

A 2-year follow-up of quality of life, pain, and psychosocial factors in patients with chronic prostatitis/chronic pelvic pain syndrome and their spouses

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Abstract

Objectives There are two objectives: (1) Examine quality of life (QoL) and mood between chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) patients and spouses over a 2-year period; (2) Longitudinally assess CP/CPPS patient pain, disability, and pain catastrophizing over a 2-year period.

Methods Forty-four CP/CPPS diagnosed men and their spouses participated. Patients completed demographics, QoL, depression, anxiety, pain, disability, and catastrophizing across the study. Spouses completed QoL, depression, and anxiety. Patients/spouses were not different in education, but patients were older (49 years; SD = 9.56). The average symptom duration was 8.68 (SD = 7.61). Couples were married or common law, and majority of patients were employed. Due to attrition, approximately 21 couples provided analyzable data.

Results Patients and spouses physical QoL did not statistically differ over time from one another, and both increased over the study period. Mental QoL increased

over time, but patients reported lower QoL. Patients reported more depression and anxiety, but both measures remained stable over time for spouses and patients. Finally, patient only analyses showed that disability did decrease over time from a high at 6 months, but pain and catastrophizing showed stability over the 2 years.

Conclusions Patients reported worse mental QoL, depression, and anxiety compared to spouses, and spouses reported significant stable levels of depression and anxiety similar to patients. Further, patient catastrophizing, pain, and disability did not reduce over the 2-year assessment period. These results provide further impetus for the development and implementation of mental health strategies alongside continued medical efforts in couples suffering from CP/CPPS.

Keywords Chronic prostatitis/chronic pelvic pain syndrome pain · Quality of life · Catastrophizing

Introduction

Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS), representing up to 95 % of the prostatitis cases [1, 2], is a chronic pelvic pain syndrome defined by urologic pain or discomfort in the pelvis with symptoms of urinary pain and/or sexual dysfunction. Symptoms of CP/CPPS are associated with diminished quality of life (QoL) with impaired physical and psychological domains [3]. The etiology and cure remain uncertain with treatment benefit modest or nonexistent [4]. Furthermore, CP/CPPS symptoms may not remit, with 66 % of patients reporting continued symptoms for 1 year's duration [5].

CP/CPPS has been conceptualized from a biopsychosocial model to illustrate the intra and interpersonal factors

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associated with patient outcomes [6]. Indeed, CP/CPPS QoL reviews suggest that physical disease and psychiatric disorders (e.g., depression) coexist [7]. The biopsychosocial model also explains the strong association between CP/CPPS pain, QoL, and psychological factors like catastrophizing [8, 9]. The pain literature also warns that pain and psychological distress tend to be stable over time, with the negative effects of comorbid pain and cognitive factors on functioning and well-being documented [10–12]. Additionally, chronic pain and depressive symptoms, either alone or in combination, are associated with risk of diminished physical functioning [13]. Further, to date, no CP/CPPS research has examined the QoL or mental health status of spouses longitudinally. An understanding of couples' broader psychosocial context may facilitate a deeper understanding of CP/CPPS for both patients and spouses.

The research aims were to examine changes in QoL and associated psychosocial symptoms using a longitudinal design in CP/CPPS patients and their spouses. The primary objective was to examine stability and contrasts in patterns for QoL, depressive symptoms, and anxiety between patients and spouses over a 2-year period. The second objective assessed stability in other CP/CPPS patient concerns such as pain, disability, and pain catastrophizing. This research is important because evidence for the stability or fluctuation of QoL impairment, pain, and negative psychosocial factors is unaddressed in CP/CPPS and may aid in further care programming.

Methods

Participants

This study collected data for a 2-year prospective study on forty-four men diagnosed with CP/CPPS in tertiary care urology outpatient prostatitis clinics (JCN, DS) and their spouses. All were agreeable to participate after the contact and consenting procedures. As shown in Table 1, patients were older than their spouses, but their level of education in years was similar. For the patients, the mean CP/CPPS symptom duration was approximately 9 years (range 1–31 years). Five of the couples reported living common law, and one participant did not report. The majority of the patients reported being employed compared to approximately half the spouses, with similar reports of being retired in both groups.

