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Spouse Beliefs About Partner Chronic Pain

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Abstract: Although research has shown that patients' beliefs about their pain are related to pain adjustment and treatment outcomes, little is known about the beliefs of their significant others. The purpose of this study was to develop a measure of pain beliefs in significant others and to examine the correlates of these beliefs. Participants were 104 married couples in which 1 partner reported chronic pain. Spouses completed an amended version of the Survey of Pain Beliefs (SOPA). The scale development procedure described in Jensen et al was used to select appropriate items for the significant other version of the SOPA. This procedure yielded 7 subscales that closely resembled the original SOPA. Spousal pain beliefs about disability, emotion, control, and medication were significantly correlated with partners' pain severity and other indicators of pain adjustment. Emotion, disability, and other beliefs were related to spouse responses to pain, and spouses' depressive symptoms and marital dissatisfaction. Spouses' personal experiences with pain were not related to their beliefs about their partners' pain. Additional research on the pain-related beliefs of significant others may extend cognitive-behavioral theory concerning the social context of pain and provide an additional avenue through which clinicians can address cognition in patients and families.

Perspective: This study describes a new measure that can be used to assess significant others' beliefs about their partners' pain problems. Little is known about the beliefs of family members so this measure is expected to provide a way for clinicians and researchers to assess and track changes in those beliefs.

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Key words: Pain beliefs, significant others, chronic pain, spouses, couples.

In the biopsychosocial model of pain,¹⁰ one's beliefs about pain play an important role in the experience of pain. Indeed, several researchers have found that pain beliefs are correlated with pain intensity and pain coping.^{3,24} Changes in beliefs about harm and disability are associated with improvements in patients' physical performance.^{14,23} Furthermore, post-treatment increases in the belief that one is becoming disabled by pain and decreases in perceived control over pain are associated with increased disability and depression.¹⁴ Despite the fact that pain beliefs appear to be crucial to pain management, little research has been conducted on the pain

beliefs of spouses and significant others. The goal of this study is to develop a measure of pain beliefs in significant others and to provide preliminary evidence concerning the associations of these pain beliefs with pain adjustment in both partners.

Cognitive-behavioral theory suggests that close others' pain-related beliefs and cognitions affect the development, maintenance, and management of pain and distress.³¹ Evidence in support of this theory has demonstrated that beliefs held by parents of pediatric cancer patients concerning pain management appear to relate to parents' decisions about managing that pain.⁹ In addition, parents of children with persistent pain believe that coping with pain and managing stress will help their children in the long run,⁴ which also suggests that parents' beliefs have an impact on treatment choices. However, relatively few studies have examined the health or pain beliefs of adult significant others and how these beliefs might be related to adjustment in chronic pain. Research on pain catastrophizing, a pain-related cognition, provides some support for

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the role of significant others' beliefs in adult pain adjustment. For instance, spousal catastrophizing about partner pain strengthens the positive association between patients' pain catastrophizing and depressive symptoms.² Similarly, spousal beliefs about the role of emotions in the partner's pain or about the meaning of pain may relate to their partner's pain adjustment.

Theoretical work in pain also implies a link between spouses' cognitions and their behaviors toward partners in pain.^{8,31} For instance, spouses may not engage in solicitous responses if they believe that their partners have the ability to control their own pain. However, the association between spouses' pain beliefs and spouse behaviors is rarely investigated. Furthermore, spousal pain beliefs may vary as a function of spouses' marital satisfaction, depression, or personal experience with pain. Indeed, caregiver burden is heightened when adult cancer patients and their family caregivers agree that the cancer pain is not controllable.²⁵ Distressed spouses or those who themselves experience chronic pain may hold more maladaptive pain beliefs, a finding that would have implications for the routine assessment of beliefs in significant others.

The fact that spouses are an important source of support and have great potential to influence health behaviors and treatment^{1,22} suggests that research on pain beliefs may also be able to inform treatments. Effective treatments for chronic pain that involve significant others often include supportive and educational components that teach spouses to understand pain^{17,18}. In effect, these interventions attempt to correct mistaken pain beliefs that might interfere with treatment. Yet, research has not directly examined the extent to which pain beliefs in close others are related to pain adjustment. Therefore, the goals of this study were to (1) test whether pain beliefs can be measured in significant others using an amended version of a well-validated measure of pain beliefs, the Survey of Pain Attitudes,^{5,13,15} and (2) examine the extent to which pain beliefs in significant others are related to pain adjustment in both persons with pain and their spouses.

