

**COUPLES COPING WITH RHEUMATOID ARTHRITIS: SPOUSE EMPATHIC
RESPONDING AS A MODERATOR OF DEPRESSIVE SYMPTOMS**

by

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B.Sc., McGill University, 2011

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE AND POSTDOCTORAL STUDIES
(Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA
(Vancouver)

August 2014

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Abstract

Objective. To examine the effects of depressive symptoms and empathic responding on patient disability and marital quality over time. To identify factors that contribute to patient perceptions of spouses as responding empathically to their rheumatoid arthritis.

Methods. Patients diagnosed with rheumatoid arthritis and their spouses (n = 133 couples) independently completed mailed questionnaires at baseline and one year later. Patients completed measures of functional impairment, marital quality, depressive symptoms, and perceived empathic responding from their spouse. Spouses reported their own depressive symptoms and empathic responding behavior.

Results. Perceived empathic responding was found to interact with spouse depressive symptoms contributing significantly to the prediction of patient functional impairment reports at follow-up. Only when spouse empathic responding was low was spouse depression associated with greater patient functional impairment at 1-year follow-up. Similarly, in the model predicting patient marital quality at follow-up, there were significant 2-way interactions between perceived empathic responding and both spouse depressive symptoms and patient depressive symptoms. Only when spouse empathic responding was low did patient or spouse depression significantly predict poorer marital quality at follow-up. Patient perceptions of spouse empathic responding were found to depend on spouse reports of their own empathic responding, patient marital satisfaction, and the interaction of patient depressive symptoms and marital satisfaction.

Conclusion. Empathic responding from the spouse was found to buffer against the negative effects of spouse depression on functional and marital outcomes for patients with RA. In developing couple-oriented RA treatments, increasing perceived empathic responding could serve as a useful target for intervention.

Preface

This thesis is based on a manuscript that has been published in *Arthritis Care & Research*.

Stephenson, E., DeLongis, A., Esdaile, J. M., & Lehman, A. J., (2014) Depressive symptoms and rheumatoid arthritis: Spouse empathic responding as a buffer. *Arthritis Care and Research*, 66(4), 532–541. doi: 10.1002/acr.22161.

The present research was conducted using archival data collected by Drs. Anita DeLongis, Allen Lehman, and John Esdaile. Ellen Stephenson, the present author, was responsible developing the research questions and analysis plan discussed in this manuscript. She was also responsible for conducting the present analyses and authoring this manuscript.

This project received ethics approval from the University of British Columbia's Behavioural Research Ethics Board (Project Title: "Rheumatoid Arthritis and the Family: An Investigation of Disease Perception", B-05-0556).

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Acknowledgements

Thank you to...

My supervisor, Anita DeLongis, for her continual guidance, support, and mentorship in all aspects of my life.

My committee members, Drs. Christiane Hoppmann and Ken Craig, for their helpful comments and feedback on this project.

My labmates, colleagues, and mentors, past and present, for their support, advice, and encouragement along the way.

My friends and family, for believing this was possible, and reminding me when I didn't.

1. Introduction

General introduction

Stress and coping in couples

For most adults, an intimate relationship is one of the strongest sources of support, and is the single most important social relationship (Revenson & DeLongis, 2010). Support from the spouse holds the potential to offer a host of unique benefits. Spouses provide multiple forms of support, including tangible and informational, and play a key role in the provision of emotional support. In fact, support from other sources does not compensate for a lack of spousal support (Coyne & DeLongis, 1986). However, relationship difficulties are the most frequent problems identified by adults seeking care from mental health providers (Revenson, Kayser, & Bodenmann, 2005), and stress in close relationships has a greater impact on health and well-being than do other sources of stress (Bolger, DeLongis, Kessler, & Wethington, 1989). Nearly half of all marriages end in divorce, and even among those couples who stay together, tension and conflict is present in most marriages at least some of the time (Bolger, Stadler, Paprocki, & DeLongis, 2010). Although married persons generally enjoy better well-being than do their unmarried counterparts, those who report an inequitable, unsatisfying marriage show higher levels of psychological distress than people who have never been married (Hagedoorn et al., 2006). Furthermore, marital conflict has been associated with poorer physical health (Kiecolt-Glaser & Newton, 2001) and the onset of depressive symptoms (Fincham, 2003). Stress significantly influences marital communication, marital satisfaction, and the development of close relationships (Bodenmann, 1997; Story & Bradbury, 2004), and marriages subjected to chronic stress have a higher probability of ending in divorce (Karney, Story, & Bradbury, 2005).

Day-to-day marital stress and support from the spouse each make independent contributions to the well-being of each member of the couple (DeLongis, Capreol, Holtzman, O'Brien, & Campbell, 2004). In particular, those with low marital satisfaction are particularly vulnerable to mood disturbance on days when there is an absence of support from the spouse. Even when sources of stress originate outside the context of a close relationship much of the individual's coping is undertaken with the support of and in collaboration with an intimate partner (DeLongis, Holtzman, Puterman, & Lam, 2010). Within a contextual model of coping, marital relationships influence the types of coping strategies used to deal with stress, as well as how effective these strategies are in reducing the risk of poor outcomes (DeLongis & Holtzman, 2005). Previous research has found that increases in satisfaction with support from the spouse are associated with subsequent increases in adaptive coping (Holtzman, Newth, & DeLongis, 2004), and that this spousal support moderates the effects of not just stress, but also of coping, on stress outcomes (Holtzman & DeLongis, 2007; Puterman, DeLongis, & Pomaki, 2010). These findings indicate that a perception of a positive response from the spouse can reduce the negative effects of what are otherwise maladaptive coping strategies, and similarly undo the otherwise positive effects of what are generally adaptive strategies for coping.

Background on rheumatoid arthritis

Rheumatoid arthritis (RA) is a chronic autoimmune disease that affects approximately 1% of the Canadian population (Public Health Agency of Canada, 2010). Arthritis is the leading cause of pain and disability in Canada (Arthritis Society of Canada, 2011; Public Health Agency of Canada, 2010). Approximately one third of Canadians with arthritis report having pain that prevents them from engaging in daily activities (Public Health Agency of Canada, 2010).

In RA, the immune system attacks the tissue lining the joints causing swelling, pain, and inflammation, and can eventually lead to joint deterioration. In addition, other internal organs such as the eyes, heart, and lungs are sometimes involved which can contribute to systemic symptoms (e.g. fatigue) characteristic of RA (Arthritis Society of Canada, 2011). RA typically begins gradually over a period of weeks or months. Inflammation usually starts in a few joints and spreads in a symmetrical pattern across the body to involve other joints in both the left and right sides of the body (Arthritis Society of Canada, 2011). RA symptoms vary from person to person with some patients experiencing mild symptoms in several joints and others reporting severe pain and swelling in only a few. Symptoms can also fluctuate unpredictably over time, which can make coping with RA especially challenging. As there is no cure for RA, treatments typically focus on alleviating symptoms, preventing joint damage, and maintaining functional abilities and quality of life (British Columbia Medical Association, 2012).

