used to assess relationships between numerical variables, and the chi-square test for the analysis of

categorical variables. Cohen's effect size (*d*) was used to evaluate the size of differences between the assessments (i.e., the average difference between tests divided by the typical deviation of the first test, categorized as follows: $0.2 < d < 0.5$ = small, $0.5 \leq d < 0.8$ = moderate, and $d \geq 0.8$ = large effect size) (Cohen, 1988). The analysis was performed using SPSS version 15. The significance level was set at 0.05.

Qualitative Analysis

Qualitative analysis followed grounded theory principles and consisted of selected case studies (Denzin & Lincoln, 2000). This methodology allows retrospective analysis of response shift in the QoL questionnaire and identification of side effects and their impact on QoL as perceived by the patient.

The sample ($N = 66$) was distributed into seven case profiles based on age, socioeconomic level, marital status, disease stage, and treatment type, with the final distribution shown in **Table 1** (Stake, 1995). The case profiles were constructed taking into account the most significant variables related to the coping process studied in previous research (Serdà, 2009; Serdà & Marcos-Gragera, 2013).

Participants identified and described their side effects using a specific checklist. When they were asked about the impact of these side effects on QoL, the questions were open-ended using a semi-structured interview format (**Table 2**).

Responses were analyzed by generating conceptual categories using the constant comparative method (Glaser & Strauss, 1967). Triangulation was used between informants and analysts to ensure rigorous analysis.

RESULTS

The average age of study participants was 71.78, with 90.9% married and 93.9% retired. Average body mass index was 28.67 kg/m², and 93.9% of patients were in Stage II or III of the disease (**Table 3**).

The FACT-P questionnaire results decreased significantly from P1 (108.61) to P2 (101.76) ($p < 0.001$). **Table 4** shows the significant decline

TABLE 3**CLINICAL AND EPIDEMIOLOGICAL CHARACTERISTICS OF PARTICIPANTS (N = 66)**

Variable	Mean (SD), Range
Age (years)	71.78 (7.22), 55 to 83
Weight (kg)	80.40 (11.60), 64.2 to 111.5
Body mass index (kg/m ²)	28.67 (2.99), 24.16 to 33.97
	n (%)
Tumor classification, TNM	
Stage I	0 (0)
Stage II	26 (39.4)
Stage III	36 (54.5)
Stage IV	2 (3.03)
Unknown	2 (3.03)
Treatment	
Hormone therapy (ADT)	30 (45.5)
Surgery (prostatectomy)	30 (45.5)
Prostatectomy + ADT	4 (6.06)
Radiotherapy + ADT	2 (3.03)
Marital status	
Married	60 (90.9)
Widowed	5 (7.58)
Never married	1 (1.52)
Employment status	
Retired	62 (93.9)
Employed	4 (6.06)

Note. TNM = tumor, nodes, metastasis; ADT = androgen-deprivation therapy.

in values in all five dimensions of the FACT-P and in fatigue of the FACIT scale between P1 and P2.

Explaining the decrease in QoL score between P1 and P2, the qualitative results show that patients' need to resume everyday life to evaluate the impact of the side effects on their QoL. At the hospital (P1), the challenge is to survive and have the tumor successfully removed. Said one participant: "At the beginning, you only think about surviving. The main thing is the cancer, everything else is secondary." Side effects are disguised by the rigor of the health

care system, which is focused on removing the tumor and administering medication to treat side effects, thereby increasing expectations of recovery. According to a participant, "With the catheter you don't realize the severity of the incontinence problem. You really don't know until you get home again." However, when the patient is back home (P2) and free of the tumor, the challenge becomes returning to normal life: "When you are at home, what was secondary becomes primary. You want to do what you used to do but you cannot." When this challenge is

not met, patients begin to question their decision to consent to the treatment, as well as its efficacy. As one participant noted, "I cannot hold my urine.... I cannot have sex.... I'm tired and I can't get up in the morning. With all of that, how can I live? If I had known beforehand, I would not have had the operation."

Analysis of the QoL Recalibration Mechanism

The results of the baseline (P1) and then-test (P3) are displayed in Table 5 for both overall QoL and each dimension. Between baseline and the then-test, dimensions corresponding to the participant's emotional state, family and social environment, personal functional capacity, general state of health, and QoL present a small shift ($0.2 < d < 0.5$); there is a moderate to large shift ($d = 0.77$) in the dimension of additional concerns and a large effect ($d = 0.93$) in the fatigue dimension (Table 6).

To explain this QoL gap between P1 and P3, qualitative results show that in P1 patients were not able to evaluate the severity of the impact of the new side effects because the side effects had only just appeared. The lack of experience of living with side effects therefore positively biased patients' evaluation of QoL in P1. It was only later that patients realized what it means to live with the chronicity of the side effects they already had at P1: "The worst thing is when you realize it is day after day and forever."