Materials and Methods

Participants

Participants were 104 community couples. Husbands comprised 55% ($n = 57$) of the spouses of persons with pain. Approximately 45% ($n = 47$) of spouse participants self-reported as African American, followed by Caucasians (49%, $n = 51$) and persons of other races (3%, $n = 3$). This distribution was similar for persons with pain (Caucasians: 48%, $n = 50$; African Americans: 48%, $n = 50$; other groups: 4%, $n = 4$). Three spouses (3%) did not report race. The mean age of persons with pain was 52.27 years ($SD = 13.5$), and the mean age of spouses was 51.58 years ($SD = 13.73$). On average, couples had completed some college (persons with pain: $M = 14.34$ years, $SD = 3.07$; spouses: $M = 13.87$ years, $SD = 2.45$). Mean marriage duration was 21.63 years ($SD = 15.80$). Mean household income was \$46,012 ($SD = \$24,549$) and was obtained from block-level group income

information in the US Census. The most common chronic pain problems self-identified by persons with pain were back problems (eg, herniated disc, pain after spinal fusion; $n = 49$, 47%) and osteoarthritis ($n = 22$, 21%). Persons with pain reported a mean pain duration of 11.69 years ($SD = 10.52$).

Measures

Both partners completed measures regarding the pain severity, interference, activity level, and pain behaviors of persons with pain; their own marital satisfaction and depressive symptoms; and each partner's perceptions of spouses' responses to persons with pain.

Spouses of persons with pain completed an amended version of the 57-item Survey of Pain Attitudes^{13,15} (SOPA). The SOPA was reworded to assess spouses' beliefs and attitudes regarding pain in their partners. The original SOPA has 7 subscales that measure attitudes regarding: expectations for support (Solicitude), pain is a sign of disability (Disability), emotion contributes to pain (Emotion), pain is a signal of harm (Harm), a cure for the pain will be found (Medical Cure), medication will alleviate pain (Medication), and personal control over pain (Control). The subscales of the original SOPA have good inter-item reliability.¹⁵

The Multidimensional Pain Inventory²⁰ (MPI) and the Multidimensional Pain Inventory-Spouse Version⁶ (MPI-S) were used to measure several pain adjustment variables including each spouse's reports of the pain severity in the person with pain (3 items), perceived interference (9 items), and everyday activity level (18 items). The MPI has demonstrated good psychometric properties.^{6,20} In the current study, good inter-item reliabilities were found for each of the scales (pain severity: person with pain $\alpha = .78$, spouse $\alpha = .82$; interference: person with pain $\alpha = .93$, spouse $\alpha = .94$; activity: person with pain $\alpha = .84$, spouse $\alpha = .81$).

Pain behaviors were assessed with the Pain Behavior Checklist²⁰ (PBCL). The PBCL is 17-item self-report measure of the frequency of disturbed ambulation, affective distress, facial/audible expressions, and seeking help. These PBCL subscales were derived from factor analysis and each is reliable and stable.¹⁹ In the current study, inter-item reliability for the total scale was excellent for persons with pain ($\alpha = .83$) and spouses ($\alpha = .88$).

Depressive symptoms were measured with the 90-item Mood and Anxiety Symptom Questionnaire^{32,33} (MASQ). The nonspecific depressive symptom (12 items) and anhedonic depression subscales (22 items) were used to assess 2 types of depressive symptoms. The former consists of nonspecific depressive symptoms (eg, disappointment, self-blame), whereas the latter consists of symptoms that are specific to depression (eg, loss of interest, anhedonia). The MASQ has good convergent and discriminant validity, reliability, and a stable factor structure in student, community, adult patient, and chronic pain patient samples.^{11,32,33} Inter-item reliabilities were excellent in the current study (nonspecific: person with pain $\alpha = .88$; spouses $\alpha = .89$; anhedonic: person with pain $\alpha = .93$; spouses $\alpha = .93$).