Measures

Health-related QoL was assessed using the Medical Outcomes Study Short Form 12 (SF12) [14]. Two QoL subscales can be computed with 12 items: the physical

Table 1 Demographic characteristics

Variable	Patient		Spouse	
	M	SD	M	SD
Age (in years)	49.16*	9.56	47.61	11.07
Education (in years)	13.81	3.00	13.75	2.53
CP/CPPS symptom duration (in years)	8.68	7.61	–	–
Relationship Status	%			<i>N</i>
Married	86.4			38
Common law	11.4			5
Other	2.3			1
Employment	%	<i>N</i>	%	<i>N</i>
Employed	70.5	31	54.5	24
Unemployed	2.3	1	9.1	4
Retired	20.5	9	22.7	10
On disability	4.5	2	–	–
Other	2.3	1	13.7	6
Ethnicity	%	<i>N</i>	%	<i>N</i>
Caucasian	100	44	97.7	43
Other	–	–	2.3	1

* $p < .05$

component score (PCS-SF12) and the mental score (MCS-SF12). The mean is 50, and the range is 0–100, where higher scores indicate better QoL. The Pain Disability Index (PDI) assesses the extent to which chronic pain interferes with life activities [15]. For each category of life activity (i.e., family/home responsibility, recreation, social activity, occupation, sexual behavior, self-care, and life support activity), patients were asked to rate disability on a numeric scale ranging from 0, “no disability,” to 10, “total disability”. The range of values is 0–70, with higher scores reflecting greater disability. The State-Trait Anxiety Inventory (STAI) assessed state anxiety [16]. Consisting of 20 statements, each of the items has a score 1–4 and the total score can range from 20 to 80 where higher scores indicate severity. When answering questions, participants must take into consideration how they feel at that moment. The Center for Epidemiological Studies for Depression scale (CES-D) assessed the frequency of depressive symptoms endorsed for the previous week [17]. Containing 20 self-report items, each is rated on a 4-point scale, scored by summing individual items for a total score with a range of 0–60, with higher scores indicating greater depression. Current pain severity was assessed using the Short-Form McGill Pain Questionnaire (SF-MPQ), which queries sensory and affective pain, providing an overall index of pain severity [18]. The SF-MPQ asked participants to endorse

the degree to which they experience 15 pain descriptors at the present time. All items are rated on a 4-point scale and summed as the Pain Rating Index total (PRIT) with a range 0–45. The Pain Catastrophizing Scale (PCS) assessed catastrophic thinking in relation to pain [19]. The PCS is a 13-item self-report instrument surveying the frequency with which individuals experience ruminative, magnifying, or helpless pain thoughts. Participants rated their frequency of experiencing different pain-related thoughts and feelings on a 5-point scale, with a range of 0–52.

Procedure

After initial contact and discussion of this IRB and University REB approved study at outpatient clinic, couples were provided with or mailed a survey package, which included an information letter, consent form, and measures for baseline assessment for the patient (i.e., demographic, PCS & MCS-SF12, PDI, STAI, CES-D, SFMPQ, PDI, PCS) and the spouse (i.e., demographic, PCS & MCS-SF12, PDI, STAI, CES-D). Couples were instructed to complete the measures separately and return the measures in the prepaid envelope provided. Packages took approximately 40 min for patients to complete and 25 min for the spouses. For the remaining assessments (every 6 months until 2-year period), a similar package of only measures was mailed to the participants. Patient couples were provided with a \$10 honorarium for participating. The order of the measures was randomized in both the patient and the spouse packages.

Data analyses

Attrition is a concern in longitudinal studies [20]. Based on listwise deletion used in this study, the attrition rate was approximately 50 %. To examine bias in the analyses due to attrition, survey completers (completing all assessments; $n = 21$) were compared to non-completers on baseline demographic and other measures. If attrition bias was not evident (i.e., baseline comparisons were nonsignificant), analyses proceeded as planned [21].

