Original Research Article

Partners' Overestimation of Patients' Pain Severity: Relationships with Partners' Interpersonal Responses

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Abstract

Objectives. The present study examined whether concordance between patients' and their partners' reports of patient pain severity relates to partners' social support and behavioral responses in couples coping with chronic pain.

Methods. Fifty-two couples completed questionnaires about the patient's pain severity. Both dyad members also rated the partner's social support and negative, solicitous, and distracting responses toward the patient when in pain.

Results. Bivariate correlations showed moderate correspondence between patient and partner ratings of pain severity ($r = 0.55$) and negative

($r = 0.46$), solicitous ($r = 0.47$), and distracting responses ($r = 0.53$), but lower correspondence for social support ($r = 0.28$). Twenty-eight couples (54%) were concordant in their perceptions of patient pain; partners overestimated pain in 14 couples (27%), and partners underestimated pain in 10 couples (19%). Couple concordance in pain perceptions was not related to patients' reports; however, it significantly predicted partners' reports: Partners who overestimated pain reported giving more social support ($\beta = 0.383$, $P = 0.016$), fewer negative responses ($\beta = -0.332$, $P = 0.029$), and more solicitous responses ($\beta = 0.438$, $P = 0.016$) than partners who were in agreement or who underestimated pain.

Discussion. Partner overestimation of pain severity is associated with partner-reported but not with patient-reported support-related responses. This finding has important clinical implications for couple interventions in chronic pain.

Key Words. Pain; Couple; Agreement; Concordance; Dyadic; Spousal; Chronic; Overestimation; Support

Introduction

Social support plays a vital role in facilitating positive adaptation to chronic musculoskeletal pain [1–3]. Many patients rely on the instrumental and emotional assistance of their family. Positive support is associated with better psychological well-being, lower levels of pain intensity, and reduced disability [3,4]. Similarly, lack of social support or negative behaviors are associated with physical and emotional maladjustment to pain [5,6].

Others' perceptions of patient pain can drive their provision of assistance [7]. If family members recognize the severity of pain, they may be more likely to provide supportive behaviors. If pain, however, is poorly ascertained, efforts to support the patient may not match the patient's needs [8,9]. Perceptions of the patient's pain severity might also come at a cost for partners and family members. The recognition that someone close to you

is in physical discomfort might be distressing and might lead to lowered motivation to understand the patient's pain [10] and fewer supportive behaviors as a form of defensive distancing [see 11].

Research has shown that family members are often not as well attuned to patients' symptoms as one might think. Congruency research has provided evidence that patients and their support system frequently lack a shared understanding of patient pain [7,12–18]. For example, spouses and other caregivers often tend to overestimate pain [12,13,15,17,19]. Whether such differences in pain perception yield suboptimal support dynamics is still poorly understood.

Relatively few studies have examined whether couple congruence in perceptions of pain severity relates to spouses' support-related responses toward the patient. Available evidence is mixed; Martire and colleagues [7] found that greater concordance between arthritis patients and their spouses was associated with fewer negative responses and more emotionally satisfying support. Cano and colleagues [14] found no relationship between couple congruence and spousal negative responses. Similarly, recent work in rheumatoid arthritis [18] found no association between discrepant pain perceptions and problematic spousal support.

Two points are noteworthy. First, most research—with notable exceptions, such as work by Cano et al. [14]—examined patient perceptions. In other words, most studies did not ask spouses to rate their own support-related responses. Although self-reports may not accurately represent actual behavior but instead reflect subjective perceptions [14,16,18], an assessment of both perspectives would facilitate a better understanding of support dynamics. Prior research has noted that patient perceptions alone might provide an important yet incomplete picture of support processes in chronic pain [1,20].