The present study

Social relationships are important health determinants (Cohen, 2004), particularly for those suffering from a chronic pain condition such as RA (Hadjistavropoulos et al., 2011; Leonard, Cano, & Johansen, 2006). Social relationships are among a host of psychosocial factors that can influence RA disease course and activity (Stanton, Revenson, & Tennen, 2007; Zautra, Burleson, Matt, Roth, & Burrows, 1994). For adults in general, being married and the quality of that marriage have been shown to improve several health outcomes (Kiecolt-Glaser & Newton, 2001). In the context of RA, being married and the quality of that marriage predicts better physical function, psychological well-being, and pain outcomes for RA patients (Reese, Somers, Keefe, Mosley-Williams, & Lumley, 2010; Waltz, Kriegel, & Bosch, 1998; Ward & Paul Leigh,

1993). Nevertheless the exact mechanisms through which spouses influence RA patients are not completely understood.

Spouses are often a significant source of both instrumental and emotional support. As their condition becomes more debilitating, RA patients may become increasingly reliant on their spouses for support (Brouwer et al., 2004; Matheson, Harcourt, & Hewlett, 2010; Riemsma et al., 1999). Satisfaction with spouse support improves coping and reduces pain in RA patients across the course of a day (Holtzman & DeLongis, 2007; Holtzman et al., 2004). In the longer term, perceived social support at diagnosis has been found to predict better functional ability and less pain in RA patients 3 and 5 years later (Evers, Kraaimaat, Geenen, Jacobs, & Bijlsma, 2003). In addition, support from the spouse can also protect patients from depressive symptoms and poor psychological well-being that is common in RA (Benka et al., 2012; Revenson, Schiaffino, Majerovitz, & Gibofsky, 1991; Riemsma et al., 2000).

Despite its many potential advantages, spouse support is not always beneficial. Support attempts that are not perceived to match the patient's needs can elicit negative reactions and poorer outcomes in the patient (Cutrona & Russell, 1990; Martire et al., 2006). The effectiveness and satisfaction with spouse support may be determined by the extent to which spouses can view the situation from their partner's perspective to identify their partner's needs and respond accordingly (Revenson & DeLongis, 2010). Previous work by Kasle and colleagues found that RA patients who reported having a partner who provided engaged, validating, empathic, and authentic responses reported better psychological and physical health (Kasle, Wilhelm, & Zautra, 2008).

Previous research has indicated that individuals with higher marital satisfaction tend to make more positive attributions for their spouses' support provision, and tend to perceive more

support and are more satisfied with the support they do receive (Bradbury & Fincham, 1990; Lawrence et al., 2008). Further, depressed mood is associated with individuals making more negative attributions for their spouses' behaviors and thus perceiving them as less supportive (Rehman, Gollan, & Mortimer, 2008). Given this, patient perceptions of empathic responses from the spouse may depend not only on the spouse's behaviors but also on patient factors such as relationship satisfaction and mood that could affect the attributions they make for their spouses' behaviors.

Another mechanism through which spouses affect their partners' RA is mood. In previous work, it was found that spouse depression was an important predictor of disease outcomes in patients with RA (Lam, Lehman, Puterman, & DeLongis, 2009). However, a mood contagion model was unsupported, indicating that the impact of spouse mood on patient outcomes was occurring via an alternative pathway. Coyne has argued that in the context of depressed person interacting with a spouse with a chronic intermittent condition, the quality of support to the ill spouse can deteriorate, while at the same time hostile criticism from the depressed spouse may emerge, and together these can adversely affect the spouse with RA (Coyne, 2009). Building on this idea, here we examine a model in which the negative effects of spouse depression on both patient disease outcomes and marital satisfaction are buffered by spouse empathic responding. In previous work in couples in which one member is depressed, depressed spouses have been found to be less effective in responding to their partners' needs (Benazon & Coyne, 2000; Coyne & Benazon, 2001). Such findings may be particularly important in terms of their implications for persons with RA, in that several studies have found higher levels of depression in their spouses (Flor, Turk, & Scholz, 1987; Schwartz, Slater, Birchler, & Atkinson, 1991; Walsh, Blanchard, Kremer, & Blanchard, 1999). For the spouses of

patients with RA, depressive symptoms that compromise their ability to respond empathically toward their partners may lead to poorer coping in patients and worse RA symptoms over time. We expected that spouse empathic responding would serve to protect patients from the otherwise negative effects of spouse depression on patient disability and marital satisfaction.

In assessing the impact of poor spouse mood and lack of empathic responding on patients with RA, both disease and relationship outcomes warrant consideration. Coping with RA may create strain on the marriage with some couples adapting better than others (Matheson et al., 2010). Importantly, marital quality and RA outcomes have been linked such that marital distress moderates the effect of marital status on RA outcomes, with those in satisfactory marriages showing the best physical and mental health outcomes (Reese et al., 2010).

The goals of the present study were: first to examine the effects of spouse depressive symptoms and patient perceptions of spouse empathic responding on patient disability and marital quality over time, and second to identify factors that are associated with patients perceiving their spouses as engaging in empathic responding. Spouse depressive symptoms and patient perceptions of empathic responding were each hypothesized to predict increased patient disability and poorer marital quality, and to interact such that low empathic responding and high depressive symptoms in the spouse were expected to predict poorer patient outcomes. Patient perceptions of spouse empathic responding were hypothesized to be higher when spouses reported higher empathic responding, when patients were lower in depressive symptoms, and when patients were higher in marital satisfaction.

2. Method

Participants and procedure

Participants were recruited as part of larger study of marital relationships and adjustment to RA (Lam et al., 2009; Lehman et al., 2011). Participants were recruited through physician contacts, advertisements, community advocacy groups, and community postings. Interested persons contacted a researcher and were screened by telephone or email to determine eligibility for the study. To be included in the study one partner had to have been diagnosed with RA by a physician at least 6 months prior. Both members of the couple were required to be over 19 years of age, to comprehend written English, and to provide informed consent. Spouse status was defined as being married or maintaining a common-law relationship for at least 12 months.

Eligible participants were sent a booklet of questionnaires for each spouse, and were asked to complete them independently. Participants' names were entered into lottery draws for prizes valued between \$50 and \$500. Participants were followed up via telephone if questionnaires had not been received within 14 days after they were mailed. Follow-up phone calls were made if questionnaires were incomplete to obtain missing information. This resulted in complete data for all questionnaire items used in this study for over 80% of the couples. Unless otherwise noted missing scale items were mean filled. Cases in which all items were missing were excluded from the relevant analyses. Research was carried out in compliance with the Helsinki Declaration and was approved by the University of British Columbia Ethics Board.

Of the 275 eligible couples that were sent initial questionnaires, 226 (82%) returned both patient and partner questionnaires within a week of each other. Of these 226 couples, 211 (93.4%) consented to being contacted with the follow-up questionnaires. Of the 211 sets of questionnaires mailed 1 year after the initial mailing, 135 (64.0%) were returned by at least the

patient. Eleven couples could not be contacted because they had moved. Among those who returned questionnaires, two couples were excluded due to excessive missing data. Participants who completed only the initial questionnaires and those who completed both initial and follow-up assessments differed significantly ($p < 0.05$) in terms of age, relationship duration, and ethnicity. Participants who were retained to follow-up were significantly older and had been married or in a common-law relationship significantly longer than those who completed only the baseline assessment. None of the seven Chinese patients who completed the baseline questionnaires were retained at follow-up. None the other study or demographic variables were significantly different between the two groups.