For objective 1, a series of mixed model repeated analysis of variance (2×5 ANOVA) and models were conducted to examine the potential interaction and main effects that patient status (patient or spouse) and time (from baseline—2 years) may have on QoL, depressive symptoms, and anxiety. Levene's test for homogeneity of variance (i.e., tests assumption that variances of the populations from which different samples are drawn are equal) and Mauchly's test statistic for sphericity (i.e., violation occurs when the variances of the differences between all combinations of the groups are not equal) were examined, and the Shapiro–Wilks test evaluated for

normality of distribution for the groups formed by the combination of the levels of patient status and time [21]. For objective 2, a series of one-way repeated measures ANOVA models examined changes in patient pain, disability, and pain catastrophizing over time. Statistical analyses were performed using the statistical package for social scientists (SPSS version 16.0).

Results

There were no significant differences on demographics (education $p = .217$; time in years since diagnosis $p = .164$; age $p = .507$) as well as study variables (PCS-SF12 $p = .876$; MCS-SF12 $p = .267$; anxiety $p = .165$; depressive symptoms $p = .306$; disability $p = .403$; pain catastrophizing $p = .202$; pain $p = .131$) between completers and non-completers. No differences were evident in indexed measures for spouse completers versus non-completers analyses as well (PCS-SF12 $p = .304$; MCS-SF12 $p = .149$; anxiety $p = .217$; depressive symptoms $p = .947$).

Objective 1

Mixed model ANOVA's were conducted. The dependent variables were normally distributed for the groups formed by the combination of the levels of patient status and time.

Physical components QoL

There was homogeneity of variance between groups and sphericity was not significant. There was no interaction between patient status (patient or spouse) and time (baseline to 2 years), $F(4, 156) = 5.811, p = .667$, indicating no differential changes between the patients and spouses in physical QoL over time. Main effects analyses provided an effect for time ($p = .000$), indicating an increase in physical QoL over time. As illustrated in Fig. 1, physical QoL was significantly lower at 6 months compared to all other assessments. There were no between-subject effects for patient status, indicating that patterns of physical QoL were reported in similar ranges for the couple.

Mental components QoL

There was homogeneity of variance, sphericity was not significant, and there was no interaction for mental QoL, $F(4, 164) = 3.29, p = .858$. There was an effect for time ($p = .001$), and as illustrated in Fig. 2, mental QoL was lower at baseline when compared to 6, 18, and 24 months. There was also an effect of patient status ($p = .05$) with patients reporting lower mental QoL.

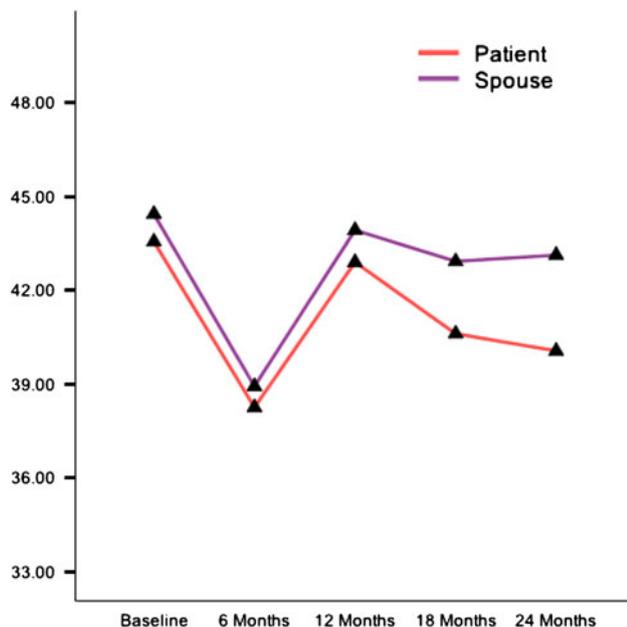


Fig. 1 Changes in quality of life (physical components score, SF12) for patients and spouses over the 2-year study period

Depressive symptoms

There was homogeneity of variance, and sphericity was significant ($p = .015$), forcing the Greenhouse–Geisser correction [21]. There was no interaction, $F(3.19, 114.83) = 1.36$, $p = .256$, and no time effect indicating stability in depressive symptoms over the 2-year study. There was a patient status effect ($p = .054$), and as

