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How do I empathize with you? Let me count the ways: Relations between facets of pain-related empathy

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Abstract

This study examined the extent to which components of empathy (i.e., empathic accuracy, empathic tendencies, and empathic responses) were correlated within the context of chronic pain couples. Additionally, the interrelationships between these empathy variables and spouse responses to pain were investigated. Participants were 57 couples in which at least one spouse reported chronic musculoskeletal pain. Each couple participated in a videotaped interaction about the impact of pain in their lives together, after which they completed an empathic accuracy procedure. The interactions were coded for the spouse's use of empathic responses. Couples also completed surveys about pain severity, pain interference, empathic tendencies, marital satisfaction, and perceived spousal responses (i.e., solicitous and punishing responses) to pain. Spousal empathic responses and empathic accuracy were not related to one another nor were they related to spousal empathic tendencies, or solicitous spouse responses. Spousal punishing responses were negatively related to empathic responses. The association between solicitousness and empathic responses was moderated by spousal marital satisfaction. The findings suggest that there are not clear associations among these empathy variables. The results also indicate that the climate in which solicitousness is provided may influence the extent to which spouses display empathic responses.

Perspective—The findings have implications for models of pain empathy and suggest that future research is needed to understand relations between aspects of empathy. Moreover, interventions aimed at addressing the empathic climate in which support is delivered may help spouses more empathically and effectively communicate with and assist partners with pain management.

Keywords

Empathic Accuracy; Empathic Tendencies; Empathic Responses Instrumental Support; Chronic Pain

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Empathy is an important interpersonal process in pain adjustment.^{17, 19} Yet “empathy” has many definitions and meanings (e.g., empathic accuracy, empathic tendencies, empathic responses) and little is known about the extent to which these empathic variables are interrelated in the context of pain. Drawing from multiple models of empathy, both general and pain-specific, we examine the extent to which various components of empathy are correlated and how empathy variables are interrelated with more commonly assessed variables such as solicitous and punishing responses. To date, little is known about the associations among different facets of empathy in the context of pain, which limits the utility of empathy models and the ability of clinical researchers to make recommendations regarding the value of empathy in pain management efforts.

There are at least three ways to define empathy within the context of pain. Goubert and colleagues¹⁹ define empathy as a sense of knowing the pain experience of another, or *empathic accuracy*. Empathic accuracy is considered as one’s ability to infer the content of another person’s private thoughts and feelings.²³ Empathy has also been described as a set of attitudes and *tendencies*.⁸ According to Davis, there are two empathy tendencies: perspective taking (i.e., a cognitive tendency to understand another’s point of view) and empathic concern (i.e., an affective tendency to experience feelings of compassion for others). Empathy has also been conceptualized as an observer’s affective or behavioral *responses* to a person with pain.^{3, 6} Validation, an empathic response, consists of responses that convey acceptance or attempted understanding of the other’s experiences whereas invalidation conveys hostility, nonacceptance, or inattention.¹⁷

Empathy for pain can be seen as an understanding of the other person’s experience, a trait-like tendency or attitude, and/or a response. One would expect these facets of empathy to be intercorrelated; however, research findings on this topic are scant and mixed. Two studies of empathic accuracy have shown no relationship between empathic accuracy and empathic concern or perspective taking^{24, 41} while another showed an association between perspective taking and empathic accuracy.²⁹ Other research has shown that empathic accuracy is unrelated to empathic responses.⁴² Furthermore, no studies to date have simultaneously examined these three facets of empathy in a chronic pain sample. Thus, the interrelations between empathy concepts in the context of pain are not clear, which hampers the further development of empathy models. In the current study, we expected that these empathy facets--empathic accuracy, empathic tendencies, and empathic responses--would be positively related to each other in chronic pain couples.

A second aim of this study was to understand whether pain empathy variables correlate with solicitous and punishing spouse responses. Solicitousness includes providing concrete help with tasks. These instrumentally supportive behaviors do not necessarily require empathy and can be delivered in a hostile manner.^{6, 33} Preliminary work suggests that empathic and unempathic responses are distinct from these instrumental responses, but are related to punishing or hostile responses³, yet additional research is needed. Therefore, we next examined relations between empathy variables and spouse responses to pain. In the current study, we hypothesize that the empathy variables would correlate with spouse responses. We also expected that, under certain conditions (e.g., an empathic climate), the association between instrumental support and empathic responses may be stronger. Specifically, providing instrumental support in an empathic climate, which would include being a relationship in which the spouse reported empathic tendencies, a satisfying relationship, or personal experience of pain, were expected to correlate with greater empathic responding on the part of spouses.