The final sample consisted of 133 couples in which both the patient and partner had completed the initial questionnaire and at least the patient had completed the follow-up questionnaire. Most participants were white (94.5% of patients; 95.5% of spouses), over the age of 50 (81.2% of patients; 81.8% of spouses), and married or cohabitating for more than 20 years (78.2%). One divorce occurred during the follow-up interval. RA patients were predominantly female (72.9%), not working outside the home (71.4%), and had been diagnosed with RA for at least 10 years (52.6%). A more detailed description of sample characteristics is reported elsewhere (Lam et al., 2009).

Measures

Functional limitations

Disabilities of the Arm, Shoulder, and Hand (DASH) was used to assess multidimensional aspects of physical limitations, including pain, weakness, tingling, and stiffness (Hudak, Amadio, Bombardier, & The Upper Extremity Collaborative Group (UECG), 1996). The measure assesses the range of physical challenges people with RA experience.

Standard scoring for the DASH was used (Institute for Work & Health, 2006). Higher scores indicate greater disability. Internal consistency was high at both time points ($\alpha > 0.97$).

Marital quality

Marital quality was measured for RA patients using the 6-item Quality Marriage Index (QMI; Norton, 1983). Five of the items are rated on 7-point Likert scale. The final item assesses the degree of happiness in the marriage on a scale ranging from 1 (*very unhappy*) to 10 (*perfectly happy*). Ratings on each item were converted to a score out of 1 and summed to create a total score out of a possible 6 points. Since items were rated on scales with different metrics, missing items were not mean filled. Scores were only computed for participants who answered all 6 items. Internal consistency was high at both time points ($\alpha > .97$).

Empathic responding

Empathic responding (ER) was assessed at time 1 using a 10-item scale (O'Brien & DeLongis, 1996). This measure taps two facets of empathic responding: cognitive/affective strategies (perspective taking, vicarious experiencing of another's concerns) and behavioral strategies (listening, providing comfort or support) which have been found to be used in tandem in previous research (O'Brien, DeLongis, Pomaki, Puterman, & Zwicker, 2009; O'Brien & DeLongis, 1996). Each item was rated on a 3-point scale (*not at all, some, a lot*). Items were averaged to create a mean score out of 3 for each participant. To assess their perceptions of spouse empathic responding, patients were asked, "Thinking about the last week, to what degree did your spouse/partner do each of the following in the context of you coping with your rheumatoid arthritis?" Spouses reported on their own empathic responding, and were asked the degree to which they responded empathically to their partner's RA. Scores showed good internal consistency for both patients ($\alpha=.91$) and spouses ($\alpha=.88$).

Depression

Depressive symptoms were measured for both patients and spouses using the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). This 20-item scale is widely used to measure depression in community populations. Participants rated the extent which they experienced each item in the past week on a scale from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Items were summed to create a total score for each participant. Higher scores on the CES-D indicate worse symptomatology. The CES-D demonstrated good internal consistency with Cronbach's alpha coefficients of > 0.88 for patients and > 0.87 for spouses.

Statistical Analysis

Preliminary analyses assessed distributional and descriptive properties of all study variables. Pearson correlation coefficients were examined to assess bivariate relationships among these variables. Two sets of hierarchical linear regression analyses were then conducted to predict time 2 patient DASH and QMI, respectively. To predict DASH at follow-up, baseline DASH, patient age, gender, employment status, education level, marital duration, duration of RA were entered as control variables in the first step. We also tested the main effects of patient CES-D, spouse CES-D, and perceived spouse empathic responding in step 1. To test the effect of perceived spouse empathic responding (ER) as a moderator of depressive symptoms, the product of patient CES-D and ER and the product of spouse CES-D and ER were each entered in the second step. To maximize power, each interaction term was entered first individually in Step 2. Their combined effect was then tested by entering both interaction terms simultaneously in Step 2. The Johnson-Neyman (J-N) technique was used to probe significant interaction and identify regions of significance (Hayes & Matthes, 2009; Johnson & Fay, 1950; Johnson & Neyman, 1936). A parallel set of regression analyses was conducted to predict patient QMI at follow-up,

controlling for baseline QMI in step 1 instead of baseline DASH. Finally linear regression analyses were used to predict patient perceptions of spouse empathic responding from spouse reports of empathic responding, patient depressive symptoms, and patient marital quality. Interactions between these predictors were also tested.

3. Results

Means, standard deviations, and intercorrelations

Means, standard deviations, and intercorrelations of study variables are shown in Table 1. As reported previously (Lam et al., 2009), there was a high correlation between baseline and follow-up measures of functional limitations, patient depressive symptoms, and spouse depressive symptoms (r 's .69-.78, all p 's <.001). Similarly, baseline and follow-up QMI scores were highly correlated ($r = .77, p < .001$). Marital quality was high overall at both time points (time 1: $M = 5.02, SD = 1.19$; time 2: $M = 5.09, SD = 1.18$) and did not change significantly across the 1-year period. Patient and spouse depressive symptoms at baseline were both positively correlated with patient disability at baseline ($r = .42, p < .001$ and $r = .19, p = .033$) and at follow-up ($r = .28, p = .001$ and $r = .28, p = .001$). Patient and spouse depressive symptoms at baseline were both negatively correlated with patient marital quality at baseline ($r = -.37, p < .001$, and $r = -.28, p = .001$) and at follow-up ($r = -.41, p < .001$, and $r = -.33, p < .001$). QMI and DASH scores were not significantly correlated at baseline ($r = -.12, p = .178$) or at follow-up ($r = -.10, p = .246$) suggesting that depressive symptoms show a unique relationship to both disability and marital outcomes.

Patient reports of perceived empathic responding were correlated with spouse reports of empathic responding ($r = .23, p = .007$), as well as patient marital quality, patient depressive symptoms, and spouse depressive symptoms at baseline ($r = .64, p < .001$; $r = -.30, p < .001$; $r = -.20, p = .022$), and at follow-up ($r = .56, p < .001$; $r = -.34, p < .001$; $r = -.22, p = .014$). Patient reports of perceived empathic responding were not significantly related to patient functional limitations.

Table 1. Descriptives and bivariate correlations of study variables

	1	2	3	4	5	6	7	8	9	10
1. Pt DASH T1	-									
2. Pt DASH T2	.78***	-								
3. Pt QMI T1	-.12	-.04	-							
4. Pt QMI T2	-.14	-.10	.77***	-						
5. Pt CES-D T1	.42***	.28**	-.37***	-.41***	-					
6. Pt CES-D T2	.23**	.30***	-.34***	-.52***	.69***	-				
7. Sp CES-D T1	.19*	.28**	-.28**	-.33***	.23**	.31***	-			
8. Sp CES-D T2	.18*	.23*	-.37***	-.38***	.27**	.28**	.72***	-		
9. Sp ER T1 (Pt report)	-.17	-.12	.64***	.56***	-.30***	-.34***	-.20*	-.22*	-	
10. Sp ER T1 (Sp report)	.15	.08	.15	.11	.24**	.12	-.11	-.12	.23**	-
Mean	37.18	35.63	5.02	5.09	13.81	11.69	9.74	8.49	2.30	2.34
Standard Deviation	21.00	20.95	1.19	1.18	9.83	9.04	8.53	8.09	0.48	0.42
n	133	130	133	128	133	130	132	121	133	132

Pt=Patient. Sp=Spouse. T1= time 1. T2= time 2. CES-D = Center for Epidemiologic studies depression scale. DASH=Disabilities of the arm shoulder and hand. QMI= Quality marriage index. ER=Empathic Responding.