Furthermore, experience of living with the side effects implies awareness of how the presence of multiple co-occurring side effects has an adverse effect on the patients' outcome and a synergistic effect as a predictor of patients' morbidity. With respect to the frequency of side effects and treatment type, results show that on a scale of 0 to 10, an average of 4.57 side effects were observed per participant during P1. The 10 most frequent side effects were erectile dysfunction

TABLE 4**QUALITY OF LIFE AND FATIGUE RESPONSE SHIFT (N = 66)**

Dimension ^a	Range	Baseline (P1)	Posttest (P2)	p Value
		Mean (SD)	Mean (SD)	
FACT-P ^b	0 to 156	108.61 (18.75)	101.76 (19.65)	<0.001
General state of physical health ^b	0 to 28	23.74 (3.90)	21.88 (4.27)	<0.001
Family and social environment ^b	0 to 28	17.95 (5.41)	17.33 (5.58)	0.001
Emotional state ^b	0 to 24	16.74 (4.48)	16.5 (4.43)	<0.001
Personal functions ^b	0 to 28	17.39 (5.17)	16.32 (4.8)	0.002
Additional concerns ^b	0 to 48	32.77 (5.77)	29.73 (6.88)	<0.001
FACIT fatigue scale ^b	0 to 52	32.64 (5.66)	29.05 (6.85)	<0.001

Note. FACT-P = Functional Assessment Cancer Therapy Scale-Prostate; FACIT = Functional Assessment Chronic Illness Therapy.

^a paired t test; ^b Wilcoxon signed-rank test.

TABLE 5**COMPARISON OF BASELINE AND THEN-TEST SCORES USING WILCOXON SIGNED-RANK TEST (N = 66)**

Dimension	Range	Baseline (P1)	Then-Test (P3)
		Mean (SD)	Mean (SD)
FACT-P	0 to 156	108.61 (18.75)	100.41 (17.17)
General state of physical health	0 to 28	23.74 (3.90)	22.24 (3.48)
Family and social environment	0 to 28	17.95 (5.41)	17.08 (5.28)
Emotional state	0 to 24	16.74 (4.48)	16.47 (4.38)
Personal functions	0 to 28	17.39 (5.17)	16.26 (4.61)
Additional concerns	0 to 48	32.77 (5.77)	28.30 (5.78)
FACIT fatigue scale	0 to 52	32.64 (5.66)	27.56 (5.25)

Note. FACT-P = Functional Assessment Cancer Therapy Scale-Prostate; FACIT = Functional Assessment Chronic Illness Therapy.

(85%), urinary incontinence (67%), distress (58%), fatigue (55%), gynecomastia (46%), pain (40%), sleep disturbance (40%), loss of libido (40%), weight change (16%), and heat discomfort and sweating (16%). A bivariate analysis of the FACT-P questionnaire and the number of side effects produced a correlation of $r = -0.31$ ($p = 0.076$). The impacts of functional limitations deriving from interactive side effects are identified by an inability to perform daily activities. One participant commented, "At night I go

to bed tired and then I wet the bed, so I can't sleep, then I get up late and I don't go out for my early walk with my friends and I don't feel like going shopping so I can do nothing. I am useless." Although interaction between different side effects begins during diagnosis and treatment (P1), only when participants attempt to resume everyday life do they assess the impact of the interactive side effects on QoL (interactive group of side effects) and realize that these effects were already present just after treatment.

Analysis of the QoL Reprioritization Mechanism

Although the quantitative analyses show no change in the relative importance of the QoL dimension (Table 4), the qualitative analyses show how stable dimensions such as family support and emotional state differ in importance throughout the disease process and that differences also exist between younger and older participants.

The subgroup of men ages 65 to 85 reprioritized more stable dimensions such as family support and

TABLE 6

COHEN'S EFFECT SIZE (*d*)

Dimension	Effect Size
General state of physical health	0.41
Family and social environment	0.16
Emotional state	0.06
Personal functions	0.26
Additional concerns	0.77
Fatigue	0.93
Quality of life	0.46

emotional state to compensate for less stable dimensions such as urinary incontinence, fatigue, or impotence to rebalance their QoL. One participant comment included: “My wife and kids are the most important thing in my life. They are my support. When I am tired they help me and I don’t feel so bad.”

Younger participants (ages 45 to 64) use family support and emotional state to cope with and fight against the side effects: “My wife and kids have supported me in everything. I could not cope without them but the real problem is impotence. I know it is important for her and for me, too.”