The MPI was also used to assess spouse responses to pain because an important aspect of pain adjustment includes how significant others might react to pain behaviors. Each spouse's perceptions of spouse punishing (4 items), solicitous (6 items), and distracting (4 items) responses to pain were measured. Inter-item reliability was adequate to excellent for all 3 spouse response subscales for persons with pain (punishing $\alpha = .83$, solicitous $\alpha = .82$, distracting $\alpha = .69$) and spouses (punishing $\alpha = .70$, solicitous $\alpha = .69$, distracting $\alpha = .68$).

Finally, the Dyadic Adjustment Scale (DAS)²⁶ assessed marital satisfaction in both spouses. The DAS is a commonly used measure of marital satisfaction with higher scores indicating greater satisfaction. Mean marital satisfaction was 104.43 (SD = 20.44) for persons with pain and 105.30 (SD = 18.67) for their spouses, indicating a sample that was slightly above the typical satisfaction cut-off of 100. Inter-item reliabilities for persons with pain and spouses were excellent for the current study (person with pain $\alpha = .92$, spouse $\alpha = .95$).

Procedure

Institutional review board approval from the university was obtained before any research activities were conducted. The research study was then advertised in local newspapers and online to university students and employees. Telephone screenings were used to determine eligibility. To be eligible for the study both partners had to be at least 21 years old and currently married or living together for at least 2 years. Couples were ineligible if either partner reported psychotic symptoms, a terminal illness, were over the age of 60, or failed a telephone-adapted version of the Mini-Mental Status Examination.⁷ One spouse reported a chronic, benign pain condition of at least 6 months duration and denied autoimmune disease (eg, rheumatoid arthritis, lupus), cancer or other terminal illness, or other pain conditions that were not musculoskeletal, or joint- or back-related (eg, diabetic neuropathy, scleroderma) and denied DSM-IV somatoform/somatization symptoms. If both partners reported chronic pain (46%, $n = 48$ couples), the spouse with the more severe pain by both partners' reports on a 0 (no pain) to 10 (pain as extreme as can be) numerical rating scale during the phone screen was designated as the person with pain. At the lab, these couples were again asked to rate their current pain, average, worst, and least pain on a 0 to 10 scale as a check. Indeed, a paired sample t test indicated that the identified persons with pain reported greater pain ($M = 5.44$, $SD = 2.17$) than their spouses who also reported pain ($M = 4.29$, $SD = 2.17$, $t(47) = 3.05$, $P < .01$). The large number of couples in which both partners reported pain is consistent with previous research²¹ and with the mean age of the sample.

Eligible couples completed consent forms and several questionnaires at home after which they attended a lab session consisting of interviews and interactions (not addressed in the current study). On completion of this session, all couples were debriefed, compensated \$100 for their time and effort, and were given a list of referrals for individual and couple therapy as a public service.

Results

Scale Development

The first objective of the study was to determine whether a significant other version of the SOPA (ie, SOPA-S) could be used to assess pain beliefs. We chose the method that was used to develop the original SOPA.^{12,13,29} In this procedure, items on the SOPA-S were retained if they had an absolute correlation with the parent subscale of at least .30 and a difference of greater than .10 between the item-parent scale correlation and the correlation between the item and each of the other scales. This method yielded 7 subscales that closely resembled the original SOPA structure. On the Disability subscale, 9 of the 10 items were retained in this step. The other subscales included Emotion, with 6 of 8 items retained; Control with 4 of 10 items retained; Solicitude, with 4 of 6 items retained; Medical Cure, with 5 of 9 items retained; Medication, with 3 of 6 items retained; and Harm, with 5 of 8 items retained.

Items were then deleted if the difference between the item-parent scale correlation and the correlation between the item and each of the other scales was not greater than .10. This resulted in the deletion of 3 items on the Disability subscale, 1 item on the Emotion subscale, 3 items on the Control subscale, 2 items on the Harm subscale, and 2 items on the Medical Cure subscale. Following Jensen et al,¹² we attempted to limit each subscale to a maximum of 5 items. Doing so resulted in the deletion of 1 item on the Disability subscale. This item on the Disability subscale and 3 items on the Control subscale were then added back into their corresponding subscales because they were believed to assess a component of the parent scale not adequately represented by the remaining items. Specifically, the Disability item ("My partner's pain does not stop him/her from leading a physically active life") was added back because of the small number of activity items. The Control items ("The amount of pain my partner feels is out of his/her control," "My partner can control his/her pain by changing his/her thoughts," and "My partner is not in control of his/her pain") were added back because of the small number of items that assessed the ability to control pain.