*p<.05; **p<.01; ***p<.001

Hierarchical multiple regression models

Patient Functional Limitations

Hierarchical multiple regression analyses predicting physical functioning of the patient with RA at follow-up are shown in Table 2. Patient DASH at baseline, sex, age, duration of RA, education, employment, years married, patient depressive symptoms, spouse depressive symptoms, and patient perceptions of spouse empathic responding were entered in the first step to explain a significant proportion of the variance in patient DASH 1 year later ($R^2 = 0.66$, $F(10, 118)=23.24$, $p < .001$). There was a significant main effect of spouse depressive symptoms ($\beta = .16$, $p = .004$), but not patient depressive symptoms ($\beta = -.08$, $p = .218$) nor patient perceptions of spouse empathic responding ($\beta = .02$, $p = .763$) on patient disability at follow up. In step 2, perceptions of spouse empathic responding were found to significantly moderate the effect of spouse depressive symptoms ($\beta = -.11$, $p = .045$) but not patient depressive symptoms ($\beta = -.01$, $p = .876$) on patient disability at follow-up. Probing this significant interaction revealed that the effect of spouse depressive symptoms on patient disability was reduced when spouses were perceived as higher in empathic responding (Figure 1). When patients perceived lower empathic responding from their spouses (scores less than 2.46; $z\text{-score}=0.134$), the effect of spouse depressive symptoms on patient disability was significant ($p < 0.05$).

Table 2. Hierarchical linear regression predicting patient disability from depressive symptoms and perceived spouse empathic responding.

Baseline Measures	Pt DASH at follow-up (n=129)				
	ΔR^2	B	SE	β	p
<i>Step 1: control and main effects</i>	.66				<.001
Pt DASH		.74	.07	.75	<.001
Pt Sex*		-3.41	1.47	-.15	.022
Pt CES-D		-.17	.14	-.08	.218
Sp CES-D		.40	.14	.16	.004
Sp ER (Pt report)		.76	2.54	.02	.763
<i>Step 2: interaction effects</i>	.01				.045
Pt DASH		.75	.07	.76	<.001
Pt Sex*		-3.24	1.46	-.14	.028
Pt CES-D		-.18	.13	-.09	.176
Sp CES-D		.37	.14	.15	.009
Sp ER (Pt report)		1.14	2.51	.03	.651
Sp CES-D X Sp ER (Pt report)		-.05	.03	-.11	.045

Controlling for age, number of full years married, duration of RA (years), employment status, highest level of education not shown (all p's >.20). *Female=1; Male=-1. Pt = Patient. Sp = Spouse. CES-D = Center for Epidemiologic studies depression scale. DASH=Disabilities of the arm, shoulder, and hand. ER=Empathic Responding.

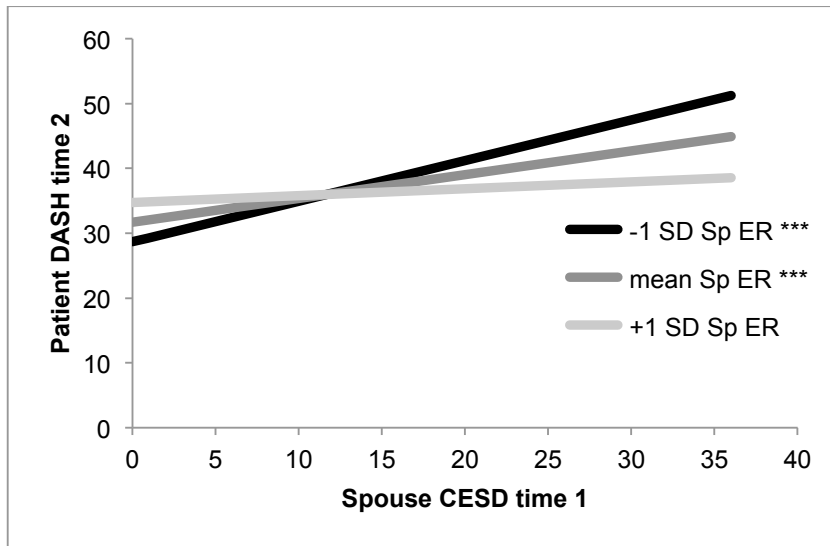


Figure 1. Moderation of the effect of spouse depressive symptoms on patient functional limitations by perceived empathic responding.

Sp ER= Spouse empathic responding (Patient report). CES-D=Center for Epidemiological Studies Depression Scale. DASH=Disabilities of the Arm, Shoulder, and Hand. Slope significantly different from zero, *** $p < .001$.

Patient Marital Quality

Hierarchical multiple regression analysis predicting marital quality of the patient at follow-up are shown in Table 3. Patient QMI at baseline, sex, age, duration of RA, education, employment, years married, patient depressive symptoms, spouse depressive symptoms, and perceived spouse empathic responding were entered in the first step to explain a significant portion of the variance in patient QMI 1 year later ($R^2 = 0.66$, $F(10, 116) = 22.32$, $p < .001$). There were significant main effects of patient depressive symptoms ($\beta = -.12$, $p = .044$), and spouse depressive symptoms ($\beta = -.14$, $p = .018$), on patient marital quality at follow up. In separate models, perceived spouse empathic responding was found to significantly interact with both patient depressive symptoms ($\beta = .14$, $p = .010$) and spouse depressive symptoms ($\beta = .14$, $p = .012$). Combined, the interaction of spouse empathic responding by patient depressive symptoms ($\beta = .12$, $p = .040$) and the interaction of spouse empathic responding by spouse depressive symptoms ($\beta = .11$, $p = .049$) each make a significant unique contribution to the prediction of patient marital quality at follow up ($\Delta R^2 = .03$, $F(2, 114) = 5.48$, $p = .005$). In both cases, higher empathic responding reduces the effect of depressive symptoms on marital quality (Figure 2). When perceived empathic responding from the spouse was lower (scores less than 2.35; z -score = 0.031), the effect of spouse depressive symptoms on patient marital quality was significant ($p < 0.05$). Similarly, when perceived spouse empathic responding scores were less than 2.22 (z -score = -0.095), the effect of patient depressive symptoms on patient marital quality was significant ($p < 0.05$).

Table 3. Hierarchical linear regression model predicting patient marital quality from depressive symptoms and perceived spouse empathic responding.

Baseline measures	Patient QMI at follow-up (n=127)				
	ΔR^2	B	SE	β	p
<i>Step 1: control and main effects</i>	.66				<.001
Pt QMI		.62	.08	.60	<.001
Pt CES-D		-.01	.01	-.12	.044
Sp CES-D		-.02	.01	-.14	.018
Sp ER (Pt report)		.33	.18	.13	.071
<i>Step 2: interaction effects</i>	.03				.005
Pt QMI		.62	.08	.59	<.001
Pt CES-D		-.01	.01	-.09	.123
Sp CES-D		-.02	.01	-.12	.036
Sp ER (Pt report)		.31	.17	.12	.079
Pt CES-D X Sp ER (Pt report)		.03	.01	.12	.040
Sp CES-D X Sp ER (Pt report)		.03	.02	.12	.049

Controlling for patient age, sex, number of full years married, duration of RA (years), employment status, highest level of education not shown (all p's >.25). Pt = Patient. Sp = Spouse. CES-D = Center for Epidemiologic studies depression scale. QMI= Quality marriage index. ER=Empathic Responding.