Method

Participants

A total of 57 couples, in which at least one of the couple members had a chronic musculoskeletal pain condition, participated in the study. Couples were recruited to participate in a larger study on empathy, pain, and mood from both the community and a large metropolitan hospital system. The pain patients in the sample were predominately female (57.9% $n = 33$) and had been in pain an average of 10.85 years ($SD = 9.71$). The sample was diverse for both pain patients (56.1% African American, 42.1% Caucasian, 1.8% other [Hispanic/Latino, Native American, Asian, mixed]) and spouses (52.6% African American, 42.1% Caucasian, 5.3% other [Hispanic/Latino, Native American, Asian, mixed]). On average, couples were married 21.54 years ($SD = 15.77$) and overall were well-educated. The mean age reported was 53.25 years ($SD = 12.64$) for pain patients and 53.47 years ($SD = 13.41$) for spouses.

Patient pain diagnoses included osteoarthritis (8.8%), spine problems (26.3%), Fibromyalgia (1.7%), nerve problems (5.3%), arthritis not otherwise specified (15.8%), migraines (5.3%), other (26.3%), or unknown diagnosis (10.5%), and it should be noted that some patients endorsed more than one pain diagnosis. The three most common pain locations in patients included the lower back (74.5%, $n = 41$), knee (54.5%, $n = 30$), and hip (50.9%, $n = 28$). Fifteen (26%) patients reported taking a narcotic pain medication. In terms of work status, 22.8% ($N = 13$) were employed part-time, 14.0% ($n = 8$) worked full time, 7.0% ($n = 4$) were students, 14.0% ($n = 8$) were retired because of health-related reasons, 22.8% ($n = 13$) were retired for non-health-related reasons, 28.1% ($n = 16$) were receiving disability, 24.6% ($n = 14$) were unemployed, and no one reported receiving worker's compensation. These percentages do not add up to 100% because some participants endorsed more than one employment status.

In order to be eligible for the study one couple member needed to report chronic musculoskeletal pain; however, twenty-seven (47.4%) couples included a husband and wife who were both experiencing chronic pain. Thus, there were two naturally occurring groups of couples in the current study: one in which only one partner was in pain and the other where both partners were in pain. Because the analyses required that one spouse be designated as the patient, we asked each couple member separately during the telephone screening to identify which spouse had the more severe or debilitating pain problem. This couple member was identified as the "patient" and the other couple member was identified as the "spouse". As part of the study protocol, both patients and spouses were asked to rate their pain on a numerical rating scale (0–10). Analyses confirmed the assignment of couple members to the "patient" and "spouse" designations by showing that patients reported greater pain ($M = 5.55$, $SD = 1.75$) than their spouses ($M = 4.03$, $SD = 2.14$), $t(32) = -3.55$, $p < .001$.

Measures

Demographic Information—Each partner was asked to report his/her gender, date of birth, date of marriage, ethnicity/race, education, and income.

Spouses' *empathic tendencies* were assessed using the Davis Interpersonal Reactivity Index (IRI⁹). This study utilized two of the four IRI subscales: The perspective taking scale (i.e., tendency or ability to adopt the perspective or point of view of another) and the empathic concern scale (i.e., tendency to experience a feeling of warmth, compassion, and concern for others undergoing negative experiences). Both subscales contain 7 items. The perspective taking scale comprises the "cognitive" component of Davis's empathy test with items such

as “I try to look at everybody’s side of a disagreement before I make a decision.” The empathic concern scale is one of the “affective” components of the IRI with items such as “When I see someone being taken advantage of, I feel kind of protective towards them.” Each participant was given the fourteen items of the IRI presented in a randomized order, and each item was scored on a five-point scale numbered 0 to 4. Inter-item reliabilities were adequate (empathic concern $\alpha = .71$, perspective taking $\alpha = .74$). Subscale scores were calculated for empathic concern ($M = 20.15$, $SD = 4.45$) and perspective taking (18.75 , $SD = 4.61$). Missing data analysis revealed that twelve couples did not complete the IRI. The IRI measure was added after the first ten participants had already completed the study, and two others did not fill the measure out for unknown reasons. Rather than exclude these couples, we included them for the analyses that did not involve the IRI in order to maximize sample size for the other analyses.

