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Relationship status and quality moderate daily pain-related changes in physical disability, affect, and cognitions in women with chronic pain

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ABSTRACT

The objectives of this study were to examine whether (1) daily pain-related changes in physical functioning differed between happily partnered, unhappily partnered, and unpartnered female chronic pain patients, and (2) affect and pain cognitions mediated the partner status effect on pain-related changes in physical functioning. Two hundred fifty-one women with chronic pain due to osteoarthritis and/or fibromyalgia completed 30 daily electronic diaries assessing pain, affect, pain-related cognitions, and physical functioning. Patients living with a romantic partner also completed a modified version of the Locke-Wallace Marital Adjustment Scale to assess relationship satisfaction. Multilevel modeling revealed that patients in satisfying unions showed more adaptive daily pain-related changes in physical functioning, pain coping difficulty, and catastrophizing compared to those in unsatisfying unions and those who were unpartnered. Both partnered groups also showed more adaptive pain-related changes in positive affect compared to the unpartnered group. The impact of relationship status on pain-related changes in physical functioning was partly mediated by the pain cognitions catastrophizing and coping difficulty. These results indicate that happily partnered pain patients show less pain-related physical disability and more adaptive affective and cognitive responses to daily pain changes than do unhappily partnered and unpartnered patients. Living in a happy union may bolster the capacity of patients to sustain a sense of pain coping efficacy during pain episodes, which in turn, minimizes pain-related physical activity limitations.

1. Introduction

Being partnered may benefit individuals with chronic pain, a health problem often accompanied by substantial disability, depression, and anxiety [27]. Partnered patients report slower declines in functional disability over time [33] and lower levels of depressive symptoms [3,21] than unpartnered patients. The advantages of being partnered may be limited to those in happy unions, however. For example, among pain patients, those in nondistressed marriages report lower distress and pain compared to those in distressed marriages ([30], but see [5]). Prevailing models posit that adaptation is partly determined by affective and cognitive responses to pain, which are influenced by social context [13,17,28] and linked to functional health [8]. Thus, one possible mechanism whereby spouses influence patients' functioning is by facilitating adaptive and constraining maladaptive responses to daily pain exacerbations, consistent with existing models [20,23]. The current study examined whether and how partner status together with relationship satisfaction moderates daily pain responses in a sample of female chronic pain patients.

Diary methods capture the covariation between pain, emotions, and cognitions by assessing individuals repeatedly in daily life, and thus can portray pain-response relations as they unfold. Within patients over time, daily pain increases not only are associated with subsequent increases in activity limitations (eg, [14]), but also are accompanied by increases in negative [1,36] and decreases in positive affect [11,12,36]. Regarding cognitive responses, catastrophizing and pain coping difficulty both predict adaptation to chronic pain. Catastrophizing is characterized by exaggerated negative evaluations of the pain experience, whereas coping difficulty describes the perception that one's resources are taxed in managing pain. Day-to-day increases in catastrophizing and pain coping difficulty are linked to increases in pain (eg, [13,18]).

Whether having a partner predicts patients' pain-related physical, emotional, and cognitive responses is an important but unanswered question. Moreover, there are reasons to expect that any benefits of having a partner may be limited to patients in satisfying unions. The few daily process data available suggest that

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among partnered patients, increases in daily satisfaction with spouse support are related to smaller pain-related increases in negative affect and catastrophizing [13]. Sometimes, however, a supportive spouse may promote disability by reinforcing patient responses to pain that are detrimental in the long run. Perceived spouse support is correlated with increased disability in pain patients [10,32]. Likewise, observer ratings of spouses' solicitous responses to patients' nonverbal pain behaviors predict increases in patients' physical disability [31].

The current study examined (1) the role of partnership status and relationship satisfaction in the associations between daily changes in pain and disability, and (2) potential affective and cognitive mediators of the effect of partnership group on the pain-disability link. Happily partnered patients were expected to show smaller pain-related increases in disability and more adaptive affective and cognitive responses relative to their counterparts who were either partnered and distressed or unpartnered. The moderating effects of relationship status on pain-disability relations were expected to be mediated in part by daily fluctuations in pain catastrophizing, coping difficulty, and affect (Fig. 1).

2. Methods

2.1. Participants

Participants were recruited in the Phoenix metropolitan area from physicians' offices, advertisements, senior citizen groups, and mailings to members of the Arthritis Foundation to participate in a longitudinal investigation of adaptation to chronic pain. Inclusionary criteria included: (1) a pain rating of above 20 on a 0-100 scale, and (2) physician-confirmed osteoarthritis (OA) and/or fibromyalgia (FM) diagnosis. Exclusionary criteria included: (1) a diagnosed autoimmune disorder, (2) involvement in pain-related litigation, and (3) completion of fewer than 6 days of diaries.