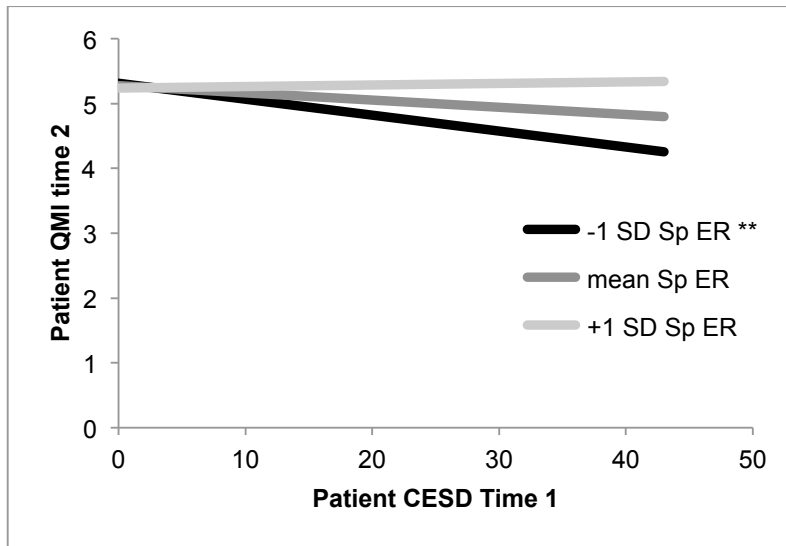


Figure 2. Moderation of the effect of patient depressive symptoms on patient marital quality by perceived empathic responding.

Sp ER= spouse empathic responding (Patient report). CES-D=Center for Epidemiological Studies Depression Scale. QMI=Quality Marriage Index. Slope significantly different from zero, ** $p < .01$.

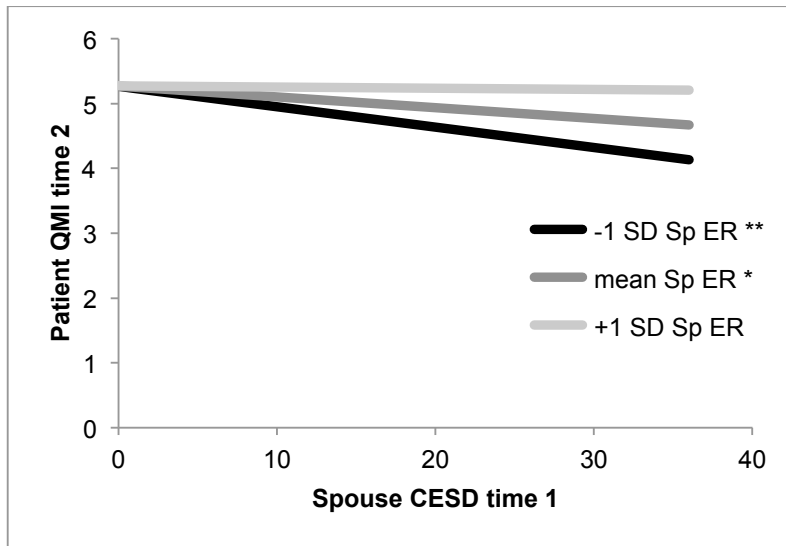


Figure 3. Moderation of the effect of spouse depressive symptoms on patient marital quality by perceived empathic responding.

Sp ER=spouse empathic responding (Patient report). CES-D=Center for Epidemiological Studies Depression Scale. QMI=Quality Marriage Index. Slope significantly different from zero,

** $p < .01$ * $p < .05$

Perceived Spouse Empathic Responding

Hierarchical regression analyses shown in Table 3 revealed that spouse reports of their own empathic responding, patient depressive symptoms at baseline, and patient marital quality at baseline explained a significant proportion of the variance in patient's perceptions of empathic responding from their spouses ($R^2 = .44$, $F(3,128) = 33.93$, $p < .001$), with significant main effects found for spouse reports of empathic responding ($\beta = .18$, $p = .011$) and patient marital quality ($\beta = .56$, $p < .001$), but not patient depressive symptoms ($\beta = -.14$, $p = .065$). The interaction of patient depressive symptoms and marital quality was then added to the model in step 2 ($\Delta R^2 = .02$, $F(1, 127) = 5.27$, $p = .023$). Figure 3 depicts this interaction, and J-N analyses revealed that only when patient QMI scores are greater than 4.61 (z-score = $-.40$) do patient depressive symptoms significantly affect the prediction of patient reports of spouse empathic responding ($p < .05$).

Gender

Although there was a main effect of gender on Time 2 DASH scores (females reported higher scores than males; shown in Table 2), none of the effects predicting DASH or QMI from patient CES-D, spouse CES-D, or perceived spouse empathic responding were significantly moderated by gender ($p > 0.05$). Gender did not contribute significantly to the prediction of perceived spouse empathic responding ($p > 0.05$).

Table 4. Hierarchical linear regression model predicting patient reports of perceived empathic responding (ER) from spouse reports of ER, patient depressive symptoms, and patient marital quality.

Baseline measures	Sp ER (Pt report) at baseline (n=132)				
	ΔR^2	<i>B</i>	<i>SE</i>	β	<i>p</i>
<i>Step 1: main effects</i>	.44				<.001
Sp ER (Sp report)		.21	.08	.18	.011
Pt QMI		.23	.03	.56	<.001
Pt CES-D		-.01	.004	-.14	.065
<i>Step 2: interaction effects</i>	.02				
Sp ER (Sp report)		.21	.08	.18	.010
Pt QMI		.24	.03	.60	<.001
Pt CES-D		-.01	.004	-.19	.014
Pt CES-D X Pt QMI		-.01	.002	-.17	.023

Pt=patient. Sp=spouse. CES-D = Center for Epidemiologic studies depression scale. QMI= Quality marriage index. ER=Empathic Responding.

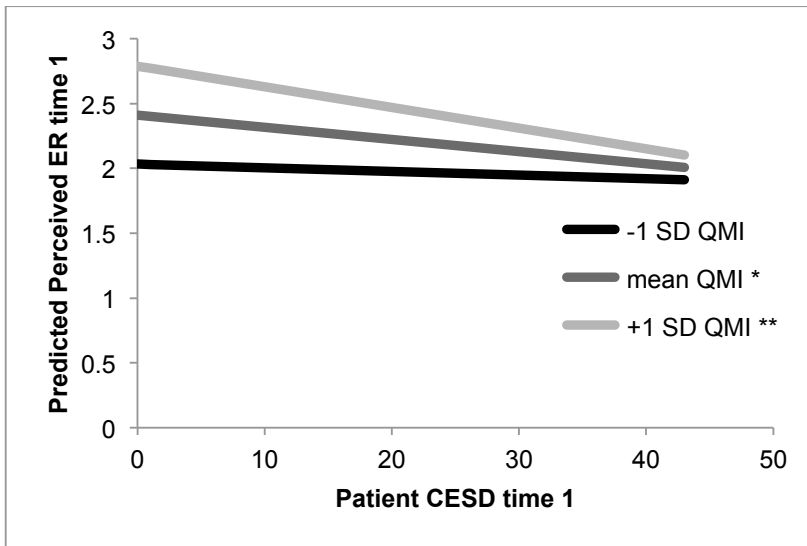


Figure 4. Moderation of the effect of patient depressive symptoms on patient perceived empathic responding by patient marital quality.