The collection and coding of *empathic accuracy* using thought/feeling recordings was based on the procedures developed by Ickes and colleagues.^{22, 23, 39} In this procedure, partners individually watched the videotape of an interaction with their partner that was completed as part of the study protocol. They were asked to recall specific thoughts or feelings that they remembered experiencing during the conversation. A record form was completed that indicated the content of the specific thoughts or feelings and the time they occurred. After completing the thought/feeling reporting task, spouses were provided with a list of specific times or “stop points” that their partner reported a specific thought or feeling. Spouses then viewed the tape of the interaction again, pausing the tape at each time that the partner reported a thought or feeling. They were instructed to infer the thought/feeling that their spouse was having at that time. Partners in the study were able to successfully complete the procedure and on average, patients recalled 9.34 ($SD = 5.23$) thoughts/feelings.

The empathic accuracy score of each spouse was computed by comparing actual to inferred thoughts/feelings using the following procedure developed by Ickes.²³ Each thought or feeling inference was rated from 0–2 by seven trained raters using the empathic accuracy methodology that has been applied with couples.^{29, 39} A rating of 0 indicates no apparent similarity in the responses (e.g., Patient: I was thinking it is a big chore for me to get out of bed. Spouse inference: She was thinking she’s creating a problem because she can’t go faster). A rating of 1 indicates some agreement or similar responses (e.g., Patient: I was thinking that drinking helps me cope with things and all that I have to do, Spouse inference: He was thinking that he drinks too much). A 2-point rating indicates essentially the same content of thought/feelings were expressed by both couple members (e.g., Patient: I was feeling that he might not really love me; Spouse inference: She was thinking that I don’t love her). There was excellent agreement among raters ($\alpha = .88$).

In order to calculate the empathic accuracy variable, the procedure outlined by Ickes²³ was used. The accuracy ratings for each inference were averaged across the seven raters. These averaged scores were then summed and divided by the total number of thought/feeling reports made by the partners in order to adjust for those who recalled fewer thoughts/feelings and those who reported numerous thoughts/feelings. The score was then divided by 2. This number was multiplied by 100 and rounded to the nearest whole integer to obtain a percentage score, which was then used as an index of empathic accuracy. The average level of empathic accuracy for the current study was 23.47% ($SD = 10.97$).

The Validation and Invalidation Behavioral Coding System (VIBCS¹⁶) was used to measure observed *empathic responses*. The VIBCS was developed from an emotion regulation perspective of couple’s interactions¹⁸ and uses a coding system that utilizes context, voice tone, and physical features (facial gestures and body movement). Spouses were rated on 2 dimensions: validation and invalidation. Validation consists of empathic responses to a

partner's emotional expressions and can include reflective statements and questions designed to fully understand the thoughts and feelings of the partner. Invalidation consists of unempathic responses to a partner's emotional expressions including inattentiveness to a partner's emotion, missed opportunities for validating (e.g., changing the subject), telling the spouse what they should be thinking or feeling, or putting the partner down.

The coders watched the videotaped interaction and recorded any validating or invalidating comments or actions that they perceived in the spouse and patient, although only spousal responses were examined in this study. Raters coded validation on a Likert-type scale ranging from 1 (*no validation above basic attention*) to 7 (*only validation*). Invalidation was coded on a similar scale from 1 (*no invalidation*) to 7 (*only invalidation*). Some actions and behaviors that would receive a validating code include empathic attention that is non-verbal or minimally verbal, empathic attempts to understand what the partner is feeling privately such as asking questions to help clarify, and reciprocal vulnerability via self-disclosure. Actions and comments that would receive invalidating codes include not paying attention, telling the other person what s/he does or should feel/think/want, patronizing, condescending, and/or contemptuous behavior toward the other, and leaving the other person hanging out to dry by not responding to a vulnerable self-disclosure. Then, they rated the spouse globally for the empathic behavior based on the quality and quantity of validating and invalidating interactions (both verbal and nonverbal).