This method of scale development produced a total of 27 items, which consists of 6 Disability items, 5 Emotion items, 4 Control items, 4 Solicitude items, 3 Medical Cure items, 3 Medication items, and 2 Harm items. Table 1 reports the intercorrelations and inter-item reliabilities of the subscales. The inter-item reliabilities for Disability, Emotion, Solicitude, and Harm were adequate to excellent. However, reliabilities for Control, Medical Cure, and Medication were poor. We include these last 3 subscales in further analyses to provide preliminary evidence regarding all SOPA-S subscales.

Correlations Between SOPA-S Subscales and Pain Adjustment Variables

The second objective was to examine the correlates of the SOPA-S subscales that were derived by the method described above. Pearson product-moment correlation

Table 1. Intercorrelations and Inter-item Reliabilities of SOPA-S Subscales

	<i>DISABILITY</i>	<i>EMOTION</i>	<i>CONTROL</i>	<i>SOLICITUDE</i>	<i>MEDICAL CURE</i>	<i>MEDICATION</i>	<i>HARM</i>
Disability	.70						
Emotion	.33 [†]	.80					
Control	-.25*	-.06	.55				
Solicitude	.12	.35 [†]	-.16	.68			
Medical cure	-.09	-.20*	-.03	-.02	.50		
Medication	.18	.17	-.13	.18	-.12	.52	
Harm	.15	.11	.17	-.02	-.08	.07	.73
Mean	13.04	9.38	4.99	9.01	6.23	8.65	3.26
SD	5.43	4.90	3.13	3.73	2.66	2.45	1.56

NOTE. N = 103-104. Inter-item reliabilities appear in bold on the diagonal.

* $P < .05$

† $P < .01$.

analyses were conducted between the SOPA-S subscales, pain adjustment variables (ie, pain severity, interference, activity, pain behaviors, depressive symptoms), spouse responses to pain, and marital satisfaction. Table 2 displays the correlations between the SOPA-S subscales with the pain adjustment variables.

Spousal beliefs about disability were related to poorer pain adjustment as evidenced by significant correlations with both partners' ratings of pain severity, interference, activity level, and pain behaviors. Disability was also correlated with more anhedonic depressive symptoms in both partners and nonspecific depressive symptoms as reported by persons with pain. Furthermore, spousal Disability was significantly related to pain spouses' reports of greater solicitous spouse responses and spouses' lower marital satisfaction.

Greater spousal endorsement of the Emotion subscale was associated with interference as rated by both partners and spouse-rated pain behaviors as well as elevations in spouses' depressive symptoms. In addition, higher emotion scores were correlated with more self-reported punishing spouse responses and lower spousal marital satisfaction.

In contrast, higher scores on Control, indicating that the spouses believed that the person with pain was able to control their pain, were related to better pain adjustment. Control was inversely correlated with both partners' reports of pain severity and interference, and spouse reports of pain behaviors. Furthermore, Control was related to fewer solicitous and distracting spouse responses as reported by spouses.

Finally, spousal beliefs about Solicitude were related to spouse nonspecific depressive symptoms. Medical cure was associated with spouses' ratings of activity level. Spouses' greater faith in medication as a treatment for pain was related to higher self-rated pain severity and interference, spouses' ratings of pain behaviors, and spouse anhedonic depression. Furthermore, higher spouse scores on Medication were associated with greater solicitous spouse responses as reported by persons with pain. Spousal Harm beliefs were not associated with any of the pain adjustment or marital variables.

T Tests were also conducted to test the possibility that spouses with and without personal experience with

chronic pain would differentially endorse pain beliefs about their partners' pain. There were no significant differences between spousal groups across the 7 SOPA-S subscales, $P > .18$, indicating that spouses' personal pain experience was not significantly associated with their beliefs about their partners' pain.