ER=empathic responding. CES-D=Center for Epidemiological Studies Depression Scale.

QMI=Quality Marriage Index. ** $p < .01$, * $p < .05$

4. Discussion

Previous work found that spouse depression was an important predictor of disease outcomes in patients with rheumatoid arthritis (Lam et al., 2009). However, a mood contagion model was unsupported, suggesting that the impact of spouse mood on patient outcomes was occurring via an alternate pathway. Here we have found support for a model of dyadic coping in which the negative effects of spouse depression on both patient disease outcomes and marital satisfaction are buffered by patient perceptions of empathic responding from the spouse. In turn, these patient perceptions of empathic responding are associated with spouse reports of empathic responding, patient depressive symptoms and patient marital quality. Spouse depression predicted worse functional ability and poorer marital quality in RA patients who perceived lower empathic responding from their spouse. In patients who perceived higher empathic responding from their spouse, spouse depressive symptoms did not affect either their functional ability or marital quality. Perceived empathic responding also buffered against the negative effect of patient depressive symptoms on patient marital quality.

Increased stress and caregiver burden puts spouses of patients with RA at increased risk for psychological distress, including depression (Brouwer et al., 2004; Jacobi et al., 2003; Matheson et al., 2010; Walsh et al., 1999). Although, treating depression in the spouse is likely a treatment goal in and of itself, enhancing empathic responding from the spouse can minimize the effect of spouse depression on the patient with RA. We found that patients' perceptions of empathic responding from their spouses depended not only spouses' reports of their empathic responding behaviour but also patients' relationship satisfaction and depressive symptoms. Patients high in depressive symptoms or low marital quality perceived less empathic responding from their spouses.

There is growing support for involving both patients and their partners in treatments for RA (Keefe & Somers, 2010). A recent meta-analysis of interventions for chronic illness found that couple oriented interventions had significant effects on patient depressive symptoms, pain, and marital functioning (Martire, Schulz, Helgeson, Small, & Saghafi, 2010). The results of our study suggest potential targets for couple-oriented treatments of RA. Our findings suggest that couples-based therapies that target increasing empathy for the identified patient might be of particular benefit to the patient. Emotion-focused therapies that have been developed for helping couples in which one member has been traumatized may be readily adaptable to chronic pain patients and their spouses (Furrow, Johnson, & Bradley, 2011).

A strength of this study is that it uses a longitudinal design, overcoming some of the limitations of cross-sectional data and enabling predictions of functional ability and marital quality across time. This study identifies an important mechanism through which empathic responding from the spouse affects patient experiences with RA over time. However, empathic responding was only assessed at a single time point, limiting our ability to explore whether changes in empathic responding over time and across situations might have implications for patient well-being. The use of daily process or ambulatory monitoring methodology would enable investigations of fluctuations in empathic responding over time and concomitant associations with patient pain, mood, and disability (Holtzman & DeLongis, 2007; Holtzman et al., 2004). Further, this study focused primarily on an assessment of patients' perceptions of their spouses' empathic responding behaviors. Although these perceptions were correlated with spouse reports of their empathic responding, patient mood and marital satisfaction also predicted the extent to which they perceived their spouse as empathic. Studies that incorporate both patient and spouse reports of empathic responding, in addition to observational studies of dyadic

interactions between patients and their spouses (Hagedoorn et al., 2011), are needed to identify potential spouse behaviours that are perceived as empathic. Furthermore, empathic responding may need to be considered in a wider context of how the patient is coping with RA. Empathic responding from the spouse may reinforce maladaptive coping with pain or it could buffer against the negative effects of poor coping in the patient.

Another strength of this study is that it uses both patient and spouse reports of depressive symptoms and empathic responding. However, only patient outcomes were considered. Clearly, coping with RA is a challenge for the patient, but it can also represent a significant burden to the spouse (Brouwer et al., 2004; Matheson et al., 2010). Future studies are needed to investigate whether the benefits of empathic responding generalize to spouses of patients with RA. The question remains whether spouses of patients with RA would experience the same benefits in marital quality if they have empathy for their chronically ill partners. There is evidence to suggest that empathizing with a spouse who suffers from chronic pain is distressing for the well partner as well (Leonard et al., 2006; Leonard & Cano, 2006). Even so, empathic responding may serve to build intimacy in the relationship benefiting both members of the couple (Cano & Williams, 2010). Other research suggests that there are also more direct benefits to well-being of engaging in empathic responding for spouse caregivers (Kramer, 1993). The benefits of empathy may be greatest when both members of the couple, both the chronically ill spouse as well as the healthy spouse, express empathy towards each other in dealing with a difficult, degenerative disease and an uncertain future. Further research is necessary to clarify the costs and benefits to both patients and their spouse caregivers of engaging in empathic responding.

References

- Arthritis Society of Canada. (2011). *Rheumatoid Arthritis: Know your options*.
<http://www.arthritis.ca/document.doc?id=336>
- Benazon, N. R., & Coyne, J. C. (2000). Living with a depressed spouse. *Journal of Family Psychology*, 14(1), 71–9.
- Benka, J., Nagyova, I., Rosenberger, J., Calfova, A., Macejova, Z., Middel, B., Lazurova, I., et al. (2012). Social support and psychological distress in rheumatoid arthritis: A 4-year prospective study. *Disability and Rehabilitation*, 34(9), 754–61.
doi:10.3109/09638288.2011.619618
- Bodenmann, G. (1997). Dyadic coping: A systemic-transactional view of stress and coping among couples: Theory and empirical findings. *European Review of Applied Psychology/Revue Européenne de Psychologie Appliquée* 47(2), 137-141.
- Bolger, N., DeLongis, A., Kessler, R. C., & Wethington, E. (1989). The contagion of stress across multiple roles. *Journal of Marriage and the Family*, 51(1), 175–183.
doi:10.2307/352378
- Bolger, N., Stadler, G., Paprocki, C., & DeLongis, A. (2010). Grounding social psychology in behavior in daily life: The case of conflict and distress in couples. In C. R. Agnew, D. E. Carlston, W. G. Graziano, & J. R. Kelly (Eds.), *Then a Miracle Occurs: Focusing on Behavior in Social Psychological Theory and Research* (pp. 368–390). New York: Oxford Press.