Coders were undergraduate and graduate students trained on the VIBCS system with readings and videotapes. The authors held weekly training meetings with the coders. Training sessions included 5 weeks of instruction and discussion of readings related to couples, empathy, and observational issues (e.g., ^{11, 18}), review of the training manual, practice coding of videotapes from a previous study, and demonstrated agreement with other raters. When coders reached adequate interrater agreement (i.e., $rwg_2 > .50$) on the data, they were considered to be fully prepared for coding.

At least 4 coders coded each interaction, and the final validating ($M = 2.35$, $SD = .86$) and invalidating codes ($M = 1.77$, $SD = .94$) for each spouse were an average of the 4 codes. Interrater agreement was measured with the rwg_2 statistic, which accounts for random measurement-error variance and systematic variance that reflects response bias.^{25, 26} Rwg_2 values approaching 1.0 indicate excellent agreement. When agreement was poor ($rwg_2 < .50$), the codes were examined to determine whose codes did not appear consistent with the rest. The coder was asked to "recode" the interaction and resubmit the rating. They were not told any information about their code (e.g., too high or too low), and they were not required to change their code if their recode was the same as their original code. If after the recodes were submitted the rwg_2 was still $< .50$, the mean scores were deleted from analysis. Two mean scores for spousal invalidation and one mean score for spousal validation were deleted from analysis. Once those scores were deleted, agreement was excellent for spousal invalidation (mean $rwg_2 = .90$, $SD = .11$) and for spousal validation (mean $rwg_2 = .85$, $SD = .12$).

Marital satisfaction was assessed with the 32-item Dyadic Adjustment Scale (DAS⁴⁰). The range of the scale is from 0–151 with higher scores indicating greater marital satisfaction. This scale has been used with pain samples in the current literature and has excellent reliability and validity with this group.^{30, 37} Spouses had a mean DAS score of 106.06 ($SD = 17.37$), indicating that the sample was relatively satisfied. The scale showed excellent reliability for the spouses in the sample ($\alpha = .91$). In this study, marital satisfaction was used as an indicator of warm climate in which empathy is more likely to occur. Spouse marital satisfaction, rather than patient satisfaction, was utilized because this study focused on

spouses' empathy variables. Thus, their own perceptions of marital satisfaction were presumed to influence the extent to which they provide pain-related support.

The Multidimensional Pain Inventory-Spouse Version (MPI-S)¹² was used to assess *instrumental and hostile spouse responses to pain*. Spousal perceptions of their solicitous (i.e., instrumental responses; 6 items) and punishing (i.e., hostile responses; 4 items) responses to pain were measured, because spouses' own perceptions of their behavior has been shown to be associated with their observed behavior.¹³ Also, spousal perceptions of responses are especially important when developing interventions for spousal pain management efforts.³⁴ Subscale sums were used in the analyses. Inter-item reliability was adequate to excellent for the subscales (solicitous reported by patient, $\alpha = .79$, solicitous reported by spouse, $\alpha = .67$, punishing reported by patient $\alpha = .75$, punishing reported by spouse, $\alpha = .82$).

For descriptive purposes, patient pain severity and interference were also measured with the MPI-S. The pain severity subscale of the MPI-S is comprised of three items that assess affective, sensory, and evaluative pain dimensions. Only spouse ratings of patient pain severity were used because the spouses' understanding of the patients' pain was thought to contribute to spousal empathy. Patients' perceptions of their own pain may not be observable to the spouse, and spouses of patients are likely to make judgments and act based on observable behaviors. The mean spouse-rated patient pain severity was 3.45 (SD = 1.20), indicating moderate pain on a 0 to 6 scale, scores which are very similar to those found in other samples.^{4, 27} The pain severity reliability for the current sample was good ($\alpha = .78$). The pain interference subscales of the MPI-S is composed of 9 items that assess pain-related life interference, including interference with family and marital functioning, work and work-related activities, and social-recreational activities. Similar to the normative sample in Kerns et al.,²⁸ spouses reported patients' mean pain interference to be 3.06 (SD = 1.54). The pain interference reliability for the current sample was excellent ($\alpha = .93$).