Discussion

Although theoretical models of pain suggest that family members play a significant role in the pain experience, little research has been conducted on the pain-related cognitions of significant others that might contribute to patients' ability to manage their pain. The goals of this study were to develop a measure of significant others' pain beliefs and to examine the correlates of these pain beliefs. The scale development procedure applied by Jensen et al^{12,13} was used to select items for the significant other version of the SOPA (SOPA-S). This method resulted in a 27-item scale with 7 subscales resembling the original SOPA subscales: Disability, Harm, Emotion, Solicitude, Medical Cure, Medication, and Control. Similar to studies that have reported the intercorrelations between SOPA subscales in patients,²⁷ different types of spouse beliefs were intercorrelated (eg, Emotion with Solicitude, Disability, Medical Cure; Control with Disability). This pattern of correlations suggests that spouses' beliefs about the causes and consequences of partner pain are associated with their beliefs about controlling and medically managing partner pain. However, Control, Medication, and Medical Cure exhibited poor internal consistency. Studies of the patient version of the SOPA have also shown poor inter-item reliabilities for Medication and Medical Cure.¹² It remains to be seen if spousal beliefs about cures, medication, and control can be measured more reliably in other spouse samples.

We also examined the extent to which pain beliefs in significant others were related to pain adjustment. Disability, Emotion, Control, and Medication beliefs appeared to be most consistently related to pain adjustment variables. The belief that pain is an indicator of the partner's disability was significantly related to both partners' perceptions of greater pain severity, interference,

Table 2. Correlations Between SOPA-S Subscales and Pain Adjustment Variables

	SOPA-S SUBSCALE							M	SD
	DISABILITY	EMOTION	CONTROL	SOLICITUDE	MEDICAL CURE	MEDICATION	HARM		
Pain severity-P	.39 [†]	.05	-.26 [†]	-.02	-.03	.28 [†]	.01	3.30	1.25
Pain severity-S	.40 [†]	.10	-.34 [†]	-.11	-.09	.16	.02	3.53	1.40
Interference-P	.56 [†]	.20*	-.34 [†]	.12	-.04	.20*	.09	3.39	1.48
Interference-S	.64 [†]	.20*	-.35 [†]	.08	-.06	.08	.04	3.04	1.61
Activity-P	-.29 [†]	-.05	.18	-.11	.01	-.15	-.19	2.43	.95
Activity-S	-.30 [†]	-.07	.13	.09	.20*	-.10	-.16	2.74	.96
Pain behaviors-P	.47 [†]	.15	-.12	.07	.05	.15	.08	40.24	16.64
Pain behaviors-S	.53 [†]	.30 [†]	-.20*	.14	-.09	.29 [†]	.15	40.28	18.53
Punishing-P	-.02	.09	.07	.03	-.02	-.11	-.08	1.79	1.54
Punishing-S	.07	.23*	.02	.04	.02	-.02	.04	1.69	1.23
Solicitous-P	.23*	-.03	-.17	-.08	.03	.22*	.10	3.63	1.48
Solicitous-S	.18	.08	-.24*	-.03	-.07	.02	-.01	3.85	1.21
Distracting-P	.15	-.04	-.13	-.13	.15	-.00	.09	2.33	1.39
Distracting-S	.08	.02	-.27 [†]	.03	.08	-.11	.11	2.58	1.32
Nonspecific-P	.39 [†]	.16	-.10	.04	-.13	.13	.13	22.42	7.49
Nonspecific-S	.11	.25*	.04	.20*	-.01	.19	.18	21.81	7.97
Anhedonia-P	.38 [†]	.17	-.11	.10	-.04	.12	.06	57.55	14.18
Anhedonia-S	.27 [†]	.21*	.07	.12	-.05	.21*	.18	54.74	14.33
Marital satisfaction-P	-.13	-.12	.02	-.19	.00	-.01	.00	104.43	20.44
Marital satisfaction-S	-.27 [†]	-.26 [†]	-.10	-.09	-.03	-.07	-.15	105.30	18.67

Abbreviations: Activity indicates activity level; Punishing, punishing spouse responses; Solicitous, solicitous spouse responses; Distracting, distracting spouse responses; Nonspecific, nonspecific depressive symptoms; Anhedonia, anhedonic depressive symptoms; P, variable reported by person with pain; S, variable reported by spouse. NOTE. N = 103-104.