- Bradbury, T. N., & Fincham, F. D. (1990). Attributions in marriage: Review and critique. *Psychological Bulletin*, 107(1), 3–33.
- British Columbia Medical Association. (2012). *Rheumatoid Arthritis : Diagnosis, Management and Monitoring*. http://www.bcguidelines.ca/pdf/rheumatoid_arthritis.pdf.
- Brouwer, W. B. F., Van Exel, N. J. A., Van de Berg, B., Dinant, H. J., Koopmanschap, M. A., & Van den Bos, G. A. M. (2004). Burden of caregiving: evidence of objective burden, subjective burden, and quality of life impacts on informal caregivers of patients with rheumatoid arthritis. *Arthritis and Rheumatism*, 51(4), 570–7. doi:10.1002/art.20528
- Cano, A., & Williams, A. (2010). Social interaction in pain: Reinforcing pain behaviors or building intimacy? *Pain*, 149(1), 9–11. doi:10.1016/j.pain.2009.10.010.Social
- Cohen, S. (2004). Social relationships and health. *American Psychologist*, 59(8), 676–84. doi:10.1037/0003-066X.59.8.676
- Coyne, J. C. (2009). Demonstration of a link between spouse depression and disability and disease activity of persons with rheumatoid arthritis. *Arthritis and Rheumatism*, 61(8), 1009–10. doi:10.1002/art.24692
- Coyne, J. C., & Benazon, N. R. (2001). Not agent blue: Effects of marital functioning on depression and implications for treatment. *Marital and family processes in depression: A scientific foundation for clinical practice* (pp. 25–43). Washington, DC, US: American Psychological Association. doi:10.1037/10350-002

- Coyne, J. C., & DeLongis, A. (1986). Going beyond social support: The role of social relationships in adaptation. *Journal of Consulting and Clinical Psychology*, 54(4), 454–60.
- Cutrona, C. E., & Russell, D. W. (1990). Type of social support and specific stress: Toward a theory of optimal matching. In B. R. Sarason, I. G. Sarason, & G. R. Pierce (Eds.), *Social support: An interactional view* (pp. 319–366). Oxford, England: John Wiley & Sons.
- DeLongis, A., Capreol, M., Holtzman, S., O'Brien, T., & Campbell, J. (2004). Social support and social strain among husbands and wives: A multilevel analysis. *Journal of Family Psychology*, 18(3), 470–9. doi:10.1037/0893-3200.18.3.470
- DeLongis, A., & Holtzman, S. (2005). Coping in context: The role of stress, social support, and personality in coping. *Journal of Personality*, 73(6), 1633–56. doi:10.1111/j.1467-6494.2005.00361.x
- DeLongis, A., Holtzman, S., Puterman, E., & Lam, M. (2010). Spousal support and dyadic coping in times of stress. In K. Sullivan & J. Davila (Eds.), *Support processes in intimate relationships* (pp. 153–174). New York: Oxford Press.
- Evers, A. W., Kraaimaat, F. W., Geenen, R., Jacobs, J. W., & Bijlsma, J. W. (2003). Pain coping and social support as predictors of long-term functional disability and pain in early rheumatoid arthritis. *Behaviour Research and Therapy*, 41(11), 1295–1310. doi:10.1016/S0005-7967(03)00036-6
- Fincham, F. D. (2003). Marital conflict: Correlates, structure, and context. *Current Directions in Psychological Science*, 12(1), 23–27. doi:10.1111/1467-8721.01215

- Flor, H., Turk, D., & Scholz, O. B. (1987). Impact of chronic pain on the spouse: Marital, emotional and physical consequences. *Journal of Psychosomatic Research*, 31(1), 66–71.
- Furrow, J. L., Johnson, S. M., & Bradley, B. A. (Eds.). (2011). *The emotionally focused casebook: New directions in treating couples*. New York: Taylor and Francis.
- Hadjistavropoulos, T., Craig, K. D., Duck, S., Cano, A., Goubert, L., Jackson, P. L., Mogil, J. S., et al. (2011). A biopsychosocial formulation of pain communication. *Psychological Bulletin*, 137(6), 910–39. doi:10.1037/a0023876
- Hagedoorn, M., Puterman, E., Sanderman, R., Wiggers, T., Baas, P. C., Van Haastert, M., & DeLongis, A. (2011). Is self-disclosure in couples coping with cancer associated with improvement in depressive symptoms? *Health Psychology*, 30(6), 753–62. doi:10.1037/a0024374
- Hagedoorn, M., Van Yperen, N. W., Coyne, J. C., Van Jaarsveld, C. H. M., Ranchor, A. V, Van Sonderen, E., & Sanderman, R. (2006). Does marriage protect older people from distress? The role of equity and recency of bereavement. *Psychology and Aging*, 21(3), 611–20. doi:10.1037/0882-7974.21.3.611
- Hayes, A. F., & Matthes, J. (2009). Computational procedures for probing interactions in OLS and logistic regression: SPSS and SAS implementations. *Behavior Research Methods*, 41(3), 924–936. doi:10.3758/BRM.41.3.924

- Holtzman, S., & Delongis, A. (2007). One day at a time: The impact of daily satisfaction with spouse responses on pain, negative affect and catastrophizing among individuals with rheumatoid arthritis. *Pain, 131*(1-2), 202–13. doi:10.1016/j.pain.2007.04.005
- Holtzman, S., Newth, S., & Delongis, A. (2004). The role of social support in coping with daily pain among patients with rheumatoid arthritis. *Journal of Health Psychology, 9*(5), 677–95. doi:10.1177/1359105304045381
- Hudak, P. L., Amadio, P. C., Bombardier, C., & The Upper Extremity Collaborative Group (UECG). (1996). Development of an upper extremity outcome measure: the DASH (disabilities of the arm, shoulder and hand). *American Journal of Industrial Medicine, 29*(6), 602–8.
- Institute for Work & Health. (2006). Scoring the DASH.
http://www.dash.iwh.on.ca/system/files/dash_scoring_2010.pdf
- Jacobi, C. E., Van den Berg, B., Boshuizen, H. C., Rupp, I., Dinant, H. J., & Van den Bos, G. a M. (2003). Dimension-specific burden of caregiving among partners of rheumatoid arthritis patients. *Rheumatology (Oxford, England), 42*(10), 1226–33. doi:10.1093/rheumatology/keg366
- Johnson, P. O., & Fay, L. C. (1950). The Johnson-Neyman technique, its theory and application. *Psychometrika, 15*(4), 349–67.
- Johnson, P. O., & Neyman, J. (1936). Tests of certain linear hypotheses and their application to some educational problems. *Statistical Research Memoirs, 1*, 57–93.