Second, spousal support comprises various relatively distinctive facets of interpersonal dynamics and behaviors. A commonality among previous studies is the measurement of support and partner behavior by the Multidimensional Pain Inventory (MPI) [21]. This self-report instrument assesses significant others' social support and negative, solicitous, and distracting responses. Lehman and colleagues [18] examined spouse solicitous and negative responses from the patient perspective; Cano examined patient and spouse perspectives on spouse negative responses [14]; Martire examined solicitous, negative, and distracting responses from the patient perspective [7].

In this study, we sought to extend prior research by examining how patient-spouse congruence in pain perceptions relates to all four MPI support dimensions—reported by both dyad members. We obtained individual ratings by patients and their romantic partners about partner social support and negative, solicitous, and

distracting responses. Following conceptual models on agreement and support provision [8,9], we hypothesized that poor concordance on pain perceptions would relate to fewer instrumental (i.e., solicitous and distracting) behavioral responses, less social support, and more negative behavioral responses as reported by patients and partners on the MPI. We further hypothesized that this association would be evident after controlling for the couple's relationship satisfaction, an important construct in interpersonal support processes in chronic pain [12,14,15]. Marital satisfaction has been related to patient perceptions of spouse responses [16] and observed empathic and nonempathic interactions between chronic pain couples [22]. We therefore included the couple's relationship satisfaction as a covariate to ensure that patient-perceived and partner-reported support-related responses were not merely a reflection of relationship quality within the dyad.

Method

Participants

Couples participating in this study ($N=52$) were part of a larger project on patient adjustment to chronic pain [23,24]. This study reports on secondary analyses. Patients were drawn from several pain specialty and physical therapy clinics. Study advertisements were distributed at the recruitment facilities, and patients were approached by research staff in the waiting rooms to inquire about their interest to enroll in the study. Patients were eligible to participate if they 1) were at least 18 years old; 2) were diagnosed with low back pain, osteoarthritis, rheumatoid arthritis, and/or fibromyalgia; 3) had regular doctor visits at the recruitment site; 4) could read, write, and speak English; and 5) had no visual impairments that would interfere with questionnaire completion. Out of the 99 patients who participated in the larger project, 71 (72%) indicated a romantic partner (spouse or significant other). Out of those couples, 19 partners (27%) did not participate and 52 partners (73%) agreed to take part in the study with the patient participant.

Procedure

The study was reviewed and approved by all institutions involved, and consent was obtained from participants. About two weeks after enrollment, couples were mailed questionnaire packages. Both participants were instructed to complete the questionnaires in privacy and to not share the questions and their answers with one another to circumvent nonindependence of reporting. Upon completion, couples mailed their separate questionnaires back to the research office.

Measures

Couples provided basic demographic information including their age, gender, race, ethnicity, education, marital status, employment, and disability status. They

also completed several other assessment instruments, described below.

Patient and Partner Assessments of Patient Pain Severity

The Multidimensional Pain Inventory (MPI) is one of the most widely used self-report instruments to assess the multifaceted nature of chronic pain [21]. Significant other versions of the instrument have also been developed and examined [23,25,26]. The 61-item patient MPI (version 2) assesses a range of psychosocial variables that are associated with the chronic pain experience (response scales for the MPI subscales range from 0 = not at all or never to 6 = extremely or very often). The patient version has demonstrated adequate validity and reliability in numerous chronic pain conditions [27]. The MPI subscales have demonstrated good temporal stability ($r=0.62-0.91$) and internal consistency (Cronbach's $\alpha=0.70-0.90$) [21,27]. For this study, the three-item MPI pain severity scale was selected (Cronbach's $\alpha=0.82$) to assess couple congruence about the patient's pain. Partners completed a parallel version (Cronbach's $\alpha=0.85$) to assess their perceptions about the patient's pain experience (three items, e.g., patient version: "On average, how severe has your pain been during the last week?"; partner version: "On average, how severe has your partner's pain been during the last week?"; response scale from 0 = not at all severe to 6 = extremely severe) [23].