* $P < .05$

[†] $P < .01$.

pain behaviors, and less activity in the person with pain as well as depressive symptoms reported by persons with pain. This finding extends the research on disability beliefs in patients^{12,13,15,29} by demonstrating that similar beliefs of significant others may also play a role in pain adjustment. In contrast, believing that the spouse's pain was controllable was associated with both partners' lower ratings of pain severity and interference, and less spouse-reported pain behavior. Again, these results are similar to those examining control beliefs in patients.^{13,29} It makes sense that spousal beliefs about disability and control act in opposite directions given their inverse correlation. Perhaps spouses come to believe that pain is disabling and that one's partner has little control after observing the partner's unsuccessful attempts to manage pain over time.

As with disability beliefs, spouse beliefs about the extent to which emotions contribute to pain were related to higher pain behavior and interference scores. Other studies have demonstrated that patients' emotion beliefs are associated with their psychosocial functioning.^{13,15,29} Emotion beliefs can be conceptualized as partner's attributions about the causes of pain, which differentiates these beliefs from other types of pain beliefs. Future research may demonstrate that such beliefs result from ongoing interactions with partners who catastrophize about their pain. According to the communal coping model,^{28,30} catastrophizing may result in behaviors that communicate pain-related distress to

significant others. Thus, when spouses witness pain behaviors or behaviors that interfere with normal activity, they may attribute such behaviors to the emotional distress of their partners.

Spousal medication beliefs were associated with greater pain and interference as reported by persons with pain, and spouse reports of pain behaviors. Although some researchers have found that this belief subscale relates to pain adjustment in patients,²⁹ others have not.²⁷ Spouse beliefs about medical cures were associated only with spouse reports of less activity, which is not surprising since other studies have found few correlates of these beliefs in patient samples.^{13,27,29} As noted above, the Control, Medication, and Medical Cure belief subscales showed poor internal consistency. Thus, findings with these scales must be interpreted cautiously. More development is needed to discover whether these beliefs can be assessed in a reliable manner that would justify inclusion in future community and clinic studies of spouse beliefs.

Furthermore, we examined the extent to which spousal beliefs about pain would be related to spouse responses to persons with pain. Spousal disability beliefs were related to more solicitous spouse responses as reported by persons with pain, which is consistent with research showing that patients' disability beliefs are related to psychosocial disability.¹⁵ Spousal beliefs about the benefits of medication were also positively linked to solicitous responses. In contrast, believing that one's

partner had control over pain was related to fewer spouse-reported solicitous and distracting responses. Spouses who believe that the partner is able to control pain or that pain does not necessarily indicate disability may find it unnecessary to provide such support. With regard to negative spousal behaviors, attributing the partner's pain to emotional causes was associated with greater punishing spouse responses. Spouses with these beliefs may have less sympathy for the pain experiences of patients and react negatively to them. It is likely that temporal and bidirectional associations between spouse beliefs and responses exist that would be of interest to intervention researchers.

Finally, we examined the associations between spouses' beliefs with their own adjustment. We demonstrated that spouses' disability and emotion beliefs not only correlate with the partner's pain adjustment but also with the psychological adjustment of the spouse. Furthermore, spouses' harm beliefs, although not significantly correlated with any of the variables in this study, demonstrated a small to medium effect with spouse depressive symptoms. Disability, emotion, and harm beliefs may reflect spouses' anxiety or disappointment about the effect that pain has on the marital relationship and on roles within the family. Indeed, disability and emotion beliefs were inversely associated with spouses' marital satisfaction. Anxiety about the future may also explain why beliefs in spouses' distress were also positively related to beliefs in medications. Likewise, the attitude that family members should support their partners in pain was associated with greater spouse depressive symptoms. Perhaps, spouses who endorse solicitude beliefs may also experience caregiver burden because other family members are not contributing support to the person with pain or the spouse.