Procedure

Participants in the current study were part of a larger study of empathy in couples with chronic pain. The study was reviewed and approved by the university's human investigation committee prior to data collection. Participants for this study were recruited from the community and a local medical center in large Midwestern United States metropolitan area. Trained graduate and undergraduate research assistants screened participants. Unmarried couples that had been dating for less than 2 years were excluded in order to remain consistent with previous research. Participants were also excluded from the study if either they or their spouses were: (1) below the age of 21, (2) actively psychotic, (3) suffering from a terminal illness (i.e., cancer or HIV), (4) with significant cognitive deficits as determined by the Mini-Mental Status Exam (MMSE¹⁴), or (5) suffering from a chronic pain condition that is not musculoskeletal in nature (e.g., rheumatoid arthritis, diabetic neuropathy).

Upon arrival to the university, participants were greeted and escorted to the laboratory. Each spouse was provided with information regarding confidentiality and the study protocol, and they completed written informed consent forms. After a diagnostic interview for mood disorders (which was not used in the current manuscript), the research assistant interviewer briefly discussed the video segment and elicited examples of how the patient's chronic pain had impacted both partners' lives. Specifically, couples were asked to think about changes that had occurred as a result of the pain in their marriage, home, work, finances, or parenting.

The couple was then directed to the video room, which was structured to resemble a home living environment with two plush chairs, plants, and a small table. There was a dual camera

recording system installed in the room, such that one camera was focused on each partner. This dual camera recording system allowed for split-screen recordings, which were marked with both the time and date. Once in the video room, the research assistant instructed the couple to engage in a 10-minute conversation about the patient's experience of pain, mentioning the changes that participants described after the mood interview. As has been done in past research on empathic accuracy and couples, the same set of instructions was given consistently for all couples (i.e., ³⁹). After the 10 minutes had elapsed, the couple's discussion was discontinued and partners were escorted into separate rooms to individually watch the videotaped interaction and complete the thought/feeling recording procedure (as described above). Upon completing the tasks, the couple was debriefed and compensated \$50 for their efforts.

Statistical Analysis Plan

Prior to any data analysis, data screening to ensure normality, homoscedasticity, and linearity of the variables was conducted. An examination of the Mahalanobis distances showed that there were no multivariate outliers, nor were there any univariate outliers. Spouse marital satisfaction was significantly skewed; however, analyses performed with transformed and raw data yielded similar results so the raw data were used for these analyses. Spousal invalidation was also significantly skewed, but transformations of the data were unable to produce a normal distribution. Therefore, the spousal invalidation variable was dichotomized into low (<1.5) and high (≥ 1.5) levels of invalidation in order to differentiate those who showed little to no invalidation and those who showed high invalidation.

Correlation analyses were first conducted to determine the bivariate relationships among the empathy variables of spousal empathic accuracy, empathic tendencies (i.e., spousal empathic concern and perspective taking), and empathic responses (i.e., spousal validation). Pain variables (i.e., severity, interference) were also included for descriptive purposes. Independent samples t-tests were used when examining unempathic responses (i.e., the dichotomous variable of spousal invalidation). These empathy variables were also investigated as correlates of instrumental (i.e., solicitous spouse responses) and hostile support (i.e., punishing spouse responses), and marital satisfaction. Additionally, independent samples t-tests were utilized to examine empathy and support variables when comparing couples in which both partners were in pain and couples in which only one partner was in pain. A Chi Square test was performed to determine if unempathic responses differed when comparing couples who had both partners in pain and couples who only had one partner in pain.

We also tested the extent to which variables indicative of the empathic climate (spouse's empathic tendencies, a satisfying relationship, or personal experiences with pain) interacts with instrumental support (i.e., solicitous responses) and hostile support (i.e., punishing spouse responses) in relating to empathic responses (i.e., spousal validation and invalidation). Independent variables were centered prior to entry in hierarchical regression analyses. Possible covariates were explored including pain duration, pain severity, age, marriage duration, and gender, but there were no significant relationships. Step 1 included the main effects and Step 2 included the 2-way interaction terms between variables. For example, in the case of examining marital satisfaction interacting with spousal-reported solicitous responses in relating to validation, Step 1 would include the main effects for marital satisfaction and solicitousness and Step 2 would include the multiplicative interaction. Significant interactions were further investigated by conducting additional regression analyses to produce simple slopes for validation relating to solicitousness at high [+1 SD] and low [-1 SD] levels of spousal marital satisfaction.²¹

Results

Intercorrelations Among Empathy Variables

The primary aim of the study was to examine the interrelationships among empathy variables in chronic pain couples. Table 1 displays the correlations among empathy variables. Surprisingly, spousal validation and empathic accuracy were not related to one another nor were they related to spousal empathic concern or perspective taking. Spousal empathic concern was positively related to perspective taking ($r = .59, p < .001$). Independent samples t-tests were conducted to determine whether empathy variables differed among spouses who displayed high levels of invalidation compared to spouses who displayed low levels of invalidation. T-tests demonstrated that spouses who showed high invalidation did not significantly differ from spouses who showed low invalidation for spousal empathic accuracy, empathic concern, and perspective taking (all $ps > .30$).