Patient and Partner Assessments of Spousal Responses toward Patient Pain

Four subscales from the MPI patient [21] and partner version [23,25] were used to assess partners' instrumental and emotional social support (three items, patient version: "How supportive or helpful is your significant other to you in relation to your pain?"; "How worried is your significant other about you because of your pain?"; How attentive is your significant other to you because of your pain?"; response scale for all three items from 0 = never to 6 = very often). The three partner behavior subscales ask how often the spouse or significant other responds to the patient in a solicitous way (six items, e.g., patient version: "Asks me what he or she can do to help"; response scale from 0 = never to 6 = very often), negative (four items, e.g., patient version: "Gets irritated with me"; response scale from 0 = never to 6 = very often) or distracting way (four items, e.g., patient version: "Encourages me to work on a hobby"; response scale from 0 = never to 6 = very often) when the patient is in pain. Partners received parallel items asking them to report on their own behavior toward the patient. Internal consistencies for patient-reported scales were satisfactory (Cronbach's α ranging from 0.78 to 0.88); internal consistencies for partner-reported scales were generally comparable

(Cronbach's α ranging from 0.64 to 0.83) with those reported previously.

Patient and Partner Assessments of Relationship Satisfaction

To assess relationship satisfaction, the *Dyadic Adjustment Scale (DAS)* was used [28]. The scale was administered to both patients and partners. The DAS is a widely used 32-item questionnaire to assess relationship satisfaction in romantic couples. Adequate normative data exist, and reference ranges for scores that reflect normal and distressed relationships have been developed. Spanier (1976) reported supporting evidence for the instrument's criterion-related validity and satisfactory internal consistency (Cronbach's $\alpha=0.96$) [28]. In addition, the instrument has been shown to have good temporal stability ($r=0.87$). The internal consistency on this scale was excellent (patient-report: Cronbach's $\alpha=0.97$; partner-report: Cronbach's $\alpha=0.96$).

Analytic Strategy

All data were double-entered and computer verified. Initial descriptive analyses examined the correspondence between patient and partner ratings for all MPI scales using paired samples t tests and Pearson correlations.

Consistent with prior research (e.g., see [12,18,29]), couples were categorized into concordance groups based on the difference between patient and partner reports of pain severity. Specifically, we first calculated difference scores subtracting the patient's pain rating from that of the partner [12,18] and then used these scores to create a trichotomous grouping variable distinguishing couples characterized by agreement, partner overestimation (partner ratings exceeding patient ratings), and partner underestimation (partner ratings lower than patient ratings). As it is unreasonable to define concordance as perfect agreement (i.e., a difference score of 0) [18], ± 0.5 standard deviations around a difference score of 0 was chosen as a meaningful cutoff defining the boundaries of patient-partner agreement. Accordingly, partner overestimation was defined as a positive difference of more than 0.5 SDs, and partner underestimation was defined as a negative difference of more than 0.5 SDs. This threshold is consistent with related work on defining patient-spouse concordance levels in rheumatoid arthritis [18], and, more generally, it has been considered a reasonable benchmark to identify minimal clinically important differences on the MPI pain severity subscale [30-33].

Hierarchical multiple regression analyses were conducted to examine differences in reported partner social support and behavioral responses among the concordance groups. In line with prior research, all multiple

regression analyses controlled for relationship satisfaction [7,14]. Patient and partner relationship satisfaction scores were entered in Step 1 of the model. Dummy codes for partner overestimation and partner underestimation of patient's pain severity (with agreement serving as the reference category) were entered in Step 2. The regression analyses were conducted separately for patient and partner reports for each of the four MPI subscales (i.e., social support, negative, solicitous, and distracting responses). Because a series of statistical analyses were conducted, the alpha level was set at $P \leq 0.05$ after applying the Benjamini and Hochberg false discovery rate (FDR) correction [34] to control for multiple comparisons (i.e., eight tests involving comparisons of overestimation and underestimation with agreement for four support variables).

Results

Participants

Table 1 provides an overview of the sample. The mean age of the patients was 52.4 years ($SD = 11.0$ years). The mean age of the partners was 51.1 years ($SD = 10.8$ years). Twenty-two (42%) patients were female. Forty-five of the couples (87%) were married. Approximately 59% of the patients and 66% of the partners had completed one to four years of college education. Patients identified their primary pain complaint as low back pain (85%), osteoarthritis (10%), rheumatoid arthritis (4%), and fibromyalgia (2%). Couples' ratings of their relationship satisfaction were highly correlated ($r = 0.71$, $P < 0.001$). Patients' (mean = 103.4, $SD = 19.6$) and partners' (mean = 102.6, $SD = 23.6$) mean relationship scores were in the satisfied range (total score of 100 or greater) as defined by Spanier [28] and comparable with those reported previously in couples coping with chronic illness [6,35]. The average length of their relationship was 23.2 years (range = 2–53 years, $SD = 13.9$ years).

Overall Agreement Between Patient and Partner

Patients' and partners' reported pain severity scores were skewed toward the higher end of the scale (range 0–6) and are presented in Table 2. Paired samples t tests were conducted on each of the five subscales to determine the absolute levels of agreement between patients and partners. There were no significant differences in mean levels between patient and partner reports for all subscales (see Table 2). Correlational analyses demonstrated moderate correspondence between patient and partner ratings for pain severity ($r = 0.55$, $P < 0.001$) and negative ($r = 0.46$, $P < 0.01$), solicitous ($r = 0.47$, $P < 0.001$), and distracting responses ($r = 0.53$, $P < 0.001$); the correlation between patient and partner for social support was 0.28 ($P = 0.046$).

Table 1 Demographic characteristics of the participants (N = 52 couples)

Demographics	Patient Sample	Partner Sample
Age, M (SD)	52.4 (10.8)	51.06 (10.8)
Gender, %		
Female	42	58
Marital status, %		
Married	87	87
Education, %		
≤ high school graduate	31	22
1–4 years of college	59	66
Graduate education	10	12
Race, %		
White	98	96
Employment, %		
Part-time/full-time	50	71
Disability status, %*		
Part-time/full-time	42	–
Primary pain diagnosis, %*		
Low back pain	85	–
Osteoarthritis	10	–
Rheumatoid arthritis	4	–
Fibromyalgia	2	–
Years since chronic pain symptoms*	10.2 (9.1)	–
Relationship satisfaction	103.4 (19.6)	102.6 (23.6)

Ns range from 47 to 52.

* Information about these variables was not available for partners.

Couple Concordance on Perceptions of Pain Severity

The three concordance groups (partner overestimation, agreement, and partner underestimation) did not differ significantly on basic demographic and medical characteristics. Fifty-four percent (N = 28) of the couples were in the agreement group; 27% (N = 14) of the partners overestimated and 19% (N = 10) underestimated the patient's pain severity. Marital satisfaction as self-reported by both partners was higher in the pain underestimation group (patient mean = 109.4, $SD = 16.7$; partner mean = 111.7, $SD = 20.5$), compared with the pain overestimation group (patient mean = 100.7, $SD = 23.1$; partner mean = 101.8, $SD = 27.8$), and the group of agreeing couples (patient mean = 102.5, $SD = 18.9$; partner mean = 99.7, $SD = 22.4$), although these differences were not statistically significant.

Couple Concordance as Predictor of Partners' Support Provision

The results of the hierarchical multiple regression analyses of couples' concordance predicting patient-reported and partner-reported support are presented in Tables 3 and 4, respectively.

Table 2 Descriptive statistics and couple agreement on the MPI subscales (N = 52 couples)

	Patient Rating		Partner Rating		Patient-Partner Agreement <i>r</i>
	M	SD	M	SD	
Pain severity	4.17	1.14	4.21	1.08	0.55**
Social support	4.40	1.33	4.60	0.95	0.28*
Punishing responses	2.10	1.52	2.13	1.49	0.46**
Distracting responses	1.88	1.38	1.88	1.23	0.53**
Solicitous responses	3.43	1.39	3.78	1.17	0.47**

* $P \leq 0.05$.

** $P \leq 0.01$.

Table 3 Hierarchical multiple regression analyses examining couple concordance regarding pain severity and patient-reported support provision (N = 52 couples)

	<i>B</i>	ΔR^2 , %	<i>P</i>	<i>P</i> _{corrected} *
Patient-reported social support				
Predictors				
Step 1		28.0	0.001	
Patient and partner relationship satisfaction				
Step 2		0.3	0.003	
Partner overestimation	-0.053		0.687	0.998
Partner underestimation	0.000		0.998	0.998
Patient-reported negative responses				
Predictors				
Step 1		20.5	0.004	
Patient and partner relationship satisfaction				
Step 2		2.6	0.013	
Partner overestimation	-0.155		0.254	0.780
Partner underestimation	0.017		0.900	0.998
Patient-reported distracting responses				
Predictors				
Step 1		1.0	0.774	
Patient and partner relationship satisfaction				
Step 2		7.6	0.366	
Partner overestimation	0.144		0.333	0.780
Partner underestimation	0.286		0.061	0.488
Patient-reported solicitous responses				
Predictors				
Step 1		2.7	0.514	
Patient and partner relationship satisfaction				
Step 2		1.6	0.712	
Partner overestimation	0.130		0.390	0.780
Partner underestimation	0.002		0.988	0.998

* $P_{\text{corrected}}$ represents the significance level after correcting for the number of analyses with the Benjamini and Hochberg false discovery rate correction.

Social Support

There were no significant effects of pain over- or underestimation on patient reports of their partners' social support. In contrast, we found significant effects for

partners' reports of their social support. After accounting for the effects of patient and partner relationship satisfaction in Step 1 (16.5% of the variance), couple concordance on pain severity explained an additional 15.0% of the variance in partner reports of their social

Table 4 Hierarchical multiple regression analyses examining couple concordance regarding pain severity and partner-reported support provision (N = 52 couples)

	β	ΔR^2 , %	<i>P</i>	<i>P</i> _{corrected} *
Partner-reported social support				
Predictors				
Step 1		16.5	0.012	
Patient and partner relationship satisfaction				
Step 2		15.0	0.001	
Partner overestimation	0.383		0.004	0.016
Partner underestimation	-0.019		0.883	0.883
Partner-reported negative responses				
Predictors				
Step 1		23.4	0.001	
Patient and partner relationship satisfaction				
Step 2		10.1	0.001	
Partner overestimation	-0.332		0.011	0.029
Partner underestimation	-0.137		0.286	0.381
Partner-reported distracting responses				
Predictors				
Step 1		2.8	0.498	
Patient and partner relationship satisfaction				
Step 2		7.5	0.268	
Partner overestimation	0.184		0.212	0.339
Partner underestimation	0.269		0.075	0.150
Partner-reported solicitous responses				
Predictors				
Step 1		4.3	0.344	
Patient and partner relationship satisfaction				
Step 2		17.6	0.019	
Partner overestimation	0.438		0.002	0.016
Partner underestimation	0.081		0.560	0.640

* *P*_{corrected} is the significance level after correcting for the number of analyses with the Benjamini and Hochberg false discovery rate correction. Bolded regression coefficients are significant at $P \leq 0.05$.

support ($P = 0.001$). Specifically, partners who overestimated patients' pain severity reported providing more social support than partners who agreed with patients about their pain severity ($\beta = 0.383$, $P = 0.004$). After applying the Benjamini and Hochberg FDR correction, the effect remained significant at a P value of 0.016.

Negative Responses

There were no significant effects of pain concordance on patients' perceptions of their partner's negative responses. In contrast, we found significant effects for partner-reported negative responses. After accounting for the effect of partner relationship satisfaction in Step 1 (23.4% of the variance), couple concordance on pain severity explained an additional 10.1% of the variance in partner-reported negative responses ($P = 0.001$). Partners who overestimated patients' pain severity reported fewer negative responses toward the patient than partners who agreed with patients about their pain severity ($\beta = -0.332$, $P = 0.011$). After applying the

Benjamini and Hochberg FDR correction, the effect remained significant at a P value of 0.029.

Distracting Responses

No significant effects of pain severity concordance and patient-perceived or partner-reported distracting responses were evident.

Solicitous Responses

There were no significant effects of pain over- or underestimation on patients' perceptions of partners' solicitous responses. In contrast, we found significant effects for partner-reported solicitous responses. After accounting for the effect of partner relationship satisfaction in Step 1 (4.3% of the variance), couple concordance on pain severity explained an additional 17.6% of the variance in partner-reported solicitous responses ($P = 0.019$). Partners who overestimated patients' pain

severity reported more solicitous responses toward the patient than partners who agreed with patients about their pain ($\beta=0.438$, $P=0.002$). After applying the Benjamini and Hochberg FDR correction, the effect remained significant at a P value of 0.016. When relationship satisfaction was not included as a covariate in the regression analyses, the pattern of results remained the same for patient and partner support outcomes.

Discussion

The goal of this study was to examine the relationship between couple concordance on perceptions of patient pain severity and partner social support and behavioral responses as assessed by the MPI in couples coping with chronic pain. In line with current recommendations to include spouses' reports of their own behavior in research on social support processes [18,20], we queried both patients and their romantic partners about partners' support-related responses.

Results of the paired samples t tests showed that patients and partners on average did not significantly differ in their perceptions of the patient's pain severity level. This result is consistent with prior research in patients with musculoskeletal pain [14–16,36]. However, the moderate correlation between patient and partner pain severity ratings indicated substantial heterogeneity in couples' concordance. We employed a cutoff of ± 0.5 of an SD as a reasonable benchmark to define clinically meaningful discrepancies in patients' and partners' perceptions on the MPI pain severity subscale [30,32,33,37,38], an approach that aligns with recent related research in patients with rheumatoid arthritis [18]. Using this criterion, we found that approximately half of the couples (54%) were in agreement about patients' levels of pain severity. This result is comparable with work by Lehman and colleagues [18] in rheumatoid arthritis who found that 46% of their couples were in agreement about patient pain severity.

Our findings regarding the linkage between couple concordance on pain severity and partners' support-related responses were not in line with our study hypotheses. Based on conceptual models [8,9], we hypothesized that nonconcordance (i.e., pain underestimation and overestimation) would correspond with fewer instrumental (i.e., solicitous and distracting) behavioral responses, less social support, and more negative behavioral responses. For patient reports of support received from the partner, no significant effects of couple concordance were found. These null results agree with prior findings by Cano and colleagues [14] and Lehman and colleagues [18], who also did not find evidence that concordance on perceptions of pain relates to patient-reported support.

For partners' reports, however, we found that overestimation of patient pain was significantly related to greater levels of support-related responses on the MPI. Specifically, partners in the pain overestimation group

reported more solicitous responses and more social support compared with partners who were in agreement with patients. Moreover, our results show that overestimation of pain severity was associated with fewer partner-reported negative responses toward the patient. Although these study results were unexpected given the hypotheses, they agree with related research that suggests that spouses may try to accommodate the patient when pain and physical limitations are viewed as severe in the patient [39]. It may be that partners who overestimate the patient's pain are very compassionate about the patient's pain experience and thus provide high levels of support. This result relates to research on spouse catastrophizing about patient pain (e.g., see [40]). In the same way that spouses may become more solicitous in their behavior toward the patient and may show more social support, they may also be more likely to curb negative reactions when their perception of patient pain is heightened [41].