Coping mechanisms also vary with age. Older participants relate incontinence, impotence, and fatigue to aging or consider this the price they have to pay to be cancer-free. One participant commented, “At 75, this is normal—who cares about sex? In life there are more important things, like fondling or kissing.” Another noted, “At my age a guy doesn’t expect much from life. I’ve started a new stage. I wear diapers when I go out for a walk. If I’m tired I rest and don’t go out...and so I just take it day by day.”

Younger participants cope with the situation by looking for treatment or rehabilitation options, even if they have to undergo more distress during the process to improve their QoL. Said one participant: “When

I realized that the urinary incontinence did not disappear and I felt exhausted, I made an appointment with a hospital someone recommended to me...and they are treating me there.”

DISCUSSION

Then-test results indicated a multidimensional decrease in the QoL recorded in P3 compared with P1 (Calman, 1984). The recalibration mechanism determined the QoL-RS and confirmed the hypothesis that men with prostate cancer have a decreased QoL after disease onset, particularly in the additional concerns dimension and on the fatigue scale, which becomes more evident to them after the initial treatment is completed. This result is in accordance with other studies that have evaluated QoL in cancer patients (Dabakuyo et al., 2013).

Our study validated the hypothesis that the delayed effect of co-occurring side effects on QoL is due to the masking effect of transient relief: being free of the tumor after prostatectomy and the misperception of improved health. In P1, an excessively high QoL is recorded (Serdà, 2009). Factors that explain this elevated QoL are related to patients’ viewing QoL as the possibility of surviving and freeing themselves of the cancer, as well as the disability generated by side effects

(Chen, Clark, & Talcott, 2009; Talcott, 2007). In this sense, at P1, QoL is focused on eliminating the disease.

Therefore, the patient initially confronts diagnosis and treatment and does not consider the side effects of the disease (Kvam et al., 2010). Sharpe et al. (2005) report that this coping strategy leads to partial and limited adaptation to the disease. The health care system reinforces the psychological mechanism involved in this process, called *buffering*, by overvaluing the control and stage of the disease compared to the impact of side effects. Consequently, in P1, the patient discounts the side effects dimension when assessing QoL and does not consider them a priority in the health care plan (Dabakuyo et al., 2013). The buffer has a limited effect and disappears if the sense of a risk of relapse and death decreases, coinciding with a return to normal daily life in P2 (Hinz et al., 2011; Lepore, Helgeson, Eton, & Schulz, 2003).

Failure in coping with the disease is evident in P2, with the significant multidimensional decrease observed in QoL, similar to a previous report (Schwartz et al., 2006). This decrease is greater with respect to additional concerns, fatigue, and general state of health; the emotional dimension and family and social environment remain clinically stable, as reported in earlier studies (Dabakuyo et al., 2013; Schwartz et al., 2006).

Men justify the shift in the additional concerns dimension between P1 and P3 as a realization that the side effects become chronic in nature. With less possibility that their side effects will go away, they perceive greater impact on everyday QoL (Schwartz et al., 2006). Men describe side effects as a changing dynamic throughout the course of the disease. During the posttreatment period, side effects produce greater functional limitation and impede the normal pursuit of daily activities. Our results confirm that the true impact of side effects on QoL varies by age.

In the subgroup of younger men, side effects have greater impact and cause greater distress with respect to QoL (Hinz et al., 2011). In this context, sexual dysfunction is identified as a limitation that affects the spousal relationship. Incontinence is a functional and social limitation that provokes regressive feelings of embarrassment and loss of self-esteem. Pain and fatigue side effects are highly limiting and incapacitating. The distress generated by this syndrome leads to coping strategies that prioritize the side effects of the disease and, in many cases, the initiation of a care plan to attempt to resolve them. This mechanism corresponds to reprioritization, which in this case has the effect of adaptation to the disease (Donohoe, 2011).

Older patients emphasize the stable dimensions related to their general state of health: the social and family dimension and the emotional dimension. The mechanism involved in this process is related to reprioritization, which in this case has a non-adaptive effect; in other words, an avoidable coping strategy, with the intention of balancing their QoL. In this context, men overemphasize the least affected dimensions (e.g., family, social network, emotional state) while trivializing the side effects, not considering them a health-related problem (Korfage et al., 2008). As with the patients in the current study, Razmjou, Schwartz, Yee, and Finkelstein (2009) reported that this effect could be due to attempts to balance the negative QoL curve. For example, impotence is attributed to normal aging processes (Korfage et al., 2008), and the impact of this symptom is resolved by making marital adjustments. Incontinence is considered a residual side effect of removing the tumor, and thus must be accepted. Pain and fatigue are considered cyclical side effects they have to live with and tolerate. Many older patients are also living with other chronic diseases, which