- Karney, B. R., Story, L. B., & Bradbury, T. N. (2005). Marriages in context: Interactions between chronic and acute stress among newlyweds. In T. A. Revenson, K. Kayser, & G. Bodenmann (Eds.), *Couples coping with stress: Emerging perspectives on dyadic coping*. Washington, DC: American Psychological Association.
- Kasle, S., Wilhelm, M. S., & Zautra, A. J. (2008). Rheumatoid arthritis patients' perceptions of mutuality in conversations with spouses/partners and their links with psychological and physical health. *Arthritis and Rheumatism*, 59(7), 921–8. doi:10.1002/art.23821
- Keefe, F. J., & Somers, T. J. (2010). Psychological approaches to understanding and treating arthritis pain. *Nature reviews. Rheumatology*, 6(4), 210–6. doi:10.1038/nrrheum.2010.22
- Kiecolt-Glaser, J., & Newton, T. (2001). Marriage and health: His and hers. *Psychological Bulletin*, 127(4), 472–503. doi:10.1037//0033-2909.127.4.472
- Kramer, B. (1993). Expanding the conceptualization of caregiver coping: The importance of relationship-focused coping strategies. *Family Relations*, 42(4), 383–391.
- Lam, M., Lehman, A. J., Puterman, E., & DeLongis, A. (2009). Spouse depression and disease course among persons with rheumatoid arthritis. *Arthritis and Rheumatism*, 61(8), 1011–7. doi:10.1002/art.24510
- Lawrence, E., Bunde, M., Barry, R. A., Brock, R. L., Sullivan, K. T., Pasch, L. A., White, G. A., et al. (2008). Partner support and marital satisfaction: Support amount, adequacy, provision, and solicitation. *Personal Relationships*, 15(4), 445–463. doi:10.1111/j.1475-6811.2008.00209.x

- Lehman, A. J., Pratt, D. D., DeLongis, A., Collins, J. B., Shojania, K., Koehler, B., Offer, R., et al. (2011). Do spouses know how much fatigue, pain, and physical limitation their partners with rheumatoid arthritis experience? Implications for social support. *Arthritis Care & Research*, 63(1), 120–7. doi:10.1002/acr.20330
- Leonard, M., & Cano, A. (2006). Pain affects spouses too: Personal experience with pain and catastrophizing as correlates of spouse distress. *Pain*, 126, 139–146.
- Leonard, M., Cano, A., & Johansen, A. (2006). Chronic pain in a couples context: A review and integration of theoretical models and empirical evidence. *Journal of Pain*, 7(6), 377–390.
- Martire, L. M., Keefe, F. J., Schulz, R., Ready, R., Beach, S. R., Rudy, T. E., & Starz, T. W. (2006). Older spouses' perceptions of partners' chronic arthritis pain: implications for spousal responses, support provision, and caregiving experiences. *Psychology and Aging*, 21(2), 222–30. doi:10.1037/0882-7974.21.2.222
- Martire, L. M., Schulz, R., Helgeson, V. S., Small, B. J., & Saghafi, E. M. (2010). Review and meta-analysis of couple-oriented interventions for chronic illness. *Annals of Behavioral Medicine*, 40(3), 325–42. doi:10.1007/s12160-010-9216-2
- Matheson, L., Harcourt, D., & Hewlett, S. (2010). “Your whole life, your whole world, it changes”: partners' experiences of living with rheumatoid arthritis. *Musculoskeletal Care*, 8(1), 46–54. doi:10.1002/msc.165
- Norton, R. (1983). Measuring marital quality: A critical look at the dependent variable. *Journal of Marriage and the Family*, 45(1), 141–151.

- O'Brien, T. B., & DeLongis, A. (1996). The interactional context of problem-, emotion-, and relationship-focused coping: The role of the big five personality factors. *Journal of Personality*, 64(4), 775–813.
- O'Brien, T. B., DeLongis, A., Pomaki, G., Puterman, E., & Zwicker, A. (2009). Couples coping with stress. *European Psychologist*, 14(1), 18–28. doi:10.1027/1016-9040.14.1.18
- Public Health Agency of Canada. (2010). Life with arthritis in Canada: A personal and public health challenge. Retrieved from <http://www.phac-aspc.gc.ca/cd-mc/arthritis-arthrite/lwaic-vaaac-10/pdf/arthritis-2010-eng.pdf>
- Puterman, E., DeLongis, A., & Pomaki, G. (2010). Protecting us from ourselves: Social support as a buffer of trait and state rumination. *Journal of Social and Clinical Psychology*, 29(7), 797–820. doi:10.1521/jscp.2010.29.7.797
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1 (3), 385–401.
doi:10.1177/014662167700100306
- Reese, J. B., Somers, T. J., Keefe, F. J., Mosley-Williams, A., & Lumley, M. a. (2010). Pain and functioning of rheumatoid arthritis patients based on marital status: Is a distressed marriage preferable to no marriage? *Journal of Pain*, 11(10), 958–64.
doi:10.1016/j.jpain.2010.01.003

- Rehman, U. S., Gollan, J., & Mortimer, A. R. (2008). The marital context of depression: Research, limitations, and new directions. *Clinical Psychology Review, 28*(2), 179–98.
doi:10.1016/j.cpr.2007.04.007
- Revenson, T. A., & DeLongis, A. (2010). Couples coping with chronic illness. In S. Folkman (Ed.), *Oxford Handbook of Stress, Coping and Health* (pp. 101–123). New York: Oxford Press.
- Revenson, T. A., Kayser, K., & Bodenmann, G. (2005). *Couples Coping with Stress: Emerging Perspectives on Dyadic Coping*. Washington, DC: American Psychological Association.
- Revenson, T. A., Schiaffino, K. M., Majerovitz, S. D., & Gibofsky, A. (1991). Social support as a double-edged sword: The relation of positive and problematic support to depression among rheumatoid arthritis patients. *Social Science & Medicine, 33*(7), 807–13.
- Riemsma, R. P., Taal, E., Rasker, J. J., Klein, G., Bruyn, G. A. W., Wouters, J. M. G. W., & Wiegman, O. (1999). The burden of care for informal caregivers of patients with rheumatoid arthritis. *Psychology & Health, 14*(5), 773–794.
doi:10.1080/08870449908407347
- Riemsma, R. P., Taal, E., Wiegman, O., Rasker, J. J., Bruyn, G. A., & Van Paassen, H. C. (2000). Problematic and positive support in relation to depression in people with rheumatoid arthritis. *Journal of Health Psychology, 5*(2), 221–30.
doi:10.1177/135910530000500212

- Schwartz, L., Slater, M. a, Birchler, G. R., & Atkinson, J. H. (1991). Depression in spouses of chronic pain patients: the role of patient pain and anger, and marital satisfaction. *Pain*, 44(1), 61–7.
- Stanton, A. L., Revenson, T. A., & Tennen, H. (2007). Health psychology: Psychological adjustment to chronic disease. *Annual Review of Psychology*, 58, 565–92.
doi:10.1146/annurev.psych.58.110405.085615
- Story, L. B., & Bradbury, T. N. (2004). Understanding marriage and stress: Essential questions and challenges. *Clinical Psychology Review*, 23(8), 1139–1162.
doi:10.1016/j.cpr.2003.10.002
- Walsh, J. D., Blanchard, E. B., Kremer, J. M., & Blanchard, C. G. (1999). The psychosocial effects of rheumatoid arthritis on the patient and the well partner. *Behaviour Research and Therapy*, 37, 259–271.
- Waltz, M., Kriegel, W., & Bosch, P. V. P. (1998). The social environment and health in rheumatoid arthritis: Marital quality predicts individual variability in pain severity. *Arthritis & Rheumatism*, 11(5), 356–374. doi:10.1002/art.1790110507
- Ward, M. M., & Paul Leigh, J. (1993). Marital status and the progression of functional disability in patients with rheumatoid arthritis. *Arthritis & Rheumatism*, 36(5), 581–588.
doi:10.1002/art.1780360502

Zautra, A. J., Burleson, M. H., Matt, K. S., Roth, S., & Burrows, L. (1994). Interpersonal stress, depression, and disease activity in rheumatoid arthritis and osteoarthritis patients. *Health Psychology, 13*(2), 139–148. doi:10.1037/0278-6133.13.2.139