The final sample comprised 251 women who ranged in age from 37 to 72 years (M = 57.33, SD = 8.39) and carried a diagnosis of pain due to OA (n = 103), FM (n = 48), or both (n = 100). The majority of the sample was Caucasian (90%), and had completed some college (43.8%) or postgraduate education (23.1%). The sample reported an average household income that fell between $30,000 and $39,999. Of the 251 participants, 138 were living with a spouse, 7 were living with a romantic partner, and 106 were not currently living with a spouse or partner. Of those not currently living with a spouse or partner, 11 were never married, 30 were widowed, 63 were divorced, and 2 were separated.

2.2. Procedure

All procedures were approved by the Institutional Review Board at Arizona State University. Participants were first screened for study eligibility by telephone. Those who were eligible provided permission for staff to contact their physicians to confirm pain diagnoses. Once enrolled, participants then received a home visit by a trained research staff member, which involved: (1) assessment of participants' tender points and range of motion, (2) completion of an initial questionnaire that included questions about the participants' demographics and quality of partner relations, and (3) training regarding use of a laptop computer to complete daily diaries. As part of their participation, individuals also attended a laboratory session to assess emotion-modulated startle responses and stress reactivity and completed follow-up questionnaires regarding functional and mental health. Data for the current study were drawn from the initial questionnaire and daily diary portion of the larger project.

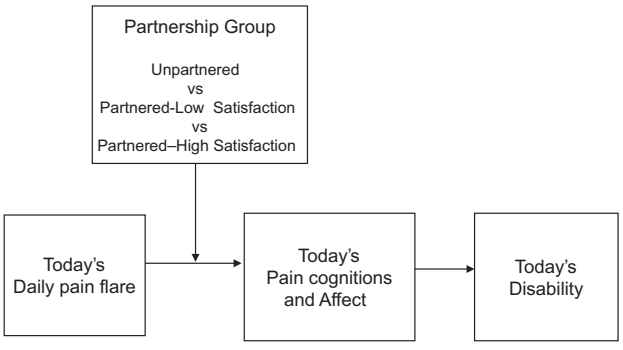

Fig. 1. Model depicting relations between partnership group and changes in daily pain, affect, and pain cognitions, and physical disability.

Participants were asked to keep diaries for 30 days, writing entries each evening 30 minutes prior to retiring. Diaries assessed the participants' physical symptoms, functional health, pain cognitions and coping efforts, interpersonal events, and affects for that day. Date-checking software on the computer prevented diary entry on any day other than the current day. For the diary component of the project, participants were compensated up to $3 for each day of diaries completed. Thirty-eight participants completed more than 30 diaries; only up to the first 37 diaries (ie, up to 1 week of diaries beyond the 30-day window) completed by these participants were included in analyses. Six participants completed fewer than 7 days of diaries and their data were excluded from analyses. After these participants and diary days were excluded, the average number of completed diaries was 29 of 30 (range 7-37).

2.3. Measures

2.3.1. Relationship status and adjustment

Participants indicated whether they were married, living with a romantic partner, never married, widowed, divorced, or separated, and answers were coded to reflect whether participants were currently partnered (ie, married or living with a romantic partner) or not partnered (ie, never married, widowed, divorced, or separated). Relationship adjustment was assessed with the first 9 items of the Marital Adjustment Scale [25]. Participants rated current relationship on a 7-point continuum, anchored by "extremely unhappy" on one end, "extremely happy" on the other, and "happy" at the center point. Participants also rated the extent to which they agreed with their partner in the following 8 domains: finances, recreation, demonstration of affection, friends, sexual relations, conventionality, life philosophy, and in-law relations. Ratings for each item were anchored on a 5-point Likert scale ranging from 1 = "always agree" to 5 = "always disagree." All item responses were weighted in accordance with the scoring template in Locke and Wallace [25], yielding scores that could range from 0 to 88 (M = 55.16, SD = 18.07; Median = 57). Cronbach alpha for this scale in the current sample was .87. High- and low-relationship satisfaction groups were created based on a median split of the modified Locke-Wallace score to create a categorical variable with 3 groups where 0 = unpartnered (UnP; n = 106), 1 = partnered/low satisfaction (LowSat; n = 74), and 2 = partnered/high satisfaction (HighSat; n = 71). The median of the modified Locke-Wallace score of 57 in this sample corresponds with a full Locke-Wallace score of 102, comparable to the widely used cutoff value of 100 to distinguish satisfied vs dissatisfied couples (eg, [5]).

2.3.2. Satisfaction with spouse responding

Participants were asked to rate their satisfaction with how their spouses responded to their most recent significant pain episode on a 5-point Likert scale ranging from 1 (very dissatisfied) to 5 (very satisfied). This item is similar to one employed by Holtzman and