KEYPOINTS

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- 1 This study identified quality-of-life (QoL) response shift mechanisms in men with prostate cancer; the main focus was to describe the relationship between side effects and QoL and assess the magnitude and direction of response shift after primary treatment.
- 2 The method involved carrying out a sequential triangulation between quantitative and qualitative methods.
- 3 Results confirm that despite survival, the QoL of patients is low during the disease continuum.

contributes to resignation and passive behavior, leading to acceptance rather than confrontation of the side effects. This tendency to look at the positive dimensions helps to compensate for the losses resulting from the side effects of the disease. However, changes in prioritization between QoL dimensions over the course of a disease is a sign of deterioration in QoL (Echteld, van Zuylen, Bannink, Witkamp, & Van der Rijt, 2007) and the reprioritization mechanism produces a maladaptive result in older men (Sharpe et al., 2005). In the study by Korfage et al. (2007), most men with low-risk tumors expressed regret at having undergone treatment and were certain that if they could have anticipated the consequences, they would not have agreed to it. The recommended clinical response consists of continuing to focus on the positive areas of life without neglecting to plan appropriate intervention strategies to address the most affected dimensions (Sharpe et al., 2005).

Our results emphasize that the interaction between side effects makes it difficult to establish a cause-effect relationship because patients describe their activity globally. This blurs the effect of the side effects, and their impact on QoL varies as a function of each specific case

(Maliski, Kwan, Elashoff, & Litwin, 2008). Our study is in accordance with Alibhai, Gogov, and Allibhai's (2006) work in that incontinence, impotence, fatigue, pain, and dysthymia constitute a syndrome related to prostate cancer and its treatment that has both an impact on the patient's QoL (Alibhai et al., 2006) and a cluster effect (Fan, Filipczak, & Chow, 2007; Molassiotis, Wengström, & Kearney, 2010). Therefore, the total impact side effects have on QoL is greater than the sum of its parts. Our results disagree with the linear relationship between the number of side effects and QoL reported by Mehnert, Lehmann, Schulte, and Koch (2007).

The reconceptualization mechanism coincides with the end of reprioritization, when disease-related coping strategies begin to stabilize. The mechanism is characterized by satisfactory adaptations to the disease's effects, signaling the beginning of a new post-disease period.

Despite disease survival rates, the QoL of patients with prostate cancer is low in our study cohort. We would emphasize that the efficacy of the PSA test remains disputable because many older asymptomatic patients are being diagnosed and treated for prostate cancer. Overdiagnosis and overtreatment derived from early screening contribute to the addi-

tional risk of dealing with side effects and, as a result, a decreased QoL (Draisma et al., 2003).

Inevitably, the overall QoL decrease detected retrospectively by then-testing could be due to the bias resulting from relying on memory to assess a prior status (McPhail & Haines, 2010). This could be considered a limitation of the methodology. Considering the implicit theory of response shift, patients would not recall their perception of QoL in P1 because their health during P2 would influence the final response shift of the internal value. In addition, the small sample ($N = 66$) prevents us from generalizing our results to all patients of prostate cancer.

IMPLICATIONS FOR NURSING

Clinicians caring for people with chronic medical conditions must be aware that some of their patients profess to have a QoL higher than or, conversely, lower than expected, given their clinical problems. It is important that the clinician is aware of the transition period from diagnosis to treatment to posttreatment—including the onset of side effects—when the patient's coping skills can fail them. A program of holistic nursing care individually tailored to identified needs is recommended. Starting an intervention program at the time of diagnosis would contribute to improving QoL outcomes. Appropriate interventions for addressing side effects could include programs designed to build self-confidence, reduce distress, reframe negative appraisal, and decrease the use of non-adaptive coping strategies (Newth, 2012). An example of this would be promoting adaptive coping strategies as a health education tool to improve the most affected side effects by motivating patients to find a way to diminish the impact side effects have on QoL. In addition, future studies of the advanced prostate cancer population may benefit from considering additional variables such as resilience.

CONCLUSION

The QoL-RS approach stimulates health professionals to become aware of the impact of prostate cancer treatments on QoL and encourages them to be more proactive (Lin, Yen, & Fetzer, 2008). Practitioners could play a pivotal role in exploring QoL as a primary endpoint for cancer therapy, assessing baseline and social QoL analysis in prostate cancer to plan, evaluate, and time appropriate interventions for patients' side effects. Studying the timing of response shifts would also help researchers and clinicians determine appropriate time frames for health-related QoL evaluations and interventions (Hamidou, Dabakuyo, & Bonnetian, 2011). Findings suggest a requirement for tailored interventions to improve QoL during the disease continuum.

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