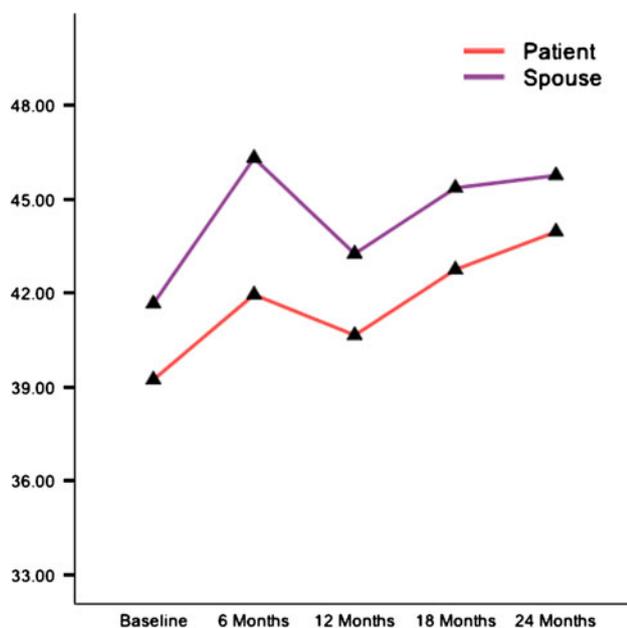


Fig. 2 Changes in quality of life (mental components score, SF12) for patients and spouses over the 2-year study period

illustrated in Fig. 3, patients reported greater depressive symptoms.

State anxiety

There was homogeneity of variance, sphericity was not significant, and there was no interaction, $F(4, 152) = 7.00$, $p = .593$. There was no effect for time, indicating stability in anxiety symptoms. There was a patient status ($p = .034$), and as illustrated in Fig. 4, spouses tended to report lower anxiety symptoms than patients.

To summarize, physical QoL increased over the study period with similar levels reported by patients and spouses. Mental QoL improved from baseline for couples, but patients reported poorer QoL. Depressive and anxiety symptoms were stable over 2 years with patients reporting elevations compared to spouses.

Objective 2

As shown in Fig. 5, changes over the 2-year study period in patient reports for pain, perceived disability, and pain catastrophizing were assessed by one-way repeated measures ANOVA exclusive to spouses. For pain, sphericity was significant ($p = .024$), forcing the Greenhouse–Geisser correction, and analyses were nonsignificant indicating the stability of pain, $F(2.912, 55.332) = 8.98$, $p = .446$. For disability, sphericity was not significant, but there was a significant change across the study period, $F(4, 80) = 2.542$, $p = .046$. In particular, disability was

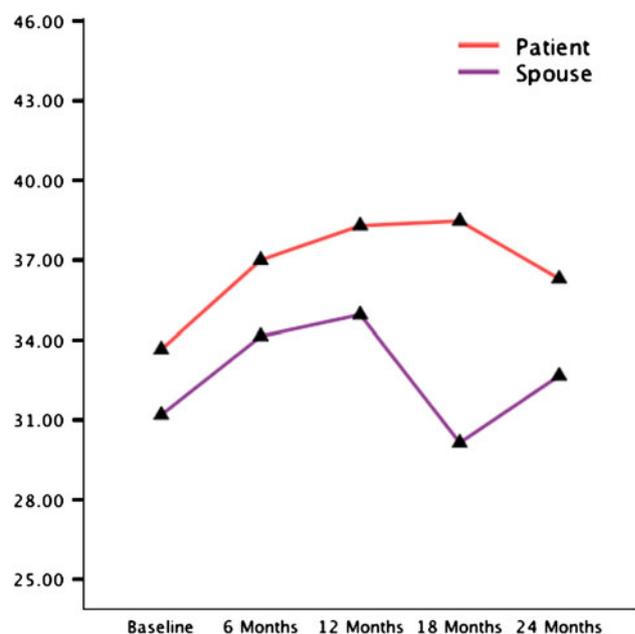


Fig. 3 Changes in depressive symptoms scores for patients and spouses over the 2-year study period