Spouses with and without pain did not differentially endorse pain beliefs, suggesting that personal experience with pain does not affect beliefs about another's pain. However, spouses' marital satisfaction was negatively associated with their scores on the Emotion and Disability subscales. It is possible that attitudes relating to emotion and disability impact spousal satisfaction or that less satisfied spouses attribute their partners' pain to emotion or disability. In either case, users of the

SOPA-S should be aware that spouses in less satisfying relationships, as well as depressed spouses, may endorse such beliefs to a greater extent than satisfied spouses.

A limitation of this study is that we did not examine spouses' pain beliefs about their own pain experiences, whether acute or chronic. We assume that beliefs about pain may differ depending on the target individual but it is also possible that one's beliefs about pain in general are fixed. In addition, spousal beliefs were assessed with an adapted version of an existing measure. This may explain why the spousal harm scale was not significantly associated with any of the variables, which is contrary to findings in patients.^{13,15,29} In the current study, harm was assessed with 2 items that assessed the role of exercise in pain. Perhaps exercise beliefs are not as relevant in community samples, which may be more active than pain clinic samples. There may also be other spouse beliefs about pain that were not assessed with the method used in the current study (eg, beliefs about pain-related relationship change). Methods such as focus groups or open-ended surveys may yield a list of other pain beliefs held by significant others that are relevant for pain adjustment and well-being. Furthermore, additional work is needed to determine whether similar results can be found in samples other than this self-selected community sample of heterosexual couples and whether internal consistency of some of the scales can be improved.

Nevertheless, this study provides preliminary evidence that the pain beliefs of significant others can be assessed using the 27-item SOPA-S. The continued study of spouse beliefs is needed because treatment studies often track changes in variables related to spouse beliefs. For instance, partners involved in a coping skills training program for cancer pain reported increased self-efficacy in helping patients control their pain.¹⁶ Treatment programs such as this often provide significant others with information about pain that may change their beliefs (eg, to what extent pain is controllable or is a sign of disability). However, beliefs in significant others are rarely assessed. The fact that patient beliefs can be changed during cognitive-behavioral intervention^{15,24} suggests that spouses' beliefs may also be amenable to change that can benefit both partners.

References

1. Butterfield RM, Lewis MA: Health-related social influence: A social ecological perspective on tactic use. *J Soc Person Relat* 19:505-526, 2002
2. Cano A, Leonard MT, Franz A: The Significant Other Version of the Pain Catastrophizing Scale (PCS-S): Preliminary Validation. *Pain* 119:26-37, 2005
3. Chang H, Herr K, Sohn J, Cha B, Yom Y: Prediction in pain outcomes in Korean older adults: Use of a structural equation model. *Pain Med* 8:75-83, 2007
4. Claar RL, Scharff L: Parent and child perceptions of chronic pain treatments. *Child Healthcare* 36:285-301, 2007
5. DeGood DE, Tait RC: Assessment of pain beliefs and pain coping, in Turk DC, Melzack R (eds): *Handbook of Pain Assessment*. New York, NY, Guilford, 2001, pp 320-345
6. Flor H, Kerns RD, Turk DC: The role of spouse reinforcement, perceived pain, and activity levels of chronic pain patients. *J Psychosom Res* 31:251-259, 1987
7. Folstein M, Folstein S, McHugh P: Mini-mental state: A practical method for grading the state of patients for the clinician. *J Psychiatr Res* 12:129-138, 1975
8. Fordyce WE: *Behavioral methods for chronic pain and illness*. St. Louis, MO, C.V. Mosby, 1976
9. Forgeron PA, Finley GA, Arnaut M: Pediatric pain prevalence and parents' attitudes at a cancer hospital in Jordan. *J Pain Symp Manage* 31:440-448, 2005