Note that pain severity and interference were not significantly related to any of the empathy variables. As found in other studies^{2, 12, 34}, patient pain severity and interference were positively correlated with spousal solicitous responses and negatively correlated with marital satisfaction.

Empathy and Spouse Responses to Pain

The second aim of the study was to examine the extent to which these empathy variables were associated with spouse responses (see Table 1). A greater tendency toward empathy was related to greater provision of instrumental responses as assessed by the solicitous response scale of the MPI (empathic concern $r = .35, p < .05$, perspective taking $r = .40, p < .01$, respectively). Also, spouses who reported greater punishing spousal responses were less likely to display validation ($r = -.32, p < .05$). There were no significant group differences between spouses displaying low versus high invalidation on solicitous or punishing responses (all $ps > .10$).

Empathic Climate and Spouse Responses

As noted in the Introduction, it is possible that an empathic climate, as indicated by spouses' empathic tendencies, higher marital satisfaction, or personal experiences with pain, may be related to a stronger correlation between instrumental or solicitous responses and spousal validation. Given that empathic concern, marital satisfaction, and personal experiences with pain were examined as indicators of empathic climate, we also present their correlations with the empathy and spouse response variables. As noted above, empathic concern was positively related to solicitousness but was not associated with punishing responses or other empathy variables. Greater punishing responses were related to lower marital satisfaction ($r = -.48, P < .01$). Spousal marital satisfaction was not associated with any other empathy or spouse response variables (all $ps > .10$). Independent samples t-tests were conducted to determine whether empathy variables differed when comparing couples in which both partners were in pain and couples in which only one partner was in pain. There was a significant difference in validating responses between couples who had both partners in pain compared to those with only the patient in pain ($t(55) = 2.09, p < .05$). Interestingly, spouses who did not report chronic pain were more validating ($M = 2.57, SD = .92$) than spouses who reported pain ($M = 2.10, SD = .73$). There were no differences in empathic accuracy, empathic concern, or perspective taking. A Chi Square test also showed that couples who had both partners in pain and couples who only had one partner in pain did not differ in unempathic responses.

Hierarchical regression analyses showed that the association between solicitous spouse responses and validation was indeed moderated by marital satisfaction. No other interactions were significant.

Spousal marital satisfaction interacted with solicitousness in relating to spousal validation (see Table 2). That is, among spouses with high levels of marital satisfaction, reports of providing solicitous spouse responses were associated with expressing lower levels of validation toward patients ($B = -.06$, $SE = .03$, $p < .05$; see Figure 1). However, at lower levels of marital satisfaction, the relationship between solicitousness and validation was not significant ($B = .03$, $SE = .03$, $p = .34$). Moreover, spousal marital satisfaction did not significantly affect the relationship between invalidation and spousal solicitousness.

Discussion

The purpose of this study was to examine the extent to which different facets of empathy including empathic accuracy, empathic tendencies, and empathic responses were correlated in a sample of chronic pain couples. Furthermore, we aimed to understand how these empathy variables were interrelated with other spouse responses to pain such as solicitous and punishing responses.