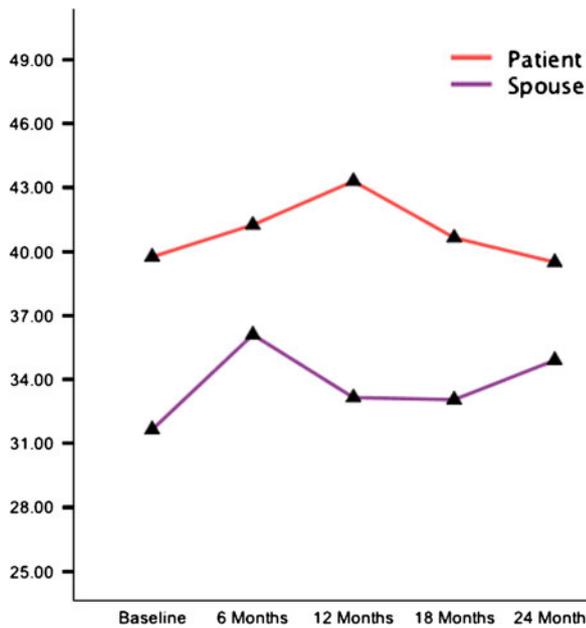


Fig. 4 Changes in state anxiety scores for patients and spouses over the 2-year study period

significantly higher at 6 months compared to baseline, 18, and 24 months but not significantly different than disability at 12 months. Finally, sphericity was significant ($p = .004$) forcing a Greenhouse–Geisser correction, and analyses were nonsignificant across the study period suggesting catastrophizing stability, $F(2.531, 50.62) = 8.32$, $p = .465$.

Discussion

In regard to the QoL findings, both patients and spouses reported physical and mental QoL levels below the normed

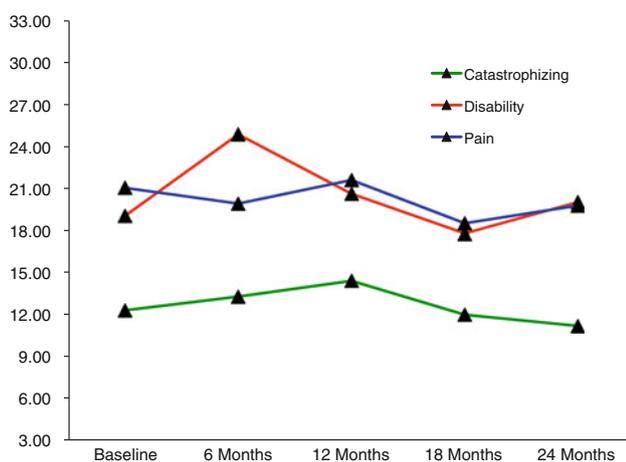


Fig. 5 Changes in pain catastrophizing, perceived disability, and pain for patients over the 2-year study period

average of 50 and a low point of approximately 38 [14]. For physical QoL, couples seem to have similar profiles, which will require replication and examination of possible third factors unaccounted in the current data such as spouse illness, etc. The near average physical QoL results may also be reflected by the fact that this patient group was fairly active, with a large majority of patients in this sample reporting current employment. For mental QoL, patients reported a diminished status compared to spouses, supported by the concerning depressive symptom level of patients. Pelvic pain research has shown high comorbidity between depressive symptoms and mental QoL and regarded these constructs as redundant [22]. As well, the depressive symptoms reported by patients and spouses are noteworthy, when established cut scores of >27 are used to delineate significant depressive symptoms [23]. The longitudinal course of depressive symptoms in patients with chronic pain suggests that depression is common and remarkably stable over 2-year periods [13] as in this sample.

In this sample, it is clear that couples are suffering from depressive symptoms together over time. The source of the anguish cannot be determined from the present data, but the association of symptoms such as pain, psychosocial factors like catastrophizing or low control over pain has been illustrated previously [8]. Anxiety, which is comorbid with depression, is also greater in the patients and is approaching excessive levels (equal to or >50) [16]. Current research with couples suffering from chronic pelvic pain suggests that pain, disability and QoL are associated with spousal behaviors toward their condition. Indeed, certain spousal responses (e.g., distracting spouses from their pain) act to moderate negative outcomes for both male and female patients [24, 25]. Future research in this area of spousal relations could use longitudinal designs to assess benefit to patients.