10. Gatchel RJ, Peng YB, Peters ML, Fuchs PN, Turk DC: The biopsychosocial approach to chronic pain: Scientific advances and future directions. *Psychol Bull* 113:581-624, 2007
11. Geisser M, Cano A, Foran H: Psychometric properties of the Mood and Anxiety Symptom Questionnaire in chronic pain patients. *Clin J Pain* 22:1-9, 2006
12. Jensen M, Karoly P, Huger R: The development and preliminary validation of an instrument to assess patients' attitudes toward pain. *J Psychosom Res* 31:393-400, 1987
13. Jensen MP, Turner JA, Romano JM: Pain belief assessment: A comparison of the short and long versions of the Survey of Pain Attitudes. *J Pain* 1:138-150, 2000
14. Jensen MP, Turner JA, Romano JM: Changes after multidisciplinary pain treatment in patient pain beliefs and coping are associated with concurrent changes in patient functioning. *Pain* 131:38-47, 2007
15. Jensen MP, Turner JA, Romano JM, Lawler BK: Relationship of pain-specific beliefs to chronic pain adjustment. *Pain* 57:301-309, 1994
16. Keefe FJ, Ahles TA, Porter LS, Sutton LM, McBride CM, Pope MS, McKinstry ET, Furstenberg CP, Dalton J, Baucom DH: The self-efficacy of family caregivers for helping cancer patients manage pain at end-of-life. *Pain* 103:157-162, 2003
17. Keefe FJ, Caldwell DS, Baucom D, Salley A: Spouse-assisted coping skills training in the management of osteoarthritic knee pain. *Arthritis Care Res* 9:279-291, 1996
18. Keefe FJ, Caldwell DS, Baucom D, Salley A, Robinson E, Timmons K, Beaupre P, Weisberg J, Helms M: Spouse-assisted coping skills training in the management of knee pain in osteoarthritis: Long-term followup results. *Arthritis Care Res* 12:101-111, 1999
19. Kerns RD, Haythornthwaite J, Rosenberg R, Southwick S, Giller E, Jacob M: The Pain Behavior Check List (PBCL): Factor structure and psychometric properties. *J Behav Med* 14: 155-167, 1991
20. Kerns RD, Turk DC, Rudy TE: The West Haven-Yale Multidimensional Pain Inventory (WHYMPI). *Pain* 23:345-356, 1985
21. Leonard M, Cano A: Pain affects spouses too: Personal experience with pain and catastrophizing as correlates of spouse distress. *Pain* 126:139-146, 2006
22. Leonard MT, Cano A, Johansen AB: Chronic pain in a couples context: A review and integration of theoretical models and empirical evidence. *J Pain* 7:377-390, 2006
23. Moseley GL: Evidence for a direct relationship between cognitive and physical change during an education intervention in people with chronic low back pain. *Eur J Pain* 8: 39-45, 2004
24. Osborne TL, Jensen MP, Ehde DM, Hanley MA, Kraft G: Psychosocial factors associated with pain intensity, pain-related interference, and psychological functioning in persons with multiple sclerosis and pain. *Pain* 127:52-62, 2007
25. Riley-Doucet C: Beliefs about the controllability of pain: Congruence between older adults with cancer and their family caregivers. *J Fam Nursing* 11:225-241, 2005
26. Spanier G: Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *J Marriage Fam* 38:15-28, 1976
27. Strong J, Ashton R, Chant D: The measurement of attitudes towards and beliefs about pain. *Pain* 48:227-236, 1992
28. Sullivan MJL, Thorn B, Haythornthwaite JA, Keefe F, Martin M, Bradley LA, Lefebvre JC: Theoretical perspectives on the relation between catastrophizing and pain. *Clin J Pain* 17:52-64, 2001
29. Tait RC, Chibnall JT: Development of a brief version of the Survey of Pain Attitudes. *Pain* 70:229-235, 1997
30. Thorn BE, Ward LC, Sullivan MJL, Boothby JL: Communal coping model of catastrophizing: Conceptual model building. *Pain* 106:1-2, 2003
31. Turk DC, Meichenbaum D, Genest M: *Pain and behavioral medicine: A cognitive-behavioral perspective*, New York, Guilford, 1983
32. Watson D, Clark LA, Weber K, Assenheimer JS, Strauss ME, McCormick RA: Testing a tripartite model, II: Exploring the symptom structure of anxiety and depression in student, adult, and patient samples. *J Abnorm Psychol* 104:15-25, 1995
33. Watson D, Weber K, Assenheimer JS, Clark LA, Strauss ME, McCormick RA: Testing a tripartite model, I: Evaluating the convergent and discriminant validity of anxiety and depression symptom scales. *J Abnorm Psychol* 104:3-14, 1995