Intercorrelations Among Empathy Variables

Contrary to existing models of empathy, there were few relations among empathy variables. Spousal empathic responses (i.e., validation) and empathic accuracy were not related to one another nor were they associated with spousal empathic concern or perspective taking. Furthermore, spouses who showed a high degree of invalidation did not significantly differ from spouses who showed lower levels of invalidation for spousal empathic accuracy, empathic concern, and perspective taking. These findings are consistent with several studies that showed no relation between empathic accuracy and empathic tendencies²⁴ as well as no relation between empathic accuracy and empathic responses.⁴² Perhaps empathic accuracy was not correlated with empathic tendencies or responses because some couples are actually motivated to be inaccurate in order to protect their relationship. Simpson, Orina, and Ickes³⁹ have suggested that threatening issues play a role in destabilizing relationships. Some couples may experience the changes associated with a chronic pain condition as threatening to their relationship. When spouses cannot alleviate the pain and suffering of their partner, they may protect the relationship from distress that may occur from a more accurate understanding of their partner's thoughts and feelings. Another explanation for the lack of associations could be the partner's emotional expressiveness. Zaki et al.⁴³ found that having a very expressive partner was associated with greater accuracy among perceivers with higher empathic tendencies. Hence, when a target's inner experience is translated into expressive behavior, perceivers are better able to accurately rate how positive or negative the target was feeling.

Empathy and Spouse Responses to Pain

A secondary aim of the current study was to understand the relations between the empathy variables and other spouse responses to pain such as solicitous and punishing responses. As found in previous work, punishing spousal responses and validation were negatively related³ whereas solicitousness and validation were not correlated;³ however, the latter relationship is complex, as demonstrated by the significant interaction described below. Spouses who reported a higher tendency to feel empathic concern and take others' perspectives were also more likely to report engaging in solicitous behaviors toward their partners. Perhaps spouses who consider themselves to be empathic individuals are more likely to think they are

delivering instrumental responses because they are more inclined to see themselves as being helpful to their spouse.

These findings add to the literature by enhancing how we interpret solicitous behaviors. The operant approach tends to view solicitousness in a negative manner, explaining that it is excessive attention or overly helpful responses that may reinforce pain behavior and disability.^{12, 15, 31, 36, 38} However, the correlation between solicitousness and empathy tendencies suggests that many of those who deliver solicitous responses view themselves to be empathic individuals. Since in many cases it is likely that instrumental support is indicative of heightened empathy, we need to more clearly understand the intentions behind solicitous behaviors. Future research efforts should be aimed at developing ways to assess the underlying intentions of spouses through surveys, open-ended questions, or brief interviews. Without a complete understanding of the meaning behind self-reported spousal responses or knowing whether the self-reports indeed reinforced pain behaviors, it may be necessary to reconceptualize solicitous responses as instrumental responses, which may or may not be undesirable.^{6, 32, 33}

Empathic Climate and Spouse Responses

We also examined how the empathic climate, as indicated by spouses' empathic tendencies, higher marital satisfaction, or personal experiences with pain, may be related to instrumental or solicitous responses and spousal validation. In order to understand the differential affects of the empathic climate, we explored how variables indicative of the empathic climate are related to empathy and support variables. As was noted above, spouses who scored higher on the empathic concern scale reported greater solicitous responses. These spouses with empathic tendencies may be more inclined to actively try to ease their partners' pain (e.g., ask how they can help, encourage partner to rest). Spouses with greater marital dissatisfaction were more likely to report showing greater punishing responses toward their partner. When spouses are dissatisfied with their relationship, providing support to their partners may feel like a chore, contributing to feelings of frustration, anger, or even resentment. Surprisingly, spouses who reported personal experiences with pain were significantly *less* validating than spouses who did not report pain. Perhaps spouses with pain of their own are distracted by their pain, interfering with their ability to express concern or understanding. Spouses with pain may also think that if they can manage their own pain well, their partner should be able to handle it well, too. Conversely, spouses without pain may be more motivated to try to understand and support the partner's unique situation since they cannot draw from their own personal experience of pain.

It was expected that support provision would be more strongly related to empathic responses when delivered in an empathic climate, which is defined by greater spousal empathic tendencies, higher marital satisfaction, or personal experiences with pain. The empathic climate variables were expected to enhance spouses' ability to respond in an empathic manner. However, the interactions including empathic concern and personal experiences with pain were not significant. Only marital satisfaction interacted with solicitous responses in predicting spousal validation. At higher levels of spousal marital satisfaction, less spousal solicitous behavior was related to greater spousal empathic responding (i.e., observed validation) whereas at lower levels of marital satisfaction there was no significant relationship between solicitousness and empathic responses. Prior research has shown a positive relationship between validation and marital satisfaction³ as validation may foster acceptance, emotional closeness, and intimacy.^{6, 17} Perhaps maritally satisfied spouses who are able to express their empathy and actively understand their partners do not need to rely on solicitous responses as a way to demonstrate their concern. Future research is needed to examine relationship-specific empathy and to investigate the complex associations between

observations of solicitousness and empathic responses. This could be examined by use of behavioral tasks³⁵ or other situations that elicit helping responses.²⁰