The second aim of the study examines the stability of patients' reports of pain, disability, and catastrophizing. For disability, the results showed, for the patients only, that disability became worse or stayed stable over the course of the study. Pain was shown as stable and on par when compared to other published CP/CPPS reports ($M = 7.8$ [8]; $M = 17.4$ [26]). The present results also support earlier CP/CPPS research suggesting pain stability [27]. The current CP/CPPS pain reports are also comparable to other pain samples, like whiplash injury [28]. Interestingly, disability in this sample was elevated when compared to previous CP/CPPS data ($M = 14.07$) [8]. As suggested previously, chronic pain and its disability have little association with nociception and more with how a person and the people around them react [29].

From a cognitive coping perspective, pain catastrophizing and pain did not significantly reduce over the

2-year period. It is noteworthy is that the level of catastrophizing reported in this sample is comparable to patients with whiplash [28], Interstitial Cystitis/bladder pain syndrome [30], and CP/CPPS [8]. Previous work indicates that catastrophizing is stable over periods from 2 weeks to 6 months [19, 31, 32]. Therefore in the absence of a catastrophizing intervention or a substantial reduction in pain, CP/CPPS patients are likely to remain catastrophic in their thinking about pain for extended periods of time. CP/CPPS research shows that higher catastrophizing is associated with worse outcomes, suggesting catastrophizing might play a role in CP/CPPS development into a chronic disease [26]. However, on a positive note, catastrophizing can be significantly reduced and these changes maintained [32–34]. Catastrophizing is associated with important variables such as pain, depression, anxiety, and disability in chronic pelvic pain [6, 8, 9, 22, 26, 30]. To date, there are successful systematic psychotherapeutic attempts in CP/CPPS management. One therapy focused on myofascial release and paradoxical relaxation training [35] and another on cognitive behavioral symptom reduction (i.e., reducing catastrophizing, increasing social support behaviour) [34]. Techniques toward creating or improving patient self-efficacy and self-management are needed in men suffering from CP/CPPS to supplant statements and feelings of helplessness with positive social activity and beliefs of resourcefulness [36].

There are limitations to consider. This study is based on correlational analyses and cannot provide cause and effect conclusions. As well, the assessment design of 6-month periods cannot provide complete sensitivity to acute changes in regard to patient QoL or cognitive factors. However, this longitudinal design allows for examination of score stability over time, which enables the identification of patient health-associated sequences [37]. In longitudinal designs, there is always concern that participant attrition may alter sample characteristics, making it no longer representative of the original sample [38]. Average attrition rates in major American surveys with follow-up periods in the years are approximately 50 % [20]. Although the attrition rate, based on the listwise deletion analyses used in this study (i.e., repeated measures ANOVA), was approximately 50 %, the results are supported by the fact that survey completers were not different from the non-completers on any index examined at baseline. Future research can consider strategies such as frequent phone contact with the study team to moderate attrition. Although participants were described using salient variables from the chronic pain literature to improve the generalizability of this study, and to reduce the concerns of survey burden and completion rates, there are other important variables of interest. Within a large representative sample, future research should qualify changes in CP/CPPS symptoms

and attempt to covary information pertinent to patients' treatment regimens (i.e., patient belief in treatment success/benefit). A larger sample would also allow for assessment of the influences of both spousal health and mental health as compounding factors in patient adjustment, which cannot be investigated in the present research. Finally, all participants were in heterosexual marriages, providing the impetus to replicate this study in common-law and/or same-sex unions.

In conclusion, this is the first study examining long-term impairments for patients with CP/CPPS and their spouses. Healthcare providers in CP/CPPS must remain focused on the abolition of pelvic pain and in refractory cases should consider all management options. The stability of CP/CPPS associated depression, disability, pain, and catastrophizing over an extended period of time provides further encouragement for the development and implementation of empirically supported mental health strategies alongside continuing medical efforts in couples suffering from CP/CPPS.

Conflict of interest The authors declare that they have no conflict of interest.

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