Additional research is needed to better understand why the findings for overestimation were only evident for partner-reported but not patient-reported support-related responses. The fact that we found quite different results for the effects of nonconcordance about pain on support provision reported by patients and partners is not completely unexpected in view of the moderate to low correlations between patient and partner scores on the MPI; correlations ranged from 0.28 to 0.53, similar to those reported by Sharp and Nicholas ($r_s=0.40$ – 0.56) [26]. These moderate to low correlations suggest that support-related perceptions by patients and their partners do not address redundant information or measure essentially identical constructs, which makes differences in results across these support variables between patients and their partners not surprising.

Although not explicitly tested here, it is possible that partners who overestimate the patient's pain provide more support, but these responses go unnoticed by the patient. In fact, prior observational and experimental evidence suggests that many support transactions reported by support providers are not perceived as such by recipients, but these "invisible" support transactions play a uniquely important role in facilitating positive adjustment to stressors [42,43]. Social cognitive theory emphasizes the beneficial role of the perceived availability of support [44]; however, research has shown that the actual receipt of support can yield mixed benefits [45]. The awareness of receiving support may carry an emotional cost, whereas support that is "invisible" may not, which may render the latter type of support especially beneficial. Although this may have positive effects on the patient, it may also pose a longer-term burden on the spouse. Prior research has found trends to suggest that overestimation of patient pain may be associated with more caregiving stress compared with pain agreement within couples [7]. Future research should examine how overestimation of patient pain is associated with patient and spouse physical and mental well-being over time.

This study has several limitations. First, our sample size was small, and our results should be considered preliminary, requiring further replication with larger samples. Second, our sample was mostly Caucasian; future research should examine whether our results generalize to more racially and ethnically diverse samples. Third, whereas our analyses directly addressed the dyadic nature of pain perceptions, separate models were estimated predicting partner- and patient-reported support variables, thereby treating the individual rather than the couple as the unit of analysis. This limits our conclusions regarding processes involving the dyadic interdependence of support perceptions [46]. Fourth, our design was cross-sectional, and, as such, the temporal relationship between couple concordance on pain perceptions and support-related responses cannot be ascertained with the present data. Future research would benefit from prospective designs that allow for establishing the nature and timing of the sequential association between mutual agreement about symptom levels and interpersonal support processes. Fifth, whereas chronic pain has shown strong associations with psychological distress, specifically depression, the present study did not include assessments of patients' or partners' depressive symptoms. Finally, our results reflect the perceptions of patient and partner about spousal responses and may not reflect actual behaviors in response to patient pain [14,16,18]. Naturalistic observational research may provide a more ecologically valid understanding of interpersonal support processes within dyads. In addition, observational approaches to studying couples' support dynamics might help elucidate why some patients and their partners have discrepant viewpoints about the patient's pain severity.

In sum, the present study adds to the existing literature on couple concordance on perceptions of patient pain severity and its relationships with interpersonal support processes in two important ways. First, our side-by-side examination of patient and partner reports of support provision follows recent recommendations to include spousal reports in research on interpersonal processes in chronic illness [1,20]. Our results highlight the importance of such an approach in that we would have missed a critical part of the social support dynamics had we only obtained patients' perceptions of partner social support and behavioral responses. Second, our results suggest that nonconcordance per se may not be detrimental to the patient and that spouses report providing additional support when they overestimate patient pain. Whether or not spousal overestimation of the patient's pain may bring psychological and physical benefits to the dyad (or only one member of the couple or none) is yet to be determined, but our results suggest that it is important to further examine and replicate our findings on spousal overestimation of pain severity. Third, from a clinical perspective, the divergence of results across patient and partner reports of social support and behavior toward the patient emphasizes that social support processes are complex and require consideration of both patients' and partners' viewpoints.

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