There are several potential limitations of this study that must be addressed. The data are correlational in nature so directionality and causality are not known. In addition, the empathic accuracy paradigm is limited by various factors. The ability of the spouse to make an accurate inference is dependent on the partner's ability to describe his/her inner experience. Constructs like emotional expressivity need to be explored in combination with empathic accuracy, responses, and tendencies. The inference task is also retrospective in nature and is limited by memory capabilities. Furthermore, the procedure examines the accuracy of specific thoughts and feelings, which may not be an accurate measure for people that are understanding on a meta-level. It may be helpful to examine empathic accuracy and responses for the conversation as a whole. Also, the study measured empathic tendencies in general, so future research can examine spouse-specific empathic tendencies. Because all participants were in heterosexual relationships, the extent to which our findings generalize to homosexual couples is not yet known. The sample in the study included patients with moderate pain levels and were in marital relationships that were, on average, satisfying. Future research can determine whether the results are generalizable to severely disabled and distressed couples.

The current study is the first to investigate all three empathy constructs in the context of couples with pain. It appears that neither one's self-report of empathic tendencies nor one's understanding of another's pain-related thoughts and feelings translate into empathic responses, at least during discussions about pain. Therefore, models of empathy may need to be expanded in order to incorporate other contributing factors such as emotional expressivity (Zaki et al.⁴³), mindfulness¹, acceptance^{17, 31}, and intention or motivation.³⁹ It may also be important for models of pain-related empathy to include the neurophysiological underpinnings of empathy, as the cortical activation associated with witnessing a loved one in pain may play a role in the initiation of empathic responses or spouse solicitousness.¹⁰ Measures that tap spousal pain-related empathic intentions toward the partner with pain may also need to be developed, as feelings or intentions that underlie solicitous responses are not currently being acknowledged.

Nevertheless, the results demonstrate that spousal characteristics may relate to the manner in which support is delivered. Some spouses who are maritally satisfied yet do not respond solicitously may respond more empathically whereas other spouses who have pain themselves may be less likely to express empathy. Therefore, it is recommended that treatments including both partners such as integrative behavioral couple therapy⁷ should be tested to determine whether they facilitate an empathic climate and enhanced intimacy in couples with chronic pain⁵ while also discouraging spousal responses that might undermine the patients' progress.

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Figure 1.
Interaction between Spousal Marital Satisfaction and Spousal Solicitousness Predicting
Spousal Validation.

Table 1

	Empathic Accuracy	Empathic Concern	Perspective Taking	Sollicitous Responses	Punishing Responses	Marital Satisfaction	Pain Severity	Pain Interference
Spousal Validation	-.12	.07	-.06	-.16	-.32*	.24	-.02	-.07
Empathic Accuracy	--	-.10	-.07	-.12	-.06	-.00	-.08	.06
Empathic Concern		--	.59***	.35*	.02	-.05	.09	.11
Perspective Taking			--	.40**	-.05	.07	.10	.23
Sollicitous Spouse Report				--	.07	-.15	.42**	.43**
Punishing Spouse Report					--	-.48***	.26	.22
Marital Satisfaction						--	-.39**	-.46***
Pain Severity							--	.57***

Note. (N = 57, except for Empathic Concern and Perspective Taking where N = 42).

* $p < .05$,

** $p < .01$,

*** $p < .001$.

Table 2
Interaction between Spousal Marital Satisfaction and Spousal Solicitousness Predicting Spousal Validation.

Variable	B	SE B	β	T	F	R ²	ΔR^2
Step 1					2.11	.08	
Spousal Solicitousness	-.02	.02	-.14	-1.02			
Spousal Marital Satisfaction	.01	.01	.23	1.69			
Step 2					3.18*	.16	.08
Spousal Solicitousness	-.02	.02	-.11	-.85			
Spousal Marital Satisfaction	.01	.01	.23	1.79			
Spousal Solicitousness $\times$ Spousal Marital Satisfaction	-.00	.00	-.29	-2.23*			

N = 57.

